

# **California Coastal Plan**

***California Coastal Zone  
Conservation Commissions***

**December 1975**

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Conservation Plan may be purchased from:

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**CALIFORNIA COASTAL ZONE CONSERVATION COMMISSION**

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December 1, 1975

TO GOVERNOR EDMUND G. BROWN JR.,  
THE MEMBERS OF THE CALIFORNIA LEGISLATURE, AND  
THE PEOPLE OF CALIFORNIA

This report transmits to you the California Coastal Plan mandated by the Coastal Initiative (Proposition 20) in 1972.

The Coastal Plan has evolved through countless hours of public hearings, public review of draft proposals, and informational meetings—public participation in resource planning on a scale unmatched in California.

Because this Plan takes into account the wide range of often-conflicting views expressed to us, because the Plan was written by 84 Commissioners on six Regional Commissions and one State Commission, and because we ourselves reflect a broad spectrum of ideas about the coast, the Plan does not speak with a single voice. All of us subscribe to some recommendations more strongly than to others, and all of us share the frustrations inevitable in being not the sole author but the contributing authors of the Plan.

Nonetheless, we submit to you a Plan that we believe speaks for the people of California, a Plan that can guide us in dealing with an uncertain future, a balanced Plan designed to meet two principle objectives:

1. Protect the California coast as a great natural resource for the benefit of present and future generations.
2. Use the coast to meet human needs in a manner that protects the irreplaceable resources of coastal lands and waters.

The Coastal Plan is being delivered on time. We had an extremely limited time within which to prepare it, and a limited amount of money, considering the complexity of our assignment. We recognize that, because this is a long-range Plan, designed to serve California for many years, some of our recommendations cannot be put into effect immediately. And we recognize that there will inevitably be some conflicts among our policy recommendations; difficult choices will have to be made, for example, where a coastal area is ideally suited for recreation but can

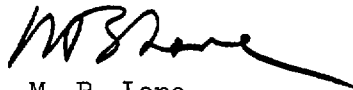
be degraded by overuse. Thus, we strongly emphasize the need for a continuing California coastal agency to make the sometimes-difficult decisions necessary to insure that the policies of the Plan are put into effect over the next several years.

In addition to preparing the Plan, the Regional and State Coastal Commissions have acted on more than 16,000 permit applications since early 1973. The permit procedure in the Coastal Initiative was designed to insure that improper development did not defeat the Plan before it could be completed. We have, however, approved a very high percentage of the permit applications; where necessary, we have required conditions to insure appropriate density of development, protection of ocean views, and, of great importance, increased public access to the oceanfront in appropriate areas.

To meet the deadlines in the Coastal Initiative, the workload for us has been enormous. The Commissioners, all of whom serve part-time, have put in long hours of meeting and preparation time. Commission and staff members have worked nights, weekends, and holidays to meet deadlines. I know of few governmental agencies where so much work has been done for the taxpayer's dollar.

Now, the future of the California coast is in your hands; under present law, the Coastal Commissions will go out of existence on December 31, 1976. We stand ready to help in any way we can as you consider the Coastal Plan, and its proposals for the conservation and wise use of the California coast.

Sincerely,



M. B. Lane  
Chairman

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# COMMISSIONERS<sup>1</sup>

## California Coastal Zone Conservation Commission

### PUBLIC REPRESENTATIVES:

**Fred Farr**, attorney and former State Senator, Carmel (S)  
**Ellen Stern Harris**, consumer advocate; member, Federal Coastal Zone Advisory Committee, Beverly Hills (A), Vice-Chairman  
**Melvin B. Lane**, magazine and book publisher, Menlo Park (G), Chairman  
**Roger T. Osenbaugh**, insurance and marketing executive, Arcadia (G)  
**Bernard J. Ridder, Jr.**, newspaper publisher, Long Beach (S)  
**Richard A. Wilson**, rancher, Covelo (A)

### REGIONAL COMMISSION REPRESENTATIVES:

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**Emmons Blake**, South Central Coast  
**Dr. Rimmon C. Fay**, South Coast  
**Jeffrey D. Frautschy**, San Diego Coast  
\***Philip W. Harry**, Central Coast  
\***James A. Hayes**, South Coast  
\***Ira Edward Laufer**, South Central Coast  
\***Dwight May**, North Coast  
**Robert Mendelsohn**, North Central Coast  
**Donald F. Peterson**, North Coast  
\***Bernard Vaughn**, North Coast

## North Coast Regional Commission

### PUBLIC REPRESENTATIVES:

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**Mrs. Gerry Grader**, commercial fish business, Fort Bragg (S)  
\***William Grader**, commercial fish business, Fort Bragg (S)  
**Dr. Donald W. Hedrick**, professor, California State University, Humboldt (G), Chairman  
**Dwight May**, cattle rancher, Bridgeville (S)  
\***John M. Mayfield, Jr.**, manufacturer, Ukiah (G), former Chairman  
**William McHugh**, labor union representative, Eureka (A)  
**L. R. (Budd) Thomas**, president, Eureka Fisheries Inc., (G)

### COUNTY SUPERVISORS:

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**Bernard McClendon**, Del Norte County, Vice Chairman  
**Donald F. Peterson**, Humboldt County; North Coast representative on State Commission  
\***Guy Rusher**, Humboldt County (deceased)

### CITY COUNCILMEN:

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\***Ward Falor**, former Mayor of Arcata  
\***Ray Mast**, Councilman, Eureka  
**Ray E. Stewart**, Mayor of Fortuna  
**Bernard Vaughn**, Mayor of Fort Bragg

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### PUBLIC REPRESENTATIVES:

**Margaret Azevedo**, civic leader, Marin County (A), Chairman  
\***B. John Bugatto**, attorney, San Francisco (G)  
**Phyllis Faber**, consulting biologist, San Rafael (S)  
\***Ellen Johnck**, city planner, San Francisco (G)  
**Dr. Bradford W. Lundborg**, internist, Santa Rosa (A), Vice-Chairman  
**Melville Owen**, patent attorney, San Francisco (G)  
**Dr. Kenneth M. Stocking**, college provost and professor, California State College, Sonoma (G)  
**Wanda Zankich**, restaurant/motel owner, Bodega Bay (S)

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**Gary T. Giacomini**, Marin County  
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\***John L. Molinari**, San Francisco  
**Peter Tamaras**, San Francisco (alternate: John L. Molinari)  
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\***Michael Wornum**, Marin County; now Assemblyman

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**Lenard Grote**, Vice President of ABAG and Councilman, Pleasant Hill

<sup>1</sup> This list includes all Commissioners who have served since establishment of the California Coastal Zone Conservation Commissions in 1973. Those marked with asterisks served on the Commissions but were not members as of October 3, 1975, the date of printing the Coastal Plan. Abbreviations following the names of public representatives show the appointing authority: (G) Governor, (S) Senate Rules Committee, (A) Speaker of the Assembly.

## Central Coast Regional Commission

### PUBLIC REPRESENTATIVES:

- Ruth E. Andresen**, geologist, Salinas (S); Central Coast representative on State Commission
- John Bakalian**, land use consultant and pharmacy owner, Felton (A)
- \***Julian Camacho**, former senior system analyst, now Deputy Director of State Department of General Services (A)
- Victoria Gibson**, attorney; Carmel (A)
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- \***Herbert Rhodes**, formerly employee relations, Stanford University, now Director of State Department of Parks and Recreation (A)
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- Gary A. Patton**, Santa Cruz County
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- Lorette Wood**, Councilwoman, Santa Cruz
- \***Robert A. Quinn**, Mayor of Pacific Grove

### ASSOCIATIONS OF GOVERNMENTS REPRESENTATIVES:

- Dr. James Hughes**, dentist and Councilman, Pacific Grove (appointed by the Association of Monterey Bay Area Governments)
- Ilene Weinreb**, Mayor of Hayward (appointed by the Association of Bay Area Governments)

## South Central Coast Regional Commission

### PUBLIC REPRESENTATIVES:

- Emmons Blake**, businessman, San Luis Obispo (G); South Central representative on State Commission
- Allan S. Ghitlerman**, attorney, Santa Barbara and Ventura (A)
- \***Gary Hart**, formerly University of California, Santa Barbara, now Assemblyman (A)
- \***Bruce Johnson**, consultant, Santa Barbara (G)
- Robert E. Kallman**, supervisor, Santa Barbara County (G)
- \***Ira E. Laufer**, businessman, Ventura (S)
- John Rush**, insurance, Camarillo, Chairman of Ventura County Planning Commission (S)
- Naomi Schwartz**, civic leader, Santa Barbara (A)
- J. Tim Terry**, insurance executive, Santa Barbara (S)

### COUNTY SUPERVISORS:

- Ralph R. Bennett**, Ventura County
- Harrell Fletcher**, Santa Barbara County
- \***Elston L. Kidwell**, San Luis Obispo County
- \***Curtis Tunnell**, Santa Barbara County
- M. E. Willeford**, San Luis Obispo County

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- Dorill B. Wright**, Mayor of Port Hueneme, Chairman
- Ernest Wullbrandt**, Councilman, Carpinteria

## South Coast Regional Commission

### PUBLIC REPRESENTATIVES:

- \***Dr. Donald B. Bright**, Chairman of Biological Sciences Department, California State University, Fullerton (G) former Chairman
- Frank Casado**, restaurant owner, Hollywood (G)
- David Commons**, investor and retired film executive, Los Angeles (G)
- Dr. Rimmon C. Fay**, marine biologist, Venice (S); South Coast representative on State Commission
- \***Donald W. Phillips**, Councilman, Long Beach (G)
- Dr. Robert F. Rooney**, professor of economics, California State University, Long Beach (S), Chairman
- Mrs. Judy Rosener**, lecturer, Graduate School of Administration, University of California, Irvine (A)
- Mrs. Carmen Warschaw**, civic leader, Los Angeles (A)

### COUNTY SUPERVISORS:

- \***Ronald W. Caspers**, Orange County (deceased)
- \***Ralph A. Diedrich**, Orange County
- James A. Hayes**, Los Angeles County (alternate: Barna Szabo)
- Laurence J. Schmit**, Orange County (alternate: Loran Norton)

### CITY COUNCILMEN:

- Arthur J. Holmes**, Councilman, San Clemente
- Louis R. Nowell**, Councilman, Los Angeles
- Russ Rubley**, Councilman, Long Beach, Vice-Chairman

### SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS REPRESENTATIVES:

- \***James B. Reidy Jr.**, Councilman, Santa Monica
- Dr. Donald E. Wilson**, Councilman, Torrance, and Director of Teacher Education, University of Southern California

# San Diego Coast Regional Commission

## PUBLIC REPRESENTATIVES:

- \***Cornelius Dutcher**, president of Steam Power Systems, Inc. (S)
- Lois Ewen**, director of land use and environmental quality, League of Women Voters, San Diego (S)
- Jeffrey Dean Frautschy**, associate director of Scripps Institution of Oceanography; (S) San Diego Coast representative on State Commission
- Evan V. Jones**, president of Ace Auto Park (G)
- Dr. Elmer A. Keen**, professor of geography, California State University, San Diego (A)
- Marvin Kratter**, retired real estate and sports owner (A)
- Dr. Malcolm A. Love**, president emeritus, California State University, San Diego (G), Chairman
- Leslie Parker**, secretary of District Council of Carpenters, San Diego County (A)

## COUNTY SUPERVISORS:

- Jim Bates**, San Diego County
- \***Lou Conde**, San Diego County
- William Craven**, San Diego County
- \***Lee R. Taylor**, San Diego County
- Jack B. Walsh**, San Diego County

## CITY COUNCILMEN:

- F. Gilbert Johnson**, Councilman, San Diego
- Rolland M. McNeely**, Mayor of Coronado
- Tom B. Pearson**, Councilman, Del Mar

## ASSOCIATION OF GOVERNMENTS REPRESENTATIVE:

- Robert Frazee**, Mayor of Carlsbad (appointed by the San Diego Comprehensive Planning Organization), Vice-Chairman



# **Part I: Summary and Introduction**

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## HOW TO USE THE COASTAL PLAN

The Coastal Plan has four parts:

- **Part I: Summary and Introduction** summarizes the Coastal Plan's findings and policy recommendations, the proposals for carrying out the Plan, the Plan's economic impact, its protection of landowners' rights, and the national interest in the coastal zone.
  - **Part II: Findings and Policies** sets forth the Commission's findings of fact about coastal issues and problems and its official recommendations to the Governor and Legislature on policies for coastal conservation and development.
  - **Part III: Carrying Out the Coastal Plan** presents the recommended implementation program, with both local and State responsibilities as well as dollar costs and possible sources of funds.
  - **Part IV: Plan Maps and Regional Summaries** specifically applies the policies to the geography of the coast, describing in both narrative and graphic form the resources and features affected by Plan policies.
  - The **Appendix** contains a glossary defining certain terms, lists of the Part II policies and Part III recommendations, and a foldout legend for the maps in Part IV. It also explains how the Plan was prepared, reproduces the Coastal Act of 1972 (Proposition 20), and lists staff members and others who helped produce the Coastal Plan.
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# SUMMARY AND INTRODUCTION

## THE COASTAL INITIATIVE AND THE FUTURE OF THE COAST

In adopting the 1972 Coastal Initiative (Proposition 20), the people of California declared that:

“The permanent protection of the remaining natural and scenic resources of the coastal zone is a paramount concern to present and future residents of the State and nation;” and

“It is the policy of the State to preserve, protect, and where possible, to restore the resources of the coastal zone for the enjoyment of the current and succeeding generations.”

But the Coastal Initiative did not provide a permanent program. Rather, it established temporary Commissions to plan for the future of the coast and to temporarily control development. Under present law, the Coastal Commissions will go out of existence at the end of 1976.

What will happen then?

One possibility is a return to the wasteful, piecemeal, sprawling kind of development that has already overrun many once-open parts of the coast, and to the overdevelopment in some coastal cities that has congested local streets and walled off coastal vistas from all but those fortunate enough to live on the immediate oceanfront.

Another possibility, the one recommended in this Coastal Plan, is for the people of California to protect the unique qualities of the coast, both in cities and in rural areas, and to guide coastal conservation and development accordingly.

The choice for California in 1976 is this: Shall the coast be abused, degraded, its remaining

splendor eroded, or shall it be used intelligently, with its majesty and productivity protected for future generations?

### What the Coast Is

The California coast is many things along its nearly 1,100 miles of land and water, from the redwood forests of the north to the palm trees of the south.

- The coast is a place for hundreds of thousands of Californians to escape the heat of the city on a summer day. But they often face a frustrating traffic jam trying to get to the beach, and they may find no place to park when they do arrive.
- The coast is a special combination of climate, soil, and ocean breeze that is uniquely valuable for many crops: trees, artichokes, flowers, brussels sprouts, etc. But high taxes and the pressures of the expanding city threaten agricultural land and, as happened in so many other parts of California, irreplaceable farm land may be paved over for housing.
- The coast is a neighborhood near the water, where you can walk to a nearby beach or to a bluff to see the ocean surf. But the coastal neighborhoods can be overrun by incompatible development. Land values may become so high that there is little chance to preserve small homes and family neighborhoods; older homes that could be renovated may instead be

torn down, to be replaced by bigger and usually more expensive residential buildings.

- The coast is a small lot on the ocean, a place to build your home and retire. But if too many other people do the same thing, you won't have a quiet, isolated place; you'll find your ocean view blocked by other buildings, your roads and highways crowded.
- The coast is a sought-after place for power plants, offshore oil production, onshore refineries, and moorings for supertankers. But there is great controversy about where they should be, what the environmental risks are, and who should make the ultimate decisions about them.
- The coast is the nearshore ocean waters that provide fish of great value for sportsmen and for food supply. But overfishing, destroying coastal wetlands, and using the ocean to dispose of polluting wastes diminish the bountiful marine life along the California coast.
- The coast is a place to surf, to fish, to swim, to go boating, to sunbathe, to picnic, to bicycle, to study tidepools, to look for rocks and shells, to play volleyball, to walk, to sit, to gaze — in short, to play, and sometimes simply to enjoy the inspiration and serenity the coast can provide.

## Planning at a Time of Rapid Change

No single plan can foresee all the problems or provide all the answers for the future of the California coast. This would be true at any time, but it is particularly true during the present era of rapid change.

In late 1975, as this Coastal Plan is being completed, Californians are increasingly aware that the postwar era of seemingly-endless abundance may be over. There is great uncertainty as to the future: are technological advances just over the horizon that will usher in new periods of prosperity? Or will our lives become austere as shortages of materials force massive readjustments?

Nobody can know all the answers, of course, but there is much we do know: that natural resources are limited; that inflation is in part caused by wasteful use of land and other finite resources;

that increasing costs of energy and raw materials can only cause major changes in the lives of Californians; and that the irreplaceable agricultural lands needed to feed the world's growing population should not be squandered on developments that can be built elsewhere.

There is increasing recognition that no society can long survive if it dissipates its resources recklessly. Wasteful use of land and water will sooner or later be costly. Although it may be expensive to protect coastal resources, in the long run it may be even more expensive not to. The costs of the misuse of land and water are paid by us all — in higher costs of food, housing, and transportation, and in a diminished quality of life.

The Coastal Plan is thus designed to achieve the long-term protection and productivity of coastal resources. The Plan is intended to be as useful during a time of scarcity as during a time of abundance: in either time, the careful use of limited coastal resources is necessary if the coast is to be protected for future generations.

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## What Are the Coastal Commissions?

**The Coastal Commissions — one State Commission and six Regional Commissions — were established by passage of a citizen initiative, Proposition 20, in the election of November 1972. The Coastal Commissions were directed (1) to prepare a "comprehensive, coordinated, enforceable plan for the orderly, long-range conservation and management of the natural resources of the coastal zone," and (2) during the planning period, to regulate development in coastal waters and in a 1,000-yard shoreline permit area to insure that improper development did not undercut the plan being prepared.**

**The six Regional Commissions are:**

- **North: Del Norte, Humboldt, and Mendocino Counties**
  - **North Central: Sonoma, Marin, and San Francisco Counties**
  - **Central: San Mateo, Santa Cruz, and Monterey Counties**
  - **South Central: San Luis Obispo, Santa Barbara, and Ventura Counties**
  - **South: Los Angeles and Orange Counties**
  - **San Diego: San Diego County**
-

# MAJOR FINDINGS AND POLICY RECOMMENDATIONS

The essence of the Coastal Plan is that the coast should be treated not as ordinary real estate but as a unique place, where conservation and special kinds of development should have priority. Coastal resources are limited; meeting human needs while safeguarding the coast will require special measures.

The Plan's 162 policy recommendations form the framework of a management program concerned with both natural and manmade coastal resources.

- The Plan actively **promotes**: productive agriculture, viable communities and neighborhoods, expansion of commercial fishing activity and fisheries research, acquisition of additional parklands, restoration of degraded coastal environments, and continued development of existing ports and marinas.
- The Plan seeks to **achieve balance** where there is a competition among goals, such as where increasing coastal access competes with resource protection, where economic development conflicts with conservation, where urban expansion competes with the retention of natural areas, or where short-run gains result in the forfeiture of long-run economic benefits.
- The Plan is **highly restrictive** in its control over the dredging and filling of coastal wetlands, its protection of areas of unusual natural or historic value, and in its regulation of activities that involve substantial environmental risk or the loss of productive agricultural or forest lands.

The major findings and policy recommendations of the Plan are:

Zuma Beach, northern Los Angeles County



## Coastal Waters

**Improve the Productivity of the Marine Environment.** California's coastal waters are among the world's most productive marine environments. Since the turn of the century, however, there has been an ominous decline in the quantity of food fish caught in the State's coastal waters, especially near intensively developed urban areas. The reasons for this are threefold: overharvesting of some popular fish, shellfish, and marine mammals has depleted their numbers; until recently, the ocean has been viewed as a convenient dumping ground for all sorts of waste products, including materials poisonous to marine life; and coastal wetlands, which serve as "nursery grounds" for many species of fish and wildlife, have been dredged and filled for development.

**Protect Against Overharvesting.** The Coastal Plan calls for a coordinated program of marine resources management to combat overharvesting and to maintain high yields of fish, both for food supply and for sportsmen. High priority is given to meeting the needs of commercial fishermen and to the expansion of "aquaculture" (growing marine organisms under controlled conditions).

**Protect Coastal Water Quality.** The Coastal Plan specifies that all wastes released into the ocean should receive adequate treatment and that wastewater discharges into enclosed bays and estuaries be phased out when necessary for estuarine protection. The Plan supports (and proposes some expansion of) the current programs of the State's Water Quality Control Boards and the Department of Fish and Game. Power plants, or other industries that use ocean water for cooling, would be required to have special design measures to help protect marine life from being drawn into the cooling system, and from the effects of the discharge of heated water back into the ocean.

To insure careful handling of petroleum, cleanup of accidental spills, and prompt payback of damages and cleanup costs, the Plan calls for a \$100 million oil spill liability fund, to be financed by a two-cent per barrel tax on oil entering California.

**Control Diking, Filling, and Dredging of Wetlands.** Nearshore waters, estuaries, marshes, and wetlands are the most productive part of the sea — and the most vulnerable to damage. The Plan proposes strong measures to protect the State's remaining wetlands. Restoration of wetland areas of comparable productivity would be required as a condition of many dredging or fill

approvals. The Plan recognizes that expansion of some developments, such as ports and energy installations, may be necessary in wetlands, but establishes stringent provisions to minimize any harmful effects of such expansion.

**Protect Against Harmful Effects of Seawalls, Breakwaters, and Other Shoreline Structures.** Seawalls, breakwaters, groins, and other structures near the shoreline can detract from the scenic appearance of the oceanfront and can affect the supply of beach sand. The Plan limits the construction of shoreline structures to those necessary to protect existing buildings and public facilities, and for beach protection and restoration. Special design consideration is proposed to insure continued sand supply to beaches, to provide for public access, and to minimize the visual impact of the structures.

## Coastal Land

**Protect Coastal Streams and Plan Carefully for Coastal Watersheds.** Coastal streams collect and channel waters draining from the land to the ocean, and thus form a fundamental linkage between shore and sea. Sediments and pollutants deposited in these streams can affect coastal wetlands as much as dredging and filling. The Plan recommends that comprehensive coastal watershed management plans be drafted to protect streamside vegetation, to maintain salt-water-freshwater balance, to protect the quality of water feeding coastal wetlands, to control sand supply (and thus protect ocean beaches from erosion), and to protect streams important as spawning areas for steelhead and salmon.

**Retain Natural Habitat Areas.** The richness of the nearshore ocean habitat is matched by the richness of the nearshore coastal land habitat. Many plants, animals, birds, and marine creatures are completely dependent upon the unique environment of the coast and can only survive in this setting. The Plan provides for careful protection of habitats of particular importance or rarity through acquisition, by controls on recreational uses, and through regulation of adjacent development.

**Encourage Coastal Agriculture.** The presence of the sea moderates the coastal climate, helping to create an extended growing season and to protect coastal crops from frost damage. The rich alluvial soils in coastal valleys, combined with temperate climatic conditions, create some of the

finest and most productive agricultural land in the nation. Plan policies seek to support agriculture and to discourage conversion of these highly productive agricultural lands to other uses. The Plan proposes to alleviate the pressures of high property taxes and urban utility assessments that can force conversion of farm land to urban development. Also proposed are direct economic support and technological assistance. Controls are recommended to limit urban encroachment into agricultural areas and to regulate rural subdivision of land and lot splitting. The Plan recognizes, however, that some conversion of lower quality agricultural lands to other uses may be unavoidable in places where it has become uneconomical to continue farming. The Plan thus recommends standards to govern the conversion of farmlands surrounded by urban development and the partial conversion of larger parcels of less productive rural lands in ways that would allow some residual agriculture.

**Encourage Continued Timber Production.** The coastal forests in northern California are a valuable, renewable economic resource. The Plan seeks to maintain forests in long-term production with controls necessary to protect streams from erosion, to protect against damage to fish-spawning areas, and to protect the scenic beauty of forested areas. The Plan recommends that present tax laws be amended to encourage sustained forest yield by taxing timber only as it is cut, rather than taxing the value of all standing trees, as under the present system.

**Conserve Soil and Mineral Resources.** The soils and minerals of the coastal zone are irreplaceable resources of California. The Plan requires that local building and grading ordinances include effective measures to control erosion. Sand and gravel extraction would be barred in environmentally sensitive or highly scenic areas, and site restoration would be required where mining is permitted.

**Protect Coastal Air Quality.** In many urban areas, increasing numbers of people want to live and work along the coast because of its relatively clean air. Coastal Plan policies would exclude major new pollution-generating developments (refineries, fossil-fuel power plants, freeways) from portions of the coastal zone now designated as problem "air quality maintenance areas" unless there is no less environmentally damaging alternative. Where permitted, such developments would have to be designed and sited to minimize adverse effects on coastal air quality. The Plan would require the cumulative impact of

development on coastal air quality to be considered in land use and transportation plans.

## Coastal Appearance and Design

**Protect the Scenic Beauty of the Coast.** The California coastline is a visual resource of great variety, grandeur, contrast, and beauty. In many areas coastal development has respected the special scenic quality of the shoreline, but in others, incompatible development has degraded and altered the attractiveness of the coast. Plan policies provide guidelines for various types of development in highly scenic areas and in areas affording the public prominent coastal views.



Coronado

The overriding design goal is that in scenic areas new development should be visually unobtrusive and subordinate to its setting. Development should be sited to protect coastal views and be landscaped to soften its visual impact. Construction materials should blend either with the natural setting or with adjacent structures. Massive structures such as major industrial plants and shopping centers should be built back from the

shoreline. The Plan bans unsightly billboards along the coastline and requires the removal of existing billboards from such areas within 10 years. The specific design objectives for various coastal areas would be established through local design review programs developed by local governments. To help combat litter, the Plan recommends that the Legislature consider enacting a law forbidding the sale of non-returnable or non-biodegradable containers.

The Plan policies contain detailed guidelines for development in different coastal settings including standards for construction affecting wetlands, sand dunes, bluffs, headlands, islands, canyons, riverways, and uplands.

## Coastal Development

### **Encourage Orderly, Balanced Development.**

Recognizing the need for continued development in appropriate areas, Plan policies propose that new development be concentrated in places able to accommodate it (i.e., areas with adequate water supply, sewer service, road and public transportation capacity, etc.).

New development would not be allowed to continue to leapfrog and sprawl over open lands but would, instead, be directed to already-developed areas. Along the immediate shoreline, priority would be given to "coastal-dependent" developments such as ports that by their very nature require coastal sites.

In rural areas not identified as containing significant natural resources, as highly scenic areas, or as viable agricultural lands, first preference in determining permitted uses would go to development that would preserve the open character of sites and serve the needs of coastal visitors (e.g., riding stables, campgrounds, or tourist accommodations). Residential development would be given lower priority but would be permitted where other types of development were infeasible. Plan policies recognize that certain potentially hazardous industrial activities (liquefied natural gas processing works and nuclear power plants) may require remote locations but seek to minimize the proliferation of these through site consolidations.

The Plan also recognizes that some of the unique communities along the coast, such as La Jolla, Venice, and Mendocino, are themselves coastal resources, and recommends special standards for

protection of their scenic and community qualities.

**Protect Against Natural Hazards.** Development along the coast of California is threatened by a number of natural hazards such as floods, earthquakes, landslides, cliff erosion, and tidal waves (tsunami waves). The Plan proposes policies to restrict new development in floodplains, require that a geologic hazards description be made a part of residential sales information, place limitations on uses of land within coastal areas of highest risk, prevent public subsidies for hazardous development, and provide setbacks from erosion-prone bluffs.

## Energy

**Reduce Energy Consumption.** Energy conservation can not only conserve petroleum and other resources, thus strengthening the nation's self-sufficiency, but it can also help to protect coastal air, land, and water from unnecessary oil, gas, and power-generating facilities. Expanding demands for oil and gas will result in increased tanker movements and port development, or in additional offshore oil production, or both, and in refinery expansion. Growing electricity consumption increases pressures for construction of coastal power plants, and some are likely to be fueled by oil. Plan policies recognize that energy conservation programs should be applied statewide, and that the primary responsibility for implementation of such programs rests with the State Energy Commission. The policies recommend to the Energy Commission a detailed program for energy conservation, which could be implemented separately within the coastal zone only if the Energy Commission fails to meet its own legislative deadline for implementing a statewide conservation program by July 1, 1977.

Plan policies also advocate that tax incentives be provided to encourage energy self-sufficiency in building design. The Plan urges development and exploratory programs to expand use of alternative energy sources such as solar, wind, and geothermal energy, and energy from solid wastes and methanol.

**Siting Energy Facilities.** The Plan recommends that the Energy Commission have authority over the siting not only of new power plants but also of all other major energy facilities including those for petroleum production and refining. The coastal agency would, under the Plan, have concurrent jurisdiction in site selection and certification for sites in the coastal zone. The Plan would



not exclude energy installations from the coast, but rather would require that both inland and coastal sites be fully evaluated so that necessary new energy facilities will be provided in a manner least damaging to all of the State's natural resources.

**Power Plants.** Power plants would be permitted within the coastal zone at sites jointly certified by the Energy Commission and the coastal agency. The Plan provides that adequate freshwater supplies for agricultural irrigation be reserved before any fresh water is appropriated for evaporative power plant cooling at inland sites, and urges research on the use of agricultural waste water for cooling. Among the most significant considerations would be demonstrations by a utility (1) that the plant is needed despite energy conservation efforts; (2) that alternative coastal and inland sites have been evaluated, and the proposed site is the least environmentally damaging site; (3) that the plant would be compatible with neighboring land uses; (4) that, where feasible, a substantial coastal area would be provided for public use; and (5) that adverse visual impact would be minimized. Plants could not be built in areas identified as highly scenic nor could they increase pollution in problem air quality areas.

**Offshore Petroleum Development.** Plan policies would allow offshore petroleum development, provided it is part of a clearly defined energy conservation and development program for the country or for the western states, provided stringent environmental safeguards are made part of the entire exploration and production schedule, and provided there is careful planning to minimize onshore impacts.

The policies also recommend revising current Federal leasing practices to provide for withholding approval of offshore petroleum development until the offshore exploration has been sufficiently completed to determine the extent of the oil and gas available and the environmental impacts from extracting it.

**Tanker Terminals.** Tanker terminals would be permitted under criteria including the following: (1) existing facilities should be used to their maximum capacity before new port facilities are developed; (2) oil companies should be encouraged to trade crude oil supplies to minimize the need for petroleum transport and costly new terminal facilities; (3) existing harbor areas should be used to accommodate the tankers that will transport Alaskan oil (tankers with drafts of

about 65 feet), but larger tankers to transport oil imports should be restricted to deepwater off-shore terminals away from environmentally sensitive areas; and (4) new terminals should be planned for multicompany use and should have adequate equipment for oil spill containment.

**Liquefied Natural Gas [LNG] Terminals.** Terminals for importing LNG would be permitted under the following criteria: (1) until concerns about the public safety risks inherent to LNG marine terminal operations have been satisfied, there should be only one LNG terminal for California, at a site remote from heavily populated areas; (2) if the public safety concerns can be satisfied, consideration should be given to building LNG terminals in already-developed port areas to minimize adverse environmental impacts; and (3) LNG terminals should meet rigorous design and operational standards for safety.

## Transportation

**Limit Adverse Environmental Effects of Coastal Access Roads.** Access to much of the State's coastline is over roads that were built to meet the needs of another era. Increasing volumes of coastal visitors sometimes fill the roads to their limits, and there have been growing numbers of second-home owners and long-distance commuters. High-volume freeways, with their graceful curves and generous widths, are ill-suited to the rugged landforms of much of the coastline and would cut massive swaths through coastal neighborhoods.

Plan policies seek to improve the efficiency of existing roads by promoting use of public transit and by mandating transportation plans that pay special attention to weekend congestion problems. Coastal roads should be designed, as many in California have been, to reflect their use as recreational routes and should include such amenities as scenic vista points, rest stops, beach accessways, and picnic grounds. The Plan recommends that local land use proposals be evaluated against road building and transit plans to make sure that land developments do not overrun the capacity of the roads and effectively block access to coastal visitors.

**Regulate Parking at the Coast.** If everyone insisted on driving his car to the water's edge it wouldn't be long before much of the coastline

would be paved for parking. Plan policies would restrict expansions of oceanfront parking lots but would provide for added parking immediately inland, well designed and connected to the shoreline by trails or shuttle buses. New developments would be required to have sufficient on-

environmental consequences. Plan policies provide for increases in both air and water transportation, within a system of environmental safeguards. Except for ports handling hazardous materials, all port expansion would be channeled to existing port areas, and these would be used to their maximum potential before new diking or filling of water areas would be allowed. The potential for airport expansion within the coastal zone is limited, and the Plan recommends avoiding expansion of coastal sites, especially where this would require filling wetlands or losing recreational potential.



Mendocino County

site parking or, in some cases, to provide payments to local transit systems.

**Improve Public Transit.** Public transit is little-used for recreational travel, so on weekends fleets of transit vehicles used for access to work and school sit idle. There is excellent potential for increasing the use of public transit for recreational trips (experimental programs from San Francisco to beaches in southern Marin County have filled buses to capacity). Because public transit is less polluting than private automobiles and more efficient in its use of road capacity, transit is given strong preference for coastal transportation in many areas, and the Plan supports programs that would increase the attractiveness of transit to coastal visitors.

**Provide for Water and Air Transportation.** Port and airport facilities are vital to the State's economy, but expansion of either can have serious

## Public Access to the Coast

**Guarantee Rights to Public Access to the Coast.** Public access to the ocean is a right specifically set forth in the California Constitution. But it has not always been enforced, and many parts of the coast are now fenced off from the public or are otherwise inaccessible. The Plan proposes that existing legal rights of public access to the coast be enforced, and that reasonable requirements for public access be established in new developments along the coast. Recognizing that additional public access will require additional policing, litter control, and other such measures, the Plan provides that public accessways in new developments be set aside but not opened for public use until a public agency accepts responsibility for maintenance and liability. Where a new oceanfront development could not reasonably provide public access within its boundaries, appropriate in-lieu payments to an acquisition fund may be required to help buy nearby property for public access.

**Create Opportunities for Persons of All Income Levels to Live Near the Coast.** In recent years much coastal property has increased rapidly in value so that people of limited means, including many elderly people, can no longer afford to live in some coastal neighborhoods. Older residences that could be renovated are torn down, generally to be replaced by larger and more expensive buildings. Policies give preference to coastal developments that would be accessible to people of diverse incomes, also stressing shared ownerships, rentals, and a retention of existing moderate-income housing.

**Encourage Multiple Use of Coastal Lands.** Part of the beachfront at the Marine Corps' Camp Pendleton in San Diego County has been opened

to the public, with management of the beach by the State Department of Parks and Recreation. The Plan proposes that on other military lands, consistent with security and safety, oceanfront areas be opened for public use. And the Plan recommends similar public access to the oceanfront, where appropriate, in major installations such as port facilities, power plants, etc.

## Recreation

**Increase Coastal Recreation But Protect Coastal Resources.** The California coast provides recreation for millions of people every year—many from within the State, but many from other parts of the country and the world. Serving their needs provides California with jobs and income constituting a valuable part of the State's economy. Visitor surveys, filled campgrounds, and jammed parking lots make clear that even more visitors would be at the coast if there were more room for them.

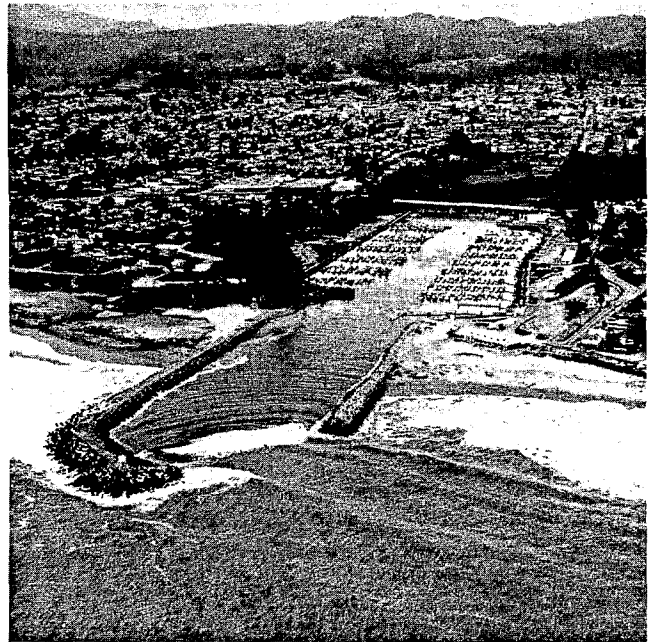
The Coastal Plan proposes to expand recreational opportunities, by purchasing not only oceanfront beach and park land but also land just inland from the coast for parking and other support facilities, so the oceanfront can be reserved for recreation. Priority would be given to coastal areas close to major metropolitan centers. Where coastal communities are unduly burdened with the costs of maintaining recreational facilities enjoyed by inland residents, Plan policies recommend that State funds be made available to the extent they are needed to offset local costs of serving visitors. Where public purchase is not proposed, the Plan gives priority to private developments serving recreational and visitor needs over other types of development on the coast and encourages recreational facilities serving all income ranges, i.e., campgrounds, rental housing, or resort hotels.

But the Plan also recognizes that many coastal areas cannot accommodate unlimited crowds without environmental damage; indeed, too many people in an area can destroy the very features that attracted the visitors to the coast in the first place. Recreational areas would be managed to respect the natural capacity of park lands. (The State Parks and Recreation Department now allows only a certain number of people at a time into Point Lobos State Reserve south of Carmel, to protect a spectacular coastal promontory.) The Plan provides that limits be placed on public access and recreational use as necessary

to protect coastal tidepools, bluffs, dune vegetation, and other such fragile areas; but also that additional sites be acquired as recreational demand increases so that facilities are not overburdened.

The Plan encourages construction of a coastal trail system, but with adequate policing and maintenance to protect adjacent agricultural lands from vandalism or other damage. Off-road recreational vehicles would be prohibited on the immediate beachfront, except at Pismo Beach in San Luis Obispo County and in a limited number of other places where stringent environmental standards could be met.

**Encourage Recreational Boating, But Protect Wetlands.** The demand for recreational boating has grown sharply in recent years, and in many coastal marinas there is a shortage of berths. In the past, small-boat marinas were often created by dredging and filling valuable marshlands or other wetlands, thus destroying fish and wildfowl habitat. Because such areas are essential to protect the State's fish and wildlife, and because boating can be accommodated elsewhere without habitat destruction, the Plan provides that new or expanded small-boat marinas



Santa Cruz

be built in natural harbors, in deep water (that is, deeper than marshes and wetlands), and in areas dredged out from dry land. In addition, dry storage, rental programs, multiple ownership, and other means are proposed to provide for more boating while protecting wetland values.

## Scientific and Educational Resources

**Protect Sites of Scientific, Historic, or Educational Value.** The Plan builds upon existing programs to protect sites of historic, archaeological, or scientific importance from being put to incompatible use. The policies advocate an intensified effort to identify and provide protection for the coast's historic and archaeological resources.

## Restoration

**Restore Degraded Coastal Areas.** New recreational opportunities can be provided, new habitat areas created, and blighted coastal neighbor-

hoods renovated through a coastal restoration program.

Because of the profusion of coastal subdivision and lot splitting and the extreme costs of providing urban services and access to remote developments, a restoration program is recommended to reduce the numbers of undeveloped coastal lots. Purchases are recommended to protect areas usable by the public and in areas where costs of extending urban services would exceed the costs of buying lots. In some cases, lots in common ownership would be consolidated. Owners of individual buildable lots would be guaranteed construction rights or, alternatively, public purchase at full market value in locations where plans call for acquisition.

# CARRYING OUT THE PLAN

No plan dealing with controversial matters is likely to be self-enforcing. The Coastal Plan thus recommends that the following implementation program be established:

**Local Government Responsibilities for the Coast.** Because city and county government is accessible and accountable to its constituents, because statewide coastal concerns should be reflected in local planning and regulation, and because Plan implementation should be streamlined to reduce costs and delays, primary responsibilities for carrying out the Coastal Plan should rest with local governments. Within three years of the effective date of State legislation to carry out the Plan, local governments along the coast should be required to bring their General Plans into conformity with the Coastal Plan. Local governments would submit their plans to the Regional and State Coastal Commissions for certification as to conformity with the Coastal Plan. After all the local plans in a region had been certified, the Regional Commission would go out of existence. Local governments would then control coastal conservation and development, subject to a system of limited appeals to the State Commission to insure that approved local plans

and thus the Coastal Plan were being followed in day-to-day decisions.

**Coastal Resource Management Area.** Because the Coastal Plan seeks to provide for the wise use and protection of coastal resources, local plans would be required to conform to the Coastal Plan in an area designated as the coastal resource management area. This area, shown in detail on the Plan Maps in Part IV, is the area of varying width along the coast containing the coastal waters, wetlands, beaches, bluffs, agricultural lands, and coastal communities and neighborhoods that are the subject of Plan policies. In some cities, the coastal resource management area is **less** wide than the 1,000-yard permit area established in the 1972 Coastal Act (Proposition 20). In rural areas and other areas of undeveloped land, the resource management area may extend to the inland boundary of the coastal zone to include coastal agricultural lands and streams and areas where the cumulative impact of development would limit public access to the coast (e.g., Malibu, Big Sur). As provided by the 1972 Coastal Act, the California coastal zone is the water areas under State jurisdiction, the offshore islands, and land areas inland to the

highest elevation of the nearest coastal mountain range, except that in Los Angeles, Orange, and San Diego Counties, the boundary does not extend more than five miles from the mean high tide line.

**Permit and Appeals System.** To insure that unwise development decisions do not occur while local plans are being brought into conformity with the Coastal Plan, the permit and appeals system specified in the 1972 Coastal Act would remain in effect except that (1) the standards for issuing and denying permits would be compliance with the Coastal Plan, not the 1972 Coastal Act; (2) permits would also be required within the coastal resource management area for the conversion of any prime agricultural land to other uses and the conversion of other agricultural land in parcels of 20 acres or more; (3) anywhere within the coastal zone, a Commission

permit would be required for major water, sewer, transportation, or energy developments that could adversely affect coastal resources; and (4) permits would **not** be required where a Regional Commission (or the State Commission, on appeal) determined after public hearing that development of a particular type or in a particular area would not adversely affect coastal resources.

**Permits and Appeals After Certification.** After a local plan has been certified by the Coastal Commissions as being in conformity with the Coastal Plan, local governments would have primary implementation responsibility, subject to a system of limited appeals to the State Coastal Commission to insure that the approved local plan and the Coastal Plan were being followed in day-to-day conservation and development decisions.

**State Coastal Agency.** After the Regional Commissions have gone out of existence, a State Coastal Commission with 12 members — one-third appointed by the Governor, one-third by the Speaker of the Assembly, and one-third by the Senate Rules Committee — would have the following responsibilities: (1) carry out the planning and research necessary to keep the Coastal Plan up to date in light of changing conditions; (2) assist local governments in Plan implementation; and (3) through the appeals process, monitor the decisions on proposed coastal conservation and development.

**State and Federal Agency Responsibilities.** The Plan provides that all State agencies, and all Federal agencies to the extent applicable under Federal law, be required to conduct their activities in full compliance with Coastal Plan policies. The Coastal Commission would seek to insure that California maintains a Coastal Plan complying with the standards of the Federal Coastal Zone Management Act of 1972, thus qualifying the State for Federal funds to help carry out the Plan, and also insuring that Federal agencies would be required to follow the Plan unless an overriding national interest compelled other actions.

**Proposed Bond Issue.** The Plan proposes that a limited number of key coastal properties be bought by the public, primarily for oceanfront recreation and for the protection of wildlife habitat. Based on assessments by county assessors, the parcels tentatively proposed for acquisition have a total market value of about \$180 million. Because of inflation, and because some assess-

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## The Legal Basis for Statewide Planning

The State of California has legal power to regulate and control land use. This regulation, using such forms as zoning, is part of the inherent power possessed by all States and is commonly called the police power — the power to regulate public and private activity to protect the health, safety, and welfare of the general public.

The California Constitution and other State laws delegate certain police powers, including the power to plan and control land use, to cities and counties in carrying out their local or municipal affairs. The State, however, retains the ability to plan, protect resources, and even control land use in areas or on subjects of greater than local concern.

As one court has said in a case involving the Coastal Commissions, "Where the ecological or environmental impact of land use affect the people of the entire State, they can no longer remain matters of purely local concern." The court added that "the impact of an activity which in times past has been purely local, may under changed circumstances transcend municipal boundaries . . . Where the activity, whether municipal or private, is one that can affect persons outside the city, the State is empowered to prohibit or regulate the externalities" (CEEED v. California Coastal Zone Conservation Commission, 118 Cal. Rptr, 315 [1975]).

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ments have not been updated recently, estimates may be low with regard to some parcels. On the other hand, the total cost may be reduced by eliminating some parcels from the list (the Commissions are continuing to review the acquisition proposals) and by purchasing easements rather than full title in some cases. The Plan proposes that, after further review of the proposed acqui-



sitions, a bond issue be submitted to the voters of California in 1976 to pay for prompt purchase of coastal properties.

**Costs of Carrying Out the Plan and Possible Sources of Funds.** Costs of carrying out the Coastal Plan are (1) the cost of land acquisition, not expected to exceed \$180 million to \$200 million together with some additional operating and maintenance costs to park agencies as new beaches and parks are open; (2) the cost of Coastal Commission permit and appeals ad-

ministration, estimated at \$1 million to \$1.5 million per year; (3) the cost of further Coastal Commission planning to keep the Coastal Plan up to date and to assist local governments in Plan implementation, estimated at \$1 million to \$1.5 million per year; and (4) the cost to local governments of bringing their plans into conformity with the Coastal Plan, estimated at \$600,000 to \$800,000 per year for three years.

The Plan proposes that these costs be paid from several possible sources:

- The bond issue cited above;
- Federal acquisition grants from the U.S. Land and Water Conservation Fund;
- Federal planning grants (once California's Coastal Plan has been certified as in compliance with the Federal Coastal Zone Management Act of 1972, California will be eligible for two-thirds of the planning and administrative costs of carrying out the Plan);
- Taxes on the production and transport of petroleum on and across California coastal waters, because a principal purpose of coastal planning is to provide adequately for needed energy production consistent with environmental protection; and
- Perhaps from added fees on pleasure boats or added taxes on visitor accommodations in coastal areas, in both cases requiring those who benefit most from coastal recreation and amenities to help pay the costs of protecting the coast.

## APPLYING PLAN POLICIES

Part II of the Coastal Plan sets forth the policies upon which conservation and development decisions in the coastal zone should be based, and Part III recommends ways of carrying out the Plan. Part IV specifically applies the Plan policies to the geography of the coastal zone — the sea, wetlands, beaches, farmland, hills, and urban areas.

The Plan Maps, Map Notes, and Regional Sum-

maries can be used by anyone interested in knowing the location and extent of coastal resources and developed areas as well as what the Plan proposes for a particular part of the coast. For example, areas for possible public acquisition and restoration are shown, as are possible sites for coastal trails and coastal access, and in some cases, areas within which urban growth could be encouraged or restricted.

# THE FUTURE ENVISIONED BY THE PLAN

The Coastal Plan envisions a future for California's coast that includes:

- An orderly transition between fully developed communities and productive farm and grazing land.
- Recreational boating increased, consistent with wetland protection.
- New residential development concentrated and served by public transit, so that roads to the coast are kept uncongested.
- Downtowns and neighborhood commercial areas renewed and refurbished, with no further construction of sprawling shopping centers that destroy valuable farmland on the fringes of the cities.
- Traffic flowing smoothly through cities to the shore, with many vehicles being shuttle buses from nearshore parking lots where motorists have left cars.
- Well-maintained, older, less-expensive housing that provides opportunities for people of all incomes to live near the ocean, and clearly blighted areas replaced by new residential construction.
- Many more people enjoying beaches, coastal resorts, hotels, and waterfront restaurants.
- Power plants as needed to serve an economy that employs effective energy conservation, and every power plant sited and designed to minimize environmental damage and hazards.
- Expanded and more efficient facilities at existing ports, to take advantage of the great energy and cost savings of ocean transportation, and port developments planned to minimize environmental degradation.
- Beyond the urban areas, a largely undisturbed coastline that can be enjoyed from comfortable tour buses, cars, motorcycles, and from miles of foot, bike, and horse trails, with many more carefully planned beach access areas, and campgrounds.
- Agricultural lands kept in agricultural produc-

Avalon, Santa Catalina Island





tion with taxation based not on potential subdivision but on farmland needed to feed a growing population; and with incentives for Californians to work in productive agriculture.

- In the North Coast Region, a more vigorous visitor industry, an enhanced agriculture, and a timber industry made stronger by more widespread use of sustained yield practices and by an increased demand for wood pro-

ducts to replace increasingly expensive and dwindling manufacturing and construction materials such as plastics and steel.

- And overall, continued growth channeled both to achieve greater savings in public costs by concentrating development, roads, utilities, and to protect coastal wetlands, farmlands, views, and other natural resources.

## NATIONAL INTEREST IN THE COAST

### **The California Coastline Is a National Resource.**

The California coastline is of more than local or even State importance; it is a resource of national significance; it comprises more than half of the western coastline of the contiguous 48 states.

Visitors from across the country enjoy the scenic beauty and recreational facilities along the coast. Foreign goods bound for consumers in inland states and U.S. products on their way to distant countries pass through California ports. Petroleum, timber, and farm produce for the coastal zone are shipped to the rest of the nation.

Use of the coastal land area and adjacent waters for national defense and national security is of paramount importance to the country because of military installations located along the coast. This is particularly true of the numerous Navy installations with defense missions necessarily requiring operational use of such areas.

### **The Federal Coastal Zone Management Act.**

Recognizing the distinct and irreplaceable value of this country's coastline, the U.S. Congress enacted the Coastal Zone Management Act of 1972 (PL 92-583) which states, "...it is national policy...to preserve, protect, develop, and where possible, to restore or enhance, the resources of the nation's coastal zone for this and succeeding generations" (Section 303[e]). The language is almost identical to one of the objectives of the California Coastal Act (Proposition 20): "...to preserve, protect, and where possible, to restore the resources of the coastal zone" (Public Resources Code, Section 27001).

Under the Federal Act, California has received financial assistance for the preparation of the

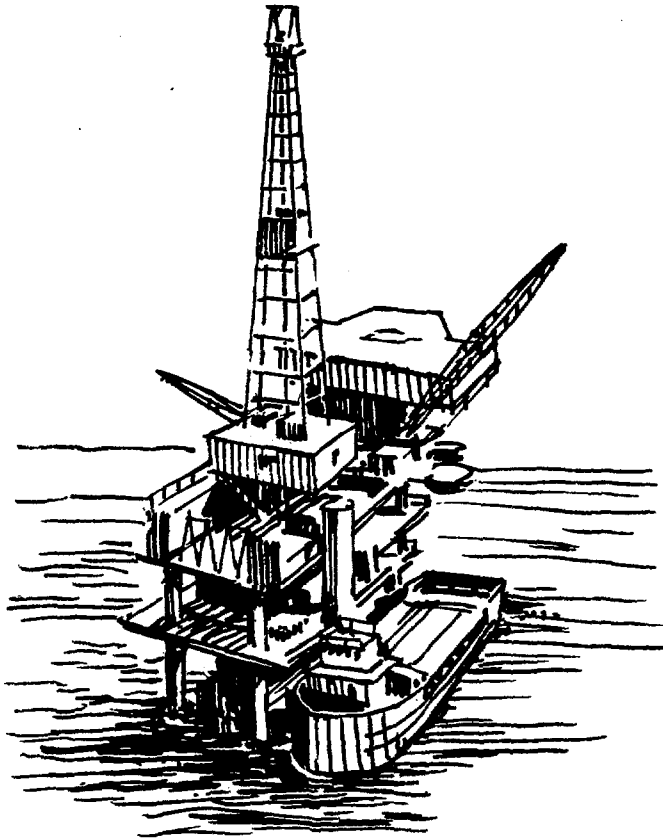
Coastal Plan, which will be submitted to the Department of Commerce--the agency responsible for administering the Federal Act--in the form approved by the State Legislature and the Governor. Once approved by the Secretary of Commerce, the Coastal Plan will provide the basic policies for both state and national interests in the coastal zone. The Federal Act requires Federal agencies to comply with an approved state coastal zone management program "to the maximum extent practicable" (Section 307[c]).

To ensure that the national interest is adequately addressed in the Coastal Plan, the Federal Act requires that the state coastal zone "management program provides for adequate consideration of the national interest involved in the siting of facilities necessary to meet requirements which are other than local in nature" (Section 305[c][8]).

**Planning for the National Interest.** Recognizing its responsibilities to the rest of the nation, California in its coastal planning has made every effort to consider the national interest in issues affecting the coast. The Plan's policies recognize national defense and national security as important aspects of national interest, because without the attainment of such objectives, all other goals and objectives can be threatened. The policies on the protection of agricultural land recognize the importance of California farm production to the rest of the nation and also acknowledge the world food shortage. The policies calling for recreational and public-oriented uses to have a high priority along the coast reflect the increasing popularity of the coast as a tourist destination. The Plan's energy policies, especially important because of the Department of Interior's



proposals to lease vast Outer Continental Shelf (OCS) areas for petroleum exploration and extraction, take into account California's role in national energy supply. The energy policies are based on a willingness to respond with a broader state role in meeting the nation's energy requirements if such a need is clearly identified and if California's environmental, economic, and legal interests are properly planned for and pro-



tected. Because needs — national, state, and local — may change in the future, if occasions should arise where certain federal activities would conflict with Coastal Plan policies, the representatives of the Federal and State agencies concerned should consult and cooperate to resolve the conflicts consistent with national objectives.

**Planning for Federal Activities.** One part of the national interest is the planning for activities carried out by Federal agencies in the coastal zone. To bring the activities of the many Federal agencies within the context of the comprehensive planning called for in the Federal Coastal Zone Management Act, the Act provides that "each Federal agency conducting or supporting activities directly affecting the coastal zone shall conduct or support those activities in a manner which is, to the maximum extent practicable, consistent

with approved state management programs" (Section 307[c][1]). The Federal Act also excludes "from the coastal zone ... lands the use of which is by law solely to the discretion of or which is held in trust by the Federal Government" (Section 304[a]). In recognition of the paramount importance of national defense and national security, in California this exclusion is interpreted to include all lands and waters within the coastal zone used for national defense or subject to the jurisdiction of the Department of Defense and both present and future needs for operational air space and land and water areas. Moreover, the planning for areas surrounding military installations should be coordinated with local Department of Defense representatives so these areas are not used in a manner that would conflict with national security needs. And just as military operations should be protected from incompatible surrounding uses by the coastal zone management program, it is anticipated that Federal agencies, being equally aware that environmental problems do not respect jurisdictional boundaries, will do their utmost to comply with applicable Coastal Plan policies.

**Federal-State Cooperation to Protect the National Interest.** California has received extensive assistance and cooperation from many Federal agencies in the preparation of the Coastal Plan. Moreover, as required by Federal regulations, early drafts of the Plan elements have been provided to numerous Federal agencies for review and comment. For example, the Coast Guard, Federal Energy Administration, Maritime Administration, National Park Service, Fish and Wildlife Service, National Marine Fisheries Service, U.S. Geological Survey, Forest Service, Bureau of Land Management, National Aeronautics and Space Administration, Navy, and Army Corps of Engineers have all commented extensively on the Preliminary Coastal Plan and/or provided useful data and information for preparing it.

Through this process, there has been an opportunity for national interests, as perceived by Federal agencies, to be incorporated into the preparation of the Plan. Although there is general support for the Coastal Plan objectives among Federal agencies, there may be some disagreement in applying the Plan policies to particular circumstances. Nevertheless, continued cooperation can ensure that the national interest is protected through a uniform application of the Coastal Plan policies to the entire coastal zone by whichever local, State, or Federal agency has

regulatory jurisdiction. Where the Coastal Plan would conflict with an overriding national need under unforeseen circumstances, it may be necessary to amend or override the Plan policies in the national interest. Such cases can be expected to be rare. Except for national defense and national security needs as established by the President and the Congress, the determination of national interest needs, along with any measures necessary to mitigate the adverse impacts of meeting those needs, should be made cooperatively by the affected local, regional, State, and Federal agencies.

Clearly, national defense and national security are among the highest priorities in the management of the coastal zone. Coastal zone military installations are important components in their local areas, and represent a stable and substantial contribution to the State economy. Because military defense installations are excluded from the coastal zone, State or local approval for related activities is not required. The decisions on whether or not such activities will comply with environmental safeguards rest with the Department of Defense. The defense agencies — and in particular the Navy, which is the Federal agency most dependent on coastal installations for its continued operations—have displayed increasing sensitivity to environmental issues in their oper-

ations. The Navy has also cooperated in the development of California's coastal zone management program by making its interests known. It is Navy policy to conduct Navy activities to the maximum extent practicable consistent with the State Plan, as long as national defense objectives are protected. To this end, the Navy intends to permit review, subject to security restrictions, of its master plans, general development maps, and offshore operating area requirements, for comment and recommendation by the agencies responsible for carrying out the Coastal Plan.

Other Federal agencies have also indicated their willingness to cooperate in a similar manner. There has, for example, been extensive cooperation with the Army Corps of Engineers, which shares regulatory authority with the Coastal Commission over the waters and wetlands of the coastal zone, with the Federal Power Commission on the siting of liquefied natural gas facilities, and with the Environmental Protection Agency on air and water quality standards. Through a continuation of this process of discussion, negotiation, and arbitration when necessary, among local, state, and federal interests, differences can be addressed cooperatively, and the entire coastal zone be treated as an interrelated environmental and economic system.

## PUBLIC INTEREST IN THE COASTAL ZONE

The public interest in the California coastal zone is as diverse and varied as is the 1,100-mile coast itself. To varying degrees, the people of California, the people of the United States, and even the people of many parts of the world benefit from the California coastal zone.

The public interest in the coastal zone is in:

- its use for national defense;
- its timber and its oil and other minerals;
- the electric power generated along its shore;
- the products shipped around the world from its ports, and the imports that arrive in California harbors;
- the fish and other food produced in the coastal zone;

- living on or near the coast;
- enjoying the beaches and parks of the coast, the clean coastal air, and the serenity and inspiration of the unparalleled variety of coastal forests, mountains, bluffs, estuaries, and waters.

The public interest in the coastal zone is embraced by the two objectives of the Coastal Plan, which are to:

1. Protect the California coast as a great natural resource for the benefit of present and future generations.
2. Use the coast to meet human needs, in a manner that protects the irreplaceable resources of coastal lands and waters.

## ECOLOGICAL PLANNING PRINCIPLES

The ecological planning principles and assumptions underlying the Coastal Plan are as follows:

- No one part of an ecosystem operates independently of any other. Therefore, alterations within an ecosystem should be carefully considered as to their impacts on other portions of the ecosystem.
- Air, soil, water, and light are the basic physical requirements for an environment to sustain life.
- Organisms have requirements essential to life. If any of these requirements are met in amounts too small to satisfy the organism, it will not be able to survive in a particular area.
- People are an important part of coastal ecosystems. People change ecosystems, and in doing so can improve human living conditions. But changes in the natural environment can also result in undesirable consequences as, for example, the introduction of pollutants into the air and water can harm human health.
- Every ecosystem has a carrying capacity, which is limited. Coastal zone management must recognize the limiting factors, and they should be of primary concern in environmental analysis. People must recognize the balance of nature and limit use of natural resources so that they do not destroy options for the future.

## RIGHTS OF PROPERTY OWNERS

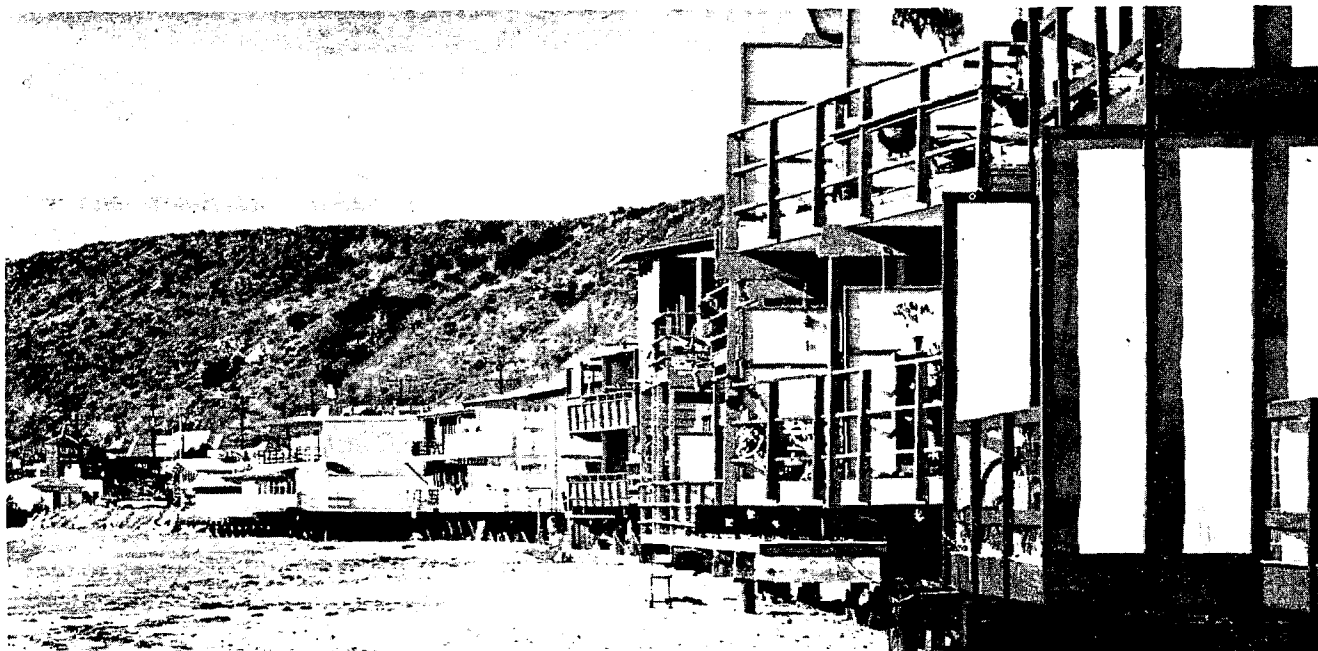
The Coastal Plan recognizes fully that the ownership and use of private property are fundamental concepts in the law and traditions of the United States. This nation's long history of personal liberty, as well as its material prosperity, have resulted in large part from the freedom and private enterprise encouraged by the private ownership and use of resources. The Constitutions of both the United States and the State of California protect property owners against the taking of their property without just compensation. The Coastal Plan cannot violate these Constitutional mandates, and it does not.

**Landowners' Rights Protected.** The Coastal Plan protects the rights of landowners. The Plan proposes that some key coastal properties be bought by the public for public use or environmental protection; the owners of such property would be paid fair market value for their holdings. If such property is not in fact bought by the public, the property may be put to other uses by its owner consistent with Coastal Plan policies. The Coastal Plan proposes development standards, similar to those in long-established city and county laws, under which new buildings would be designed to minimize interference with ocean views from

public roads, and to provide public access to the oceanfront where appropriate.

The property rights of a landowner are not absolute. Rights can and do change over time, and the rapid urbanization of the United States during the 20th century has led increasingly to restrictions on the use of private property—restrictions held by the courts to be constitutional. For example, the U.S. Supreme Court held 25 years ago that property owners could not create an enforceable agreement requiring racial discrimination in the future sale of their land. For many years, laws have prohibited the use of property in a way that would result in health hazards or noxious effects on the public at large. And local zoning laws have been upheld by the courts since 1926.

**Rights and Expectations.** The issue is not whether property owners' rights could be violated; under Federal and State Constitutions they could not be. The issue, at least in many places, is that property owners' expectations may be affected. When people buy land, they often expect a certainty of financial return greater than when they buy securities or make other investments. Because they may live on the land and farm it, be-



Malibu Beach

cause they pay property taxes on it, and because of the recent rapid rise in land values in many areas, many people expect to make money by holding or using land, and they believe they deserve to be compensated if their expectations are not realized. Under the Coastal Plan, as under many Constitutional land use laws, people can use their land in a variety of ways, but in some cases not as fully or intensively as they might like.

#### **Development in Both Public and Private Interest.**

The Coastal Plan recognizes that in many coastal areas open lands now providing spectacular ocean views are in fact lands that have been divided into small lots generally intended for single-family homes. If all the owners build single-family houses, as presumably they eventually expect to do, and if all the homes are screened and landscaped, motorists on the publicly financed scenic State Highway 1 will not see the ocean but the backs of a nearly solid wall of houses. The Coastal Plan recommends policies to deal with this situation. In appropriate areas, lots not yet built upon could be bought back from their owners—at fair market value—so that the land could be preserved as open space or, alternatively, replanned, redivided, and resold for a clustered form of development that would preserve substantial open areas. If the property is not covered by a public program of this or similar type, then the Plan recognizes that the owner of an individual lot, having no legal or physical impediments to restrict development and having no reasonable use other than a single-family home, will be able to build such a home on it.

But the Plan would require that such houses be designed, built, and landscaped to minimize interference with public views from Highway 1, and to safeguard wherever feasible public access to the publicly owned tidelands. Thus, with no taking whatever of an owner's property, the owner of coastal land might be required to build in a slightly different manner from what he might otherwise like to do. This is no different from the existing city and county ordinances, accepted by landowners and public alike, that require, for example, street dedications or front and side yard setbacks from a property line. In other words, established law already requires that an owner of land take public needs into account in his private development.

**Public Access to the Ocean.** The Plan would not take any private property for public use, but rather seeks to protect existing public rights of access to the ocean and other navigable waters. Just as the California Constitution protects private property rights, so it also protects rights of public access. The State Constitution, adopted in 1879, provides in Article XV, Section 2, that "The People Shall Always Have Access to Navigable Waters. No individual, partnership, or corporation, claiming or possessing the frontage or tidal lands of a harbor, bay, inlet, estuary, or other navigable water in this State, shall be permitted to exclude the right of way to such water whenever it is required for any public purpose, nor to destroy or obstruct the free navigation of such water; and the Legislature shall enact such laws as will give the most liberal construction to this provision, so that access to the navigable

waters of this State shall be always attainable for the people thereof.'"

**Summary.** In summary, the Coastal Plan, if carried out as presented in this report, would not take any landowners' rights. In some cases, it might change his expectations, but there are many factors other than the Coastal Plan that can influence future land values — for example, the value of land for second-home subdivisions depends, in part at least, on the price and availability of gasoline for driving to distant areas. Thus, there can be many reasons for financial

success as well as financial reverses in the ownership of land, as in the ownership of securities or any other investment. Although no compensation for loss of expectations is legally required, perhaps there should be a public policy debate as to its desirability. At the very least, however, it could be difficult indeed to correctly measure declines in value, and to fairly assess the many factors that might be responsible. And there is yet no tradition of public responsibility for guaranteeing the success of private investments in land or in anything else.

## ECONOMIC IMPACT OF THE PLAN

Protecting California's coast is essential for the State's long-term economic well-being. The Coastal Plan calls for economically sound measures: well-planned, orderly development to curb the wasteful use of land; vigorous protection of the coastal resources that are the basis of the multi-million dollar coastal tourist industry and the thousands of jobs it provides; and similar protection for coastal farmlands, timberlands, and ocean fisheries—all of which provide jobs and income for Californians.

**Factors in Economic Analysis.** Economic activity along the coast is affected by many factors of which the Coastal Plan is only one. Interest rates, population growth, unsold or under-used buildings, and the availability of energy are all factors that will affect building activity along the coast. The coastal economy, and indeed the State's economy, may also be affected in less obvious ways. For example, there is an economic loss when low-quality, sprawling development is allowed to overrun land suitable for much better development. There is an effect on the consumer's food bill when prime agricultural land is converted to other uses—followed by efforts to achieve comparable production on less valuable land through energy-intensive applications of irrigation water and fertilizer. The past misuse of California's coastal resources has caused unmeasured but real economic losses.

**Short-Term Vs. Long-Term Economics.** The gradual, piecemeal degradation of natural resources has not usually been recognized as a major economic loss. Rather, attention has been

concentrated on short-term economic benefits: when a marsh was filled, attention was given to the jobs created by new construction, and a resulting increase in the local tax base. Similarly, building houses on prime farmland has usually been seen as economically beneficial. But there is increasing evidence of long-term losses that may not be so visible. Filling marshes, bays, and estuaries, which are essential nursery grounds for many species of fish and wildfowl, can gradually decrease the ocean fisheries—and the jobs and income, together with food supply, that ocean fishing provides. There may well be serious long-term consequences from the increasing loss of prime agricultural land—effects not only on food prices but on the ability of this nation to help feed the world's growing population, and to export food in return for petroleum, metal ores, and other products from abroad.

The Coastal Plan recognizes, in short, that protection of coastal resources is essential to a sound economic future for California. Specifically:

- **The Coastal Plan Seeks to Protect the Economic Value of Public Enjoyment of the Oceanfront.** While it may not be possible to determine precisely the dollar value of a day of recreation or inspiration provided by ocean beaches, parks, bluffs, and trails, there are clear dollar values attributable to the coastal visitor economy. And the Coastal Plan seeks to increase public access to the oceanfront in appropriate areas; to provide tourist accommodations from campgrounds to hotels, resorts, and meeting centers; and to give

preference to these public activities over private housing in suitable coastal areas. If Californians were to allow the coast to be further degraded, ocean views to be blocked by poorly-designed buildings, and access to beaches restricted, they would be risking the future of one of the most important economic assets of the State—coastal visitors.

Security Pacific Bank, in its 1975 Coastal Zone Economic Study, wrote that “tourism is a vital economic base industry, i.e., its income accrues from sales to people from outside the state, and it brings in ‘new dollars.’ Some of its benefits include the direct and indirect support of a multi-industry infrastructure, the employment of many relatively unskilled workers, and the taxes paid by the tourist...Tourists make relatively small demands on a region’s public services (police and fire protection, street maintenance, etc.) and yet they contribute heavily toward providing employment and income and in reducing the tax burden of local residents.”

• **The Coastal Plan Seeks Orderly, Balanced Development, Reducing the Excess Costs of Urban Sprawl.** “The Costs of Sprawl,” a study made in 1974 by Real Estate Research Corporation for the Federal government, showed that well-planned, concentrated development means savings to the public of between 5 and 33 per cent when compared with wasteful, land-consuming development. The savings are in the costs of roads, sewer and water lines, etc., and also in travel time for residents, the need for services such as schools and fire stations, etc. And, of increasing importance, well-planned developments can save greatly on energy. The Coastal Plan seeks **not** to stop growth and development, but to direct new construction primarily into the rebuilding and upgrading of already-developed areas where additional development can be accommodated. The issue is not **whether** there should be new development, but **where**.

• **The Coastal Plan Seeks to Protect the Harvesting of Renewable Resources — Agriculture, Forestry, and Ocean Fisheries.** Thousands of jobs and millions of dollars in annual crop production depend on the unique combination of California’s coastal soils and climate. Protecting California’s agricultural lands is not only a coastal issue; it is obviously a problem of State-wide concern. But the Coastal Plan seeks to maintain the long-term productivity of coastal farmlands, grazing lands, and timberlands for their long-term economic value. Similarly, the

Plan seeks to protect ocean fishing, both commercial fishing and sport fishing. The Plan therefore seeks to protect the coastal estuaries and wetlands essential to California’s ocean fishery, and to protect coastal water quality. The economic values are clear: the Security Pacific study noted that in 1972, the most recent year for which detailed figures are available, California landings and shipments of commercial fish were valued at \$162.5 million. The study added that “the real value of commercial fishing to the State and regional economies of California in terms of primary, secondary, and tertiary income and employment is difficult to assess. In most cases, these values are probably understated. California fishermen range many miles from their home ports in search of their catch — from Alaska on the north to South America on the south — and in many instances, they market their catch at the nearest suitable port in order to shorten their turn-around time. Consequently, California’s official published valuation figures are understated in that they include neither the value of the fishing catches, the profits, nor the wages, resulting from deliveries to non-California ports. There is a positive effect, however, in that these monies are brought back to California and introduced into the state and regional economies as export or ‘new’ dollars.”

• **The Coastal Plan Recognizes the Possible Need for Energy Installations and Production.** The Coastal Plan recognizes that some future coastal sites may be needed for new or expanded power plants, that new port terminals may be needed for larger petroleum tankers, and that offshore petroleum production may be required as part of a national energy conservation and development program. The Plan provides standards by which necessary energy installations may be accommodated, consistent with the protection of coastal economic and environmental resources.

• **The Coastal Plan Seeks to Provide Other Economic Benefits.** The Coastal Plan seeks to protect the coastal streams that deliver sand to ocean beaches; beach erosion costs property owners and governmental bodies several million dollars every year for building groins, jetties, and other erosion-combating structures, and for importing sand. And the Coastal Plan also seeks to maintain and enhance coastal air quality; air pollution causes millions of dollars annually in crop damage, and inestimable damage to human health.



# **Part II: Findings and Policies**

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## HOW TO USE PART II

- For an overview, see summary of findings and policies in Part I, beginning on page 5.
- The Glossary can be found in the Appendix.
- Policy "tagline" index, also at the back, provides a numerical list of policies.

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## USE OF "SHALL" IN PLAN POLICIES

The Coastal Act requires submission to the Governor and the Legislature of an enforceable Coastal Plan, and the Plan's policies are therefore generally written with the verb "shall." The entire Plan is, of course, the recommendation of the Coastal Commissions: the Commissions recommend that legislation be enacted and other steps taken to give the policies the force of law. In a sense, then, the policies are similar to draft legislation, so that, upon approval by the Governor and the Legislature, the policies "shall" be carried out.

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The policies also provide criteria for ensuring that coastal developments are consistent with protection of coastal resources. Unless specifically stated otherwise in the policy, it is intended that the burden of demonstrating compliance with the criteria rests with those proposing the development.

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# BASIC GOALS FOR COASTAL PLANNING

## Findings

**Planning for Conservation and Development to Be Consistent with Coastal Zone Act.** The California Coastal Zone Conservation Act declares that the coastal zone is a distinct and valuable natural resource, and requires that planning for conservation and development be consistent with all of the following objectives:

- The maintenance, restoration, and enhancement of the overall quality of the coastal zone environment, including, but not limited to, its amenities and aesthetic values;
- The continued existence of optimum populations of all species of living organisms;
- The orderly, balanced utilization and preservation, consistent with sound conservation principles, of all living and non-living coastal zone resources; and
- The avoidance of irreversible and irretrievable commitments of coastal zone resources.

## Policy

**1. Basic Goals for Coastal Zone Conservation and Development.** The basic goals for conservation and development in the coastal zone shall be: (1) protect, enhance, and restore the natural resources of the coast; (2) protect, enhance, and restore the manmade resources of the coast — the special communities and neighborhoods that have unique cultural, historic, and aesthetic qualities; (3) give priority to coastal-dependent development — uses of land and water that by their very nature require coastal sites — over other development on the coast; (4) maximize access to the coast for people of all income ranges, consistent with the protection of coastal resources; and (5) encourage orderly, balanced development that avoids wasteful sprawl by concentrating new growth in already-developed areas with adequate public services or in other areas near major employment centers consistent with resource protection policies.

# MARINE ENVIRONMENT

## OCEAN RESOURCES MANAGEMENT

### Findings

**Marine Resources Are Essential.** Life on earth is completely dependent upon the ocean as:

- a source of fresh water as a result of evaporation and atmospheric transport that brings precipitation on the land,
- the temperature-regulating system which permits life to exist on earth,
- a major source of oxygen for the atmosphere, and
- a great reservoir of animal protein.

The sea provides man with food, economic opportunity, educational and scientific resources, recreation, and inspiration. While the role of the sea as a source of food is already important, it is expected to become even more important in the future. Coastal waters are at a minimum four times more productive than the open ocean; even though the waters over the continental shelves comprise only 10 per cent of the world's ocean surface, 90 per cent of the world's fisheries are concentrated in this zone.

**California's Coast Is Especially Productive.** The California coastal marine environment is among the most productive in the world as it is enhanced by:

- a rugged sea floor with extensive structural relief that provides a variety of habitats,
- wind and currents which cause the upwelling of nutrient-rich deep waters to the surface;
- kelp beds that support an abundant variety of life;
- rocky tide pools and intertidal areas which sustain many unique species; and
- estuaries and wetlands that are among the world's most biologically productive ecosystems.

**Rugged Sea Floor Is One Physical Factor in Sustaining Biological Productivity.** Twenty-seven submarine canyons exert significant biological and geological control over the continental borderland by providing conduits for transmission of nutrient-rich deep water to the inshore environment. Underwater ridges, banks, mountains, and scattered islands also cause turbulent mixing in the water column by deflecting currents and waves, thus enhancing the fertility of the

sunlit surface waters where the vitally important process of photosynthesis occurs. These topographic features also provide areas of unique habitat and serve as spawning grounds.

**Kelp Beds Also Contribute Greatly to the Coast's Biological Productivity.** Kelp beds and kelp forests are a significant marine resource as they contribute to the high biological productivity of California's marine environment. Kelp serves as a sanctuary, nursery area, habitat, and food source for so many species that kelp supports a far greater variety and total amount of life than does a temperate land forest. The great "biomass" (the amount of living matter per unit area) of kelp functions as food and shelter as well, and provides an abundance of living matter to the surrounding sea. Kelp is usually found in rocky coastal environments from the intertidal zone to depths of 80 to 100 feet of water. Kelp is a source of many products useful and valuable to people, such as the thickeners and stabilizers in foods, cosmetics, and medicines, and additives in industrial products. In San Diego, for example, the value of the kelp harvested in 1972 was estimated at more than \$500,000 and the market value of products derived from the harvest at 10 times that amount. Kelp not only serves as a valuable source of natural products but also tends to dissipate wave action and thus retards processes of wave erosion along the shoreline.

**Some Human Activities Have Caused Kelp Bed Losses.** While the size of California's kelp beds varies radically over time in response to natural changes in water temperature and currents, they appear to have declined in overall distribution from about 100 to 75 square miles of area since the turn of the century. Some of this reduction is attributable to human activities that involve the following: sewage discharges that smother the sea floor with wastes, reduce water clarity needed for photosynthesis, and may contribute to a rise in the abundance of sea urchins that feed on kelp; thermal waste discharges that increase the temperature of the water beyond the tolerance of the plant; and toxic discharges of DDT and heavy metals. Overharvesting of kelp beds can also cause damage to the resource, although with a program of controlled harvesting, administered by the Fish and Game Commission, augmented by restoration efforts based upon appropriate research and observation, natural growth (at least of the giant kelp species) can sustain continued harvest in appropriate areas. Different varieties of kelp and different growing conditions in northern and



southern California, however, require careful evaluation in developing proper controls or prohibitions on harvesting. Despite kelp's unique role in the productivity of the coastal environment, no kelp interpretive center exists to inform and educate the public of the extraordinary importance of these plants. (See Policy 150 regarding the recommendation that certain kelp beds be included in a coastal reserve system.)

**Aquaculture in Coastal Waters.** Aquaculture (water agriculture) involves the cultivation and harvest of aquatic organisms. Currently it produces most of the mollusks marketed on the West Coast. In the future, aquaculture techniques may be improved and applied to other species, reducing costs and increasing availability of fish and shellfish as sources of protein. Coastal lagoons and estuaries are the predominant locations for aquaculture operations. Generally, aquaculture can coexist with any activity that does not cause pollution or deterioration of the marine environment. Some species can even thrive in heated waters in the vicinity of energy generating plants. Other species may be able to utilize nutrients from properly treated sewage discharges. The net impact may be a reduction of diversity, however. Some aquaculture operations may require the use of open waters now accessible to the public, thereby converting them to "private" waters. Additionally, aquaculture alters a natural habitat by selective cultivation of a plant or animal and so may displace other species.

**Vitality of California's Coastal Fisheries.** Living marine resources are not only important in supplying protein and other products, but they also contribute at least \$600 million annually to the California economy, including income from

processing, retailing, sport fishing, and fishing gear suppliers. The continued vitality of California's coastal fisheries (commercial and recreational) will require effective State, national, and international management to restore and maintain harvestable species at "optimum sustainable yield" (the catch level that can be continued indefinitely while stock is maintained or restored).

**Changes in International Fisheries Management.** There is increasing international recognition of the importance of the world seas and the need to deal with urgent ocean problems, such as overfishing of some species, affecting all living marine resources. International Law of the Sea Conferences in recent years have been working towards better management of the world oceans. The United States Senate has established the Ocean Policies Committee to aid in the transition to new national and international priorities affecting the sea's resources. Similarly, the State Assembly Subcommittee on Coastal Resources is exploring California's interests in worldwide ocean management. Emerging from the international efforts is the concept of jurisdiction over ocean resources extending 200 miles offshore from each coastal nation, rather than the present 12-mile jurisdiction. While this gives the United States authority over one-fifth of the world's fish stocks, including the valuable fisheries off California, it also requires increased international cooperation in sharing and managing these resources wisely.

**National Programs Being Developed.** The National Marine Fisheries Service of the National Oceanic and Atmospheric Administration (NOAA) is preparing the first National Plan for Marine Fisheries. As projected in that plan, the activities of Federal and state fisheries agencies will be expanded dramatically. New Federal and state laws, budget allocations, and compacts will undoubtedly follow the now established pattern of cooperation between Federal and state agencies. Individual states, or interstate organizations, will assume some direct control of new national fisheries policies within the 12-mile "territorial sea."

**California's Fisheries Management System Needs Improvement.** Present State management and regulations may be inadequate, especially as California takes on an expanded role in ocean resources management programs. Research and monitoring programs are often fragmented and incomplete. Within California's jurisdiction, the State Legislature regulates commercial fisheries, while the Department of Fish and Game is primarily concerned with sport fishing. Some fishing regulations are seen as punitive, particularly in view of the fact that California's commercial fishermen, sport fishermen, as well as fishermen from other states and nations, must all compete for available resources, yet are not all subject to the same laws. Overfishing — in the absence of regulations or by unregulated foreign or illegal fishing operations — can seriously deplete fish stocks to the detriment of commercial and sport fisheries, the general public, and the marine environment. A more comprehensive and better-funded program is needed to undertake marine resources management within the State's jurisdiction and to coordinate with other state, Federal, and international programs.

**Human Activities Affect Marine Resources.** The intimate details of the nature and diversity of living resources of the sea are not yet completely understood nor are all of the impacts of human activities upon the organisms and processes of the sea immediately apparent. It is clear, however, that marine resources are profoundly influenced by many human uses of the marine ecosystems. Pollution of water, over-exploitation of fish stocks, and destruction of essential habitat areas

all diminish the opportunity for people to benefit from the economic, recreational and other values of marine resources. Significant opportunities exist not only to protect but to restore the natural productivity of the marine environment as a renewable resource.

## Policies

**2. Basic Policy: Protect, Enhance, and Restore Marine Resources.** Public policy at all levels of government shall seek to maintain, enhance, and, where necessary, restore marine resources. While the entire ecosystem is important, special protection shall be given to areas and species of special biologic or economic importance including those identified by the State Water Resources Control Board as Areas of Special Biological Significance, by the State Department of Fish and Game, and in the Coastal Plan. Uses of the marine environment — for commerce, food supply, waste disposal, mineral extraction, and recreation — shall be carried out in a manner that sustains the productivity of coastal waters and does not threaten the existence of native species.

### 3. Maintain Healthy Populations of All Marine

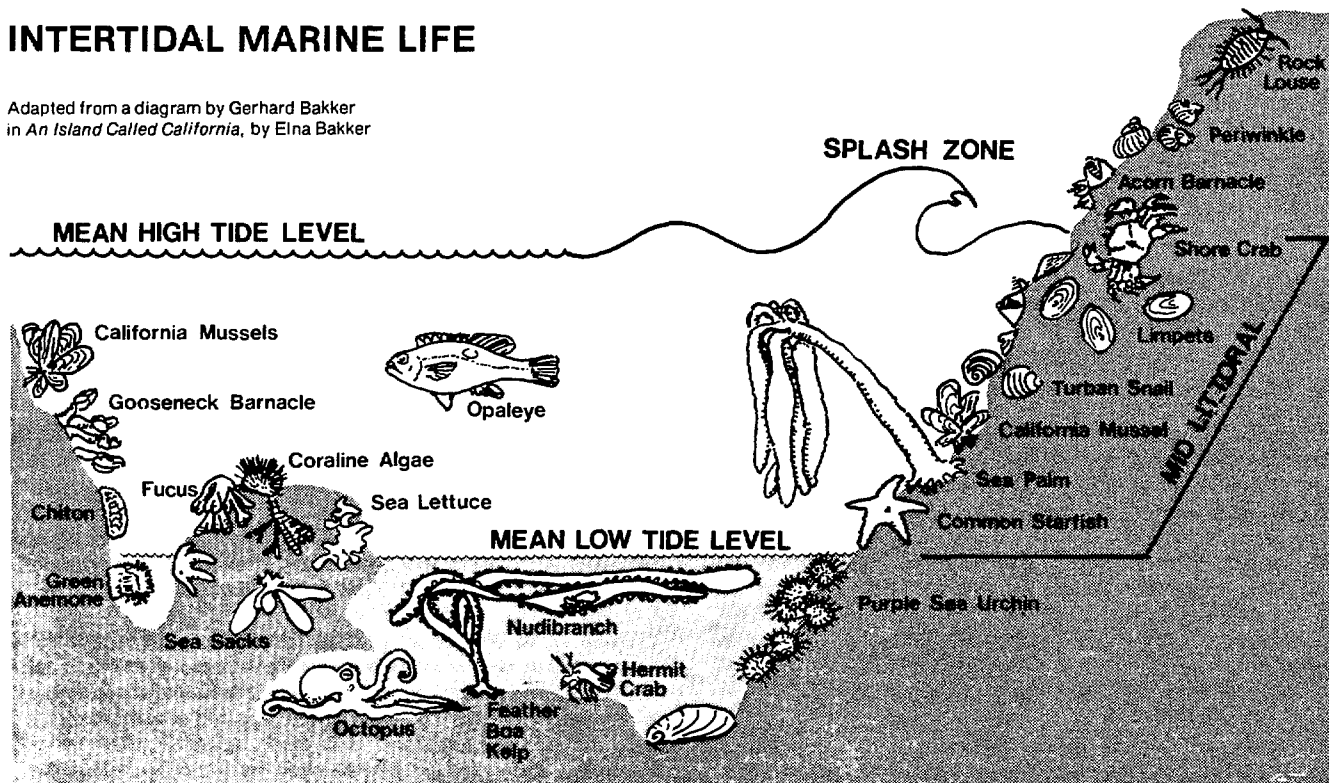
**Organisms.** Healthy populations of all species of marine organisms shall be maintained, adequate for commercial, recreational, scientific, and educational purposes. To this end:

#### a. Effective Marine Resource Management.

The State Department of Fish and Game and the Fish and Game Commission shall be adequately funded (from the General Fund as well as from hunting and fishing licenses and fines) and adequately staffed to maintain responsibility for the management of living marine resources. They shall be charged with exercising jurisdiction over both commercial and sport fisheries and kelp harvesting. The Department of Fish and Game shall coordinate its research and management programs with the comprehensive ocean water quality research and regulatory program described in Policy 6. It shall also continue to be responsible for maintaining and restoring scientific, educational, recreational, and aesthetic uses of living marine resources; developing and implementing habitat restoration and kelp propagation programs; disseminating public information; monitoring and coordinating marine research programs; and, based on determinations of population structure and dynamics and monitoring of fish

## INTERTIDAL MARINE LIFE

Adapted from a diagram by Gerhard Bakker in *An Island Called California*, by Elna Bakker



capture rates, establishing standards to assure optimum sustainable yield (the catch level that can be continued indefinitely while stock is maintained or restored) of all harvestable species. Present kelp harvesting regulations of the Fish and Game Commission shall continue to be refined and evaluated to prevent degradation and to maintain an optimum sustainable yield of kelp resources, based on scientific research and taking into account regional variations. Programs shall be investigated and, where appropriate, implemented for: (1) a commercial fishing academy, (2) hatcheries and stocking, and (3) limited entry to fisheries resources (e.g., limiting the number of fishermen, boats, or gear that may be used to harvest a resource, similar to the present regulation of kelp harvesting), particularly in the abalone and lobster fishery. The entry of private enterprise into hatchery and stocking activities shall be encouraged. Performance objectives for each of these responsibilities shall be agreed upon with the Department of Fish and Game, and progress in meeting the objectives shall be reviewed annually or biannually by the coastal agency and reported to the Governor and the Legislature. (Although this marine resource management program may be accomplished through a redirection of existing priorities and funding, it is recognized that additional programs and funding may be required. Further study will be needed to determine precise costs, legislative authorization, and program changes to carry out this policy. See Part III section on financing the Coastal Plan.)

- b. Cooperation with Other States and Nations.** California shall continue to seek effective fisheries management with adjacent states and shall support national and international fisheries control adequate to protect worldwide marine resources.

**4. Criteria for Aquaculture.** New or expanded aquaculture operations in coastal waters shall be encouraged under permit safeguards administered by the Department of Fish and Game (including use of adequate controls to prevent the accidental escape of non-native species) especially where they would preserve, restore, and enhance marine areas for public use and would not displace productive natural habitats. Where infringement on public use or natural habitat would occur, potential food production shall be weighed against the loss to the public of the fishery and the changed value of the natural habitat.



Eureka harbor

**5. Upgrade Commercial Fishing Facilities.**

Facilities serving the commercial fishing industry shall be protected and upgraded. Adequate berthing space and shoreline support (e.g., boatworks and space for fish buyers and equipment suppliers) shall be provided for commercial fishing boats and commercial party boats.

- a. Reserve Adequate Space for Commercial Fishing Facilities.** Existing commercial fishing harbor space shall not be eliminated or reduced unless the demand for commercial fishing facilities no longer exists or adequate substitute space has been provided. New or major expansions of recreational boating facilities that might use up remaining harbor areas suitable for commercial fishing facility development shall be permitted only if facilities serving commercial fishing in the area are adequate or if construction of needed additional facilities is assured.
- b. Allow for Needed Commercial Fishing Facilities.** New or expanded commercial fishing facilities requiring dredging or filling of coastal waters shall be allowed where (1) there is a need for the new facilities or expansion that cannot be met by more efficient use of existing facilities within the harbor or by facilities in nearby harbors, and (2) the need cannot reasonably be met by placing the facilities in open water areas. Conversion of such expanded commercial fishing facilities to recreational boating use shall not be justified on the basis of greater economic return from recreational boating.
- c. Provide Public Access.** The public shall be afforded access to commercial fishing harbors consistent with security and safety.

# COASTAL WATER QUALITY

## Findings

**Water Quality Management Involves Many Jurisdictions.** Current water quality management programs are based on the primary requirements in the 1972 Federal Water Pollution Control Act and its amendments. In California, the State Water Resources Control Board and the Regional Water Quality Control Boards are the primary agencies for water quality management. They administer the discharge permit requirements mandated by State and Federal regulations and prepare required basinwide and specific area wastewater discharge plans and programs. They also administer Federal grants for upgrading of treatment facilities and designate Areas of Special Biological Significance. The State Board's Ocean Waters Plan sets waste discharge quality requirements to protect beneficial uses of ocean water, including maintenance of marine life; its Thermal Plan places restrictive requirements on existing and new thermal discharges, though there has been some question as to their appropriateness and the need for individual resolution in applying the requirements; and the Bays and Estuaries Policy severely limits the discharge of municipal waste waters and industrial process waters to enclosed water bodies. A variety of local, subregional, and regional authorities are involved in collection and treatment of waste waters. Local health departments authorize septic tanks in areas without sewer systems. Thus, current water quality management programs are divided among Federal, State, regional, and local jurisdictions.

**Some Water Quality Program Changes Underway.** A number of additional important water quality programs are currently being developed. The U.S. Environmental Protection Agency (EPA) is applying effluent limitations for various types of domestic and industrial sources of waste water. Regulations for electric power generating plants (important for both thermal and other effluent components) were proposed in March 1974. A number of Regional Water Quality Control Boards are currently developing erosion control policies under the requirement that general sources of pollution, such as construction practices, be controlled.

**Coastal Plan Can Set Stricter Standards.** The Federal Coastal Zone Management Act requires that the Federal requirements and those of State and local governments pursuant to the

Federal Act may not be weakened in any way by the coastal management program, although the Coastal Plan may impose stricter wastewater quality criteria.

## Policy

**6. Expand Ocean Water Quality Research and Regulatory Program.** A comprehensive ocean water quality research and regulatory program based on that presently carried out by the State Water Resources Control Board shall be expanded and implemented cooperatively by the State Water Resources Control Board, the State Department of Fish and Game, and other appropriate State and local agencies. The protection of areas of special biologic importance (see Policy 2) shall be the first priority. The program shall include empirical studies of the present condition of marine living resources (baseline studies), assessment of damage from various activities, and evaluation and appropriate control of all potentially hazardous discharges and development affecting the marine environment, as further described in Policies 7-14. (Although this program may be accomplished in part through a redirection of existing priorities and funding, it is recognized that additional programs and funding may be required. Further study to determine precise costs, legislative authorization, and program changes is needed to carry out these policies. (See Part III section on financing the Coastal Plan.) This program shall be closely coordinated with the living marine resources management program described in Policy 3. Program results shall be reviewed annually by the coastal agency, evaluated, and reported to the Governor and the Legislature.

## WASTE DISCHARGES

### Findings

**Waste Discharges Impair Essential Water Quality.** Currently at least 130 waste disposal outfalls annually discharge 444 billion gallons (1.36 million acre-feet) of domestic and industrial sewage that has received varying degrees of treatment

into California's wetlands, estuaries, and coastal waters. Such discharges seriously impair water quality that is essential to the health of marine as well as human life.

**Enclosed Water Bodies Are Especially Vulnerable to Damage.** Enclosed bodies of water such as bays, estuaries, and lagoons, with their limited water circulation and abundant plant and animal species, are more susceptible to damage

from water pollution than is the open ocean. Most wastes discharged into the water consume oxygen as they decompose. Many wastes are natural products that the sea can decompose and reintroduce into the life cycle, but with large amounts of organic material or with discharges into enclosed or semi-enclosed areas with poor water circulation, wastes can cause fish kills, algal blooms, stagnation, foul odors, and smothering of benthic (bottom-dwelling) organisms.

**Mid-1977 Deadline for Secondary Treatment of All Sewage.** Following primary treatment of raw sewage, wastes still contain 60 to 70 per cent of the original organic material when they are discharged. Federal law now requires that, by July 1977, all sewage receive secondary treatment, or its equivalent, which will remove 80 to 90 per cent of the oxygen-demanding organic wastes. Secondary treatment may also reduce the concentrations of micro-organisms, chemicals, heavy metals, particulates, and silt loads in discharged waste waters.

**Many Present Discharges Are Inadequately Treated.** At present many of the sewage discharges into coastal waters are inadequately treated. Only 15 per cent of all municipal waste waters discharged off the coast of Los Angeles and Orange Counties in 1973 received secondary treatment, for example. This results in an intense concentration of pollutants in the area between Newport Bay and El Segundo. Santa Cruz's Eastcliff sewage plant and Pacific Grove's plant both discharge effluent with only primary treatment into Monterey Bay, although these plants are scheduled to tie into improved sanitation systems in the next few years. There are many other areas suffering adverse effects from the discharge of inadequately treated waste water.

## Policies

**7. Basic Policy: Maintain, Manage, and Restore Ocean Water Quality.** The natural quality of ocean water appropriate to the maintenance of optimum populations of marine organisms and for the protection of human health shall be maintained, managed, and where necessary, restored. Using either the U.S. Environmental Protection Agency or State Water Resources Control Board (SWRCB) standards, whichever is more stringent, as a minimum, all agencies shall take appropriate action to assure that this goal is met. The State Water Resources Control Board, which is the agency authorized to set waste discharge standards, shall set those standards appropriate to assure that the objectives of this policy are met; the coastal agency shall approve, modify, or disapprove development proposals and plans within its area of jurisdiction to assure that the objectives of this policy will not be frustrated by inappropriate development. SWRCB and the coastal agency shall periodically report to the Governor and the Legislature progress toward achieving the objectives of this policy.

**a. Upgrade Existing Municipal and Industrial Discharges.** All municipal and industrial waste

discharges shall be upgraded to meet the goals and standards of the Federal Water Pollution Control Act as amended, and to comply with Section 13379 of the California Water Code, which requires compliance with these amendments. The ultimate goal shall be the removal of all pollutants from waste discharges. Highest priorities in the coastal area shall be given to improving or eliminating discharges that adversely affect (1) wetlands, estuaries,



Ford Ord sewage outfall

other biologically sensitive sites, (2) areas important for water contact sports, (3) areas that produce shellfish for human consumption, and (4) ocean areas subject to massive waste discharge (e.g., between Newport Bay and El Segundo). Outfall sites and equipment shall also be improved to provide substantial diffusion of discharged waste waters as provided by the present water quality standards.

**b. Phase Out Discharges to Enclosed Bays and Estuaries.** Existing discharges of municipal waste waters and industrial process waters to streams, wetlands, enclosed bays, and estuaries shall be phased out as soon as possible (as provided by the State Water Resources Control Board's Water Quality Control Policy for Enclosed Bays and Estuaries of California),



and new discharges shall be prohibited unless the waste water is (1) necessary to maintain water flow or water level in the receiving waters and (2) consistently treated to enhance the quality of receiving waters while maintaining the natural balance of the ecosystem.

- c. **Require Adequate Treatment for New or Enlarged Discharges to Other Coastal Waters.** New or enlarged sewage systems and treatment plants discharging to other coastal waters shall meet present Federal requirements, and all wastes shall be treated sufficiently to maintain the natural quality of ocean waters and thereby to sustain optimum healthy populations of marine organisms (e.g., fisheries, kelp beds) and maintain human health and suitability, where appropriate, for water contact sports. The effects of discharges shall be determined on the basis of specific studies of each proposed outfall location, considering ocean chemistry and mixing processes, marine life conditions, other present or proposed outfalls in the vicinity, and relevant aspects of areawide waste treatment management plans and programs, but not considering, for purposes of this policy, convenience to the discharger.
- d. **Control Discharges from Non-Sewered Developments.** New or expanded coastal developments that are not connected to sewer and sewage treatment systems shall be required to meet strict waste discharge requirements to prevent adverse impacts, including long-term and cumulative impacts, on marine waters.
- e. **Restrict Expansion of Substandard Sewage Systems.** Expansion of sewer service in areas with substandard treatment and disposal facilities shall not be permitted until adequate facilities are in operation.

f. **Require Source Control.** Toxic and hard-to-treat substances shall be pretreated at the source if such substances would be incompatible with effective and economical treatment in municipal treatment plants (e.g., as presently required as a regulation of the State Water Resources Control Board's grant program for municipal facilities).

8. **Stress Reclamation of Waste Water.** Reclamation and reuse of adequately treated waste water (for agricultural, industrial, recreational, fish and wildlife, marsh enhancement, or domestic use) shall be fully considered as a preferred alternative to discharges into coastal waters and as a desirable component of all water and waste water management programs. High priority for funding shall be given to projects necessary to offset the continued depletion of coastal area water supplies (both surface and groundwater) and to decrease the need for water importation programs. (See also Policy 23 regarding water reclamation as part of water supply planning.)

9. **Strictly Regulate Wastes from Vessels.** Discharges of sewage, waste waters, and other materials from vessels and related facilities shall be regulated to prevent adverse environmental impact upon enclosed bodies of water (e.g., by using sewage system hookups for large ships at berthing docks and holding tanks and pumpout facilities for small craft). This policy may require further State and Federal action for full implementation. Similarly, discharges from vessels into open waters shall be regulated to prevent adverse impacts. Environmental Protection Agency standards and Coast Guard certification procedures shall be rigorously enforced.

## HEATED AND COOLED DISCHARGES

### Findings

**Power Plants Use and Discharge Huge Volumes of Water.** Over three trillion gallons (9.2 million acre-feet) of seawater are now used every year to cool power plants on the coast and are then discharged at warmer temperatures into marine waters. Based on industry data, the amount of coolant water circulated through the Southern California Edison plants within the South Coast region alone would cover a 12-square-

mile area, one foot deep, daily. Additional uses of seawater, especially for major heating and cooling systems in energy facilities, are proposed.

**Industrial Uses of Seawater Have Adverse Effects.** Coastal waters used for heating or cooling purposes, industrial processes, or mineral extraction can adversely affect the marine environment. Water is discharged at temperatures higher than ambient conditions. For example, thermal discharges from power plants between El Segundo and Huntington Beach



increase the surface ambient water temperature at any given time by 4° F. or greater over a combined area of almost two square miles. New currents or turbidity are created near intake and outflow points. Marine life is subjected to entrainment in the system. Chemicals used in such systems can kill many plants and animals.

**Many Potential Effects of Heated Discharges.** Research to date has been inconclusive in determining the exact beneficial and detrimental impacts of heated water discharges, but potential effects can include the following:

- Some species that cannot tolerate the warmer water will leave or die off. (Kelp is among heat-sensitive organisms, with adverse effects generally at temperatures exceeding 66° F.)
- Other native species and aquaculture operations may be enhanced by warmer temperatures.
- Reproduction and migration patterns of some species may be disrupted.
- In restricted water bodies, the amount of oxygen dissolved in the water may decrease, while the amount required for life processes will increase.

**Little is Known About Effects of Cooled Water Discharges.**

In the process planned for use at proposed liquefied natural gas (LNG) facilities on the California coast, large amounts of seawater would be used to heat the supercooled LNG, transforming it to a gas through heat exchangers in the vaporization facility. In the process, the seawater is cooled; it is returned to coastal waters at temperatures as much as 12° F. below ambient temperatures. Although it is known that



reductions in water temperature can be fatal to marine life, little specific data has been developed on the effects of continuous cold water discharges on marine ecosystems. There is reason to suspect that unnatural reductions in temperature have a particularly severe effect on embryonic and fetal development. Because the problem has not yet presented itself in California, the State Water Resources Control Board has not developed standards for cold water discharges comparable to those for heated discharges. Under existing rules and procedures, the Regional Water Quality Control Boards

would regulate such discharges on a case-by-case basis to prevent adverse effects on beneficial uses of the receiving waters.

**Entrainment Kills Marine Organisms.** Many marine organisms, including phytoplankton, zooplankton, fish larvae, and small fish, are entrained as water is drawn from the sea for use in industrial or power plants. Many of these entrained organisms are killed due to pressure and temperature changes, impingement, physical abrasion, and chemicals. This problem remains to be resolved at any site circulating seawater for heating or cooling purposes.

**Chemicals Cause Additional Adverse Effects.** Periodic "hot cycle" or chemical treatments with biocides for flushing the cooling or heating systems can cause additional damage to marine organisms in the immediate vicinity of the outfall.

## Policy

**10. Avoid Adverse Effects of Thermal Discharge and Entrainment.** The adverse environmental effects of the intake of seawater and of discharges of heated or cooled seawater shall be reduced consistent with those Coastal Plan policies calling for restoration or enhancement of coastal waters, using the U.S. Environmental Protection Agency standards in effect July 1, 1975, or State Water Resources Control Board standards, whichever is more stringent, as a minimum. All State agencies shall take appropriate action to assure that these goals are met.

**a. Criteria for Permitting Thermal Discharges.**

New warmed or cooled water discharges shall be permitted where (1) rapid return of discharged water to normal ambient temperature can be assured; (2) the discharge enhances, is important in restoring, or otherwise maintains the optimum population abundance and diversity of marine life, and (3) the best available mitigation measures have been incorporated as necessary to minimize adverse effects on marine life. Cooled water discharges shall be permitted only where there is no other feasible use of the cooled effluent in commercial or industrial operations.

**b. Prohibit All Harmful Discharges into Areas of Special Biologic Importance.** New warmed or cooled water discharges into areas of special biologic importance, such as Areas of Special Biological Significance as identified by the State Water Resources Control Board, coastal wetlands, marine reserves, wildlife refuges, education and research reserves, or in the vicinity of kelp beds, shall be permitted only if the discharge will enhance the quality of the receiving waters and will not alter the natural balance of the ecosystem.

- c. **Study Marine System at Future Sites of Seawater-Using Plants.** To assure adequate measures to protect the marine environment, "baseline" studies of the existing marine system shall be conducted in the area that could be affected by a seawater-using industrial or power plant for a statistically valid period of time (usually not less than two years). The study shall be made in advance of the anticipated start of construction at the expense of the plant developer, and shall be made by independent marine experts.
- d. **Prefer Closed or Evaporative Cooling Systems.** As a general rule, until more is known about the effects and methods for mitigating impacts of once-through cooling systems, closed or evaporative systems shall be preferred. The decision for each site shall be based on a consideration of the overall environmental advantages and disadvantages of each system.
- e. **LNG Plants Shall Seek to Use Already Heated Water.** Where feasible, LNG vaporization plants shall be required to use heated effluents from nearby power plant or other industrial

operations, rather than seawater at ambient temperatures, for a heat source.

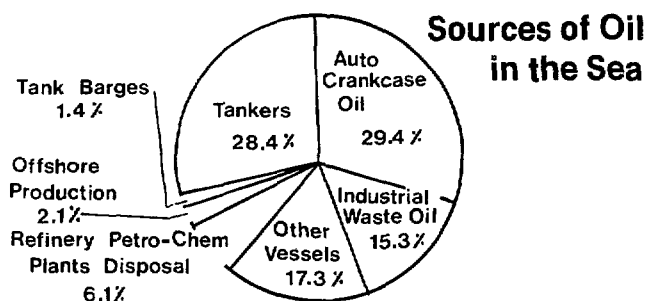
- f. **Minimize Entrainment.** For each coastal power plant or other installation using seawater for cooling or industrial processing, the best available site, design, and technology shall be used to minimize the intake and mortality of all forms of marine life. Design shall include such features as offshore intake points, velocity caps, and fish return systems.
- g. **Research Effects of Thermal Discharges.** A State agency shall be adequately empowered and funded to direct and coordinate research on the environmental effects of thermal (heated or cooled) discharges, antifoulant biocides, and entrainment of organisms.
- h. **Monitor Discharges, Require Mitigation Measures.** Existing and new thermal discharges shall be periodically monitored (by independent investigators or a State agency). It is recommended that the Legislature authorize a State agency to require appropriate mitigation measures or alternative heating or cooling systems where significant adverse impacts are discovered.

## OIL AND TOXIC SPILLS

### Findings

**Several Sources of Oil in the Sea.** Oil enters the sea from several sources, including deballasting of tankers, bilge pumping, ship accidents, vessel operations and ship yards, sewage effluents, oil well accidents, fallout from air pollution, and natural seepage.

**Oil Spills Have Differing Reported Impacts on Marine Environment.** There are conflicting opinions on the environ-



mental effects of oil spills, but in general oil spills are more hazardous to the marine environment in nearshore areas than in deep water because the productivity of shoreline, estuarine, and bay and harbor areas is affected immediately. The damaging effects tend to be more severe from refined products than from crude oil. Although some animal species (possibly including some rare or endangered species) are highly vulnerable to petroleum and could be wiped out by a major oil spill, many species with adjacent reproductive stocks seem to reassert themselves following the initial die-off after a spill.

**Long-Term Effects of Spills Not Completely Known.** Oil is absorbed by many bottom sediments and re-emitted for many months or years after a spill. Sub-lethal effects of oil pollution may endanger the long-term survival of a species or the entire ecosystem; however there have been few research projects on these effects and conclusions so far have been equivocal.

**Further Studies of Effects, Complicated by Natural Seeps, Are Under Way.** Additional research on the sources and effects of oil in the ocean is being conducted by various groups in California. Studies on the effect of spills along the coast are complicated by the presence of natural oil

and gas seeps that regularly emit petroleum, with unknown effects on the marine environment. The Division of Oil and Gas has documented over 50 seeps and seep areas between Point Conception and Huntington Beach, and many more seeps probably exist; although oil and gas seeps have occurred near the sea in Marin and Humboldt Counties, there are no specifically located offshore seeps north of Point Conception.

**Coastal Communities and Activities Are Impacted by Spills.**

Oil spills are aesthetically displeasing; they cover beaches, create odors, can impart an unpleasant flavor to fish, and may have significant economic and psychological impact on human communities within the coastal zone. Recreation, commercial fishing, and water-related activities suffer the most severe direct damage, but can recover in the absence of further spills. Of all the existing or proposed Federal offshore production areas — on the Gulf of Mexico, Atlantic, and Alaskan continental shelves — only California's producing area is located close to a large human population (10 million plus) that is directly affected by the environmental, aesthetic, psychological and economic effects of offshore production.

**Amount of Damage Depends on Several Factors.** The amount of damage from an oil spill varies in degree and duration depending on the quantity and type of oil, the degree to which it has been refined, wind and wave conditions, and the location of the spill, with the most serious damage normally taking place in nearshore waters and enclosed bays and estuaries. Some cleanup procedures taken to counteract the effects of an oil spill may be more destructive than the spill itself, such as the use of detergents or techniques that coagulate and sink oil to the ocean floor.

**Existing Oil Liability Measures Are Inadequate.** Although California has suffered several oil spills off its coast, primarily from tanker mishaps and deballasting of fouled water, and from an offshore oil platform blowout, existing liability programs are largely inadequate.

- **State.** The State of California itself has no funding to pay the costs of oil spill damages but instead relies on the State Attorney General to file suit against the appropriate contingency or compensation funds or against other parties for cleanup costs and damages incurred by the State. Other individuals damaged by oil spills must seek their own relief.
- **Federal.** The Federal Water Pollution Control Act makes a tanker owner or operator liable for cleanup costs up to \$14 million, and a terminal operator liable for up to \$48 million. Liability is unlimited if there is willful negligence or misconduct; but there is no liability if the discharge was caused solely by an act of God, act of war, negligence by the U.S. Government, or the act or omission of a third party. There is also a National Contingency Fund of \$35 million, provided by the U.S. Treasury, for use of the Coast Guard or EPA in cleaning up spills, or for reimbursement to states of their costs incurred in cleanup. These laws apply to cleanup liability, but do not provide for compensation of damages. The Deepwater Port Licensing Act, passed in late 1974 to govern deepwater port development in Federal waters, creates a deepwater port liability fund of \$100 million by a tax levy of two cents per barrel on oil that is loaded or unloaded at the terminal. The bill makes owners and operators of vessels liable, without regard to fault, for discharges and damages

up to \$20 million, and makes deepwater port licensees liable, without regard to fault, for up to \$50 million. Costs and damages not actually paid by the vessel owner/operator or port licensee would be compensated by the liability fund. Draft Senate legislation relating to Outer Continental Shelf (OCS) development proposes a similar scheme to cover spills caused by drilling and production activities offshore. The Council on Environmental Quality and President Ford have proposed creation of a single national liability fund to cover spill cleanup costs and damages from all sources in State or Federal waters.

- **International.** Two international industry voluntary compensation funds, TOVALOP and CRISTAL, provide oil pollution liability coverage for participating companies of \$10 million and \$30 million, respectively, for cleanup and third-party damages. In addition, two international conventions that would establish civil liability, with limits, and an international compensation fund have been proposed and are being circulated for ratification; they would become effective only if ratified by the U.S. Senate and by a sufficient number of other nations.

**Existing Liability Programs Are Inadequate.** Except for the liability provisions of the Deepwater Port Licensing Bill, the existing liability programs are inadequate for a variety of reasons: some provide only for cleanup costs, and not for damages; all provide dollar amounts that may be inadequate in the event of a major spill; all leave a very heavy burden upon states and individuals to litigate for compensation of damages; all leave the question of liability to the law of ordinary negligence, rather than to strict liability. The proposed alternative programs would variously remedy these deficiencies. Enforceability of liability laws may be greatly facilitated by development of techniques for tracing spills to their sources.

**Several Toxic Substances Harm Marine Life.** Chlorinated hydrocarbons (such as DDT) and polychlorinated biphenyls (PCB) as well as heavy metals (such as mercury, lead, silver, cadmium, copper, chromium, and zinc) find their way into the marine environment from a variety of sources, including domestic and industrial effluents, rainwater runoff (containing pesticides and other substances from urban and agricultural areas), ship repair yards where anti-fouling paints are removed, and air pollution fallout. Some of these substances accumulate in sediments, complicating dredge removal and disposal. Most of these substances, in excess quantities, have been shown to have some adverse effects on marine organisms, and there is evidence that some, such as DDT and PCB, may also ultimately effect humans because they may build up in concentration as they move up the food chain. The most effective, economical, and equitable means to control such substances is to contain or treat them at the source.

## Policies

**11. Prevent Release of Oil and Toxic Substances by Strict Regulation.** The release in unnatural amounts of fuel and oil, many chemicals, heavy metals, and other toxic substances into the marine environment shall be strictly regulated to minimize adverse environmental effects. Specifically:

## PLAN MAP 35: MAP NOTES

### SUBREGION 2: ESTERO/MORRO BAY

**Cayucos.** Maintain small beach-community atmosphere by developing within the size and scale of the existing town.

**Estero Bay.** Maintain the productive offshore fisheries.

**Morro Bay.** Preserve as an estuary of statewide significance (listed as one of the top 10 priority wetlands in the state by the California Department of Fish and Game and the U.S. Bureau of Sport Fisheries and Wildlife). Recommendations for the estuary include (1) support of the Morro Bay inter-governmental watershed study; (2) creation of an ecological reserve of lands within and around the bay; and (3) public acquisition of privately held wetlands and the perimeter of the bay, including a 50-acre wetland area as an addition to the existing State Park (a State Department of Fish and Game proposal) and 90-100 acres of scattered parcels between Morro Bay and Montana de Oro State Parks as buffer areas to protect the bay and upland areas for general recreational use. Control siltation through careful monitoring of sand inflow from littoral drift and the upland watershed.

**Morro Rock Nesting Site.** Protect as one of the few nesting sites of the peregrine falcon, an endangered species.

**Fairbanks Point.** Protect as a specialized wildlife habitat and an important heronry.

**Morro Bay Watershed Special Study Area.** Using the Morro Bay Watershed Study to establish primary policies, develop a sub-regional plan which balances present and future land uses with available resources such as water, waste disposal, and available land. Primary objectives will be the preservation or enhancement of the Morro Bay estuary, regulation of land uses within the watershed that ensure this objective, protection of the existing recreational resources from overuse, and balancing the growth rate so that these resources will not be negatively impacted.

**Warden and Eto Lakes.** Preserve as a freshwater marsh habitat and an area for migratory birds.

**Baywood Park-Los Osos.** Maintain character of the community by conserving the natural vegetation, in particular the pygmy oak groves. Monitor the groundwater quality to assure no contamination of Morro Bay from septic systems. Include Sweet Springs freshwater marsh and the Cathedrals (landmark trees) as part of Morro Bay buffer area acquisitions. Protect the highly visible landmark trees south of Sunset Terrace, east of Pecho Road, and south of Los Osos Valley Road. Provide a buffer zone between developed areas and sensitive habitat areas such as Morro Bay, the pygmy oaks, and rare and endangered species.

**Montana de Oro State Park.** Expand to include Hazard Canyon, which contains a rare and endangered plant species and Morro Bay kangaroo rat habitat (a rare and endangered species). Protect the Bishop-pine forest adjacent to Coon Creek; explore feasibility of eventual acquisition.

**Point Buchon to Point San Luis.** Protect seal rookeries.

### SUPPLEMENTAL NOTES

**Anadromous Fish Streams.** Toro Creek, Morro Creek, Chorro Creek, and Los Osos Creek.

ing from any drilling, production, processing, or transport associated with development of the offshore or onshore petroleum resource or with operation of any tanker or tanker terminal, without regard to the cause of the discharge, except that the fund shall not be liable for any discharge caused solely by an act of war. Administrative and arbitration procedures shall be established to allow claimants showing proof of damages within a specified time period to be compensated promptly without protracted and expensive litigation. The fund shall recover any money spent for abatement, containment, and cleanup operations or for compensated damages, from offshore and onshore owners and operators, tanker and tanker terminal owner and operators, or other parties, as described below in paragraph (d) of this policy. A part of the fund shall go annually toward further development of oil spill containment and cleanup technology, research and surveillance programs for identifying the sources of oil spills, and operating expenses of State and Federal oil spill disaster contingency plans (see Policy 11[b], above). The liability fund shall be created and maintained by levy of a two-cent fee on each barrel of petroleum produced from a well on State lands, on each barrel of petroleum produced from a well on Federal lands that enters California for treatment, processing, or delivery, and on each barrel of foreign-produced petroleum loaded or unloaded at California tanker terminals. The liability fund shall have a standing limit of \$100 million. Fees shall be levied only at times when the fund contains less than that amount, or when claims against the fund exceed \$100 million.

- b. Liability for Spill Costs.** Except when an offshore lessee or operator, or the owner or operator of any tanker, tanker terminal, or equipment or facility used in the production,

processing, or transportation of oil can prove that an oil discharge from its operations was caused solely by an act of God, an act of war, negligence by the U.S. Government, or the act or omission of a third party, the lessee, owner or operator shall be liable to the liability fund for all costs and damages resulting from such discharge and paid by the fund. Such liability shall not exceed \$20 million for individual owners and operators of offshore equipment, tankers, or other equipment or facilities used in the production, processing or transportation of oil, and \$100 million for individual terminal owners and operators, unless it can be shown that such discharge resulted from the gross negligence or willful misconduct of the owner or operator, in which case liability shall be for the full amount of all cleanup costs and damages.

- c. Drillers Shall Post Bonds.** Prior to leasing, each applicant for permission to drill on State tide and submerged lands shall be required to show the State Lands Commission evidence of secured financial responsibility in the amount of \$20 million for each individual lease.
- d. Register Drillers and Tanker Owners and Operators.** All drilling applicants and all owners and operators of tankers operating in California waters shall register with the California Secretary of State for service of process.

**13. Create Single National Oil Spill Liability Fund.** The California Legislature and the California Congressional delegation are urged to support Federal legislation creating a single national oil spill liability fund, covering oil discharges from all sources related to production, processing, or transportation of oil, incorporating the measures proposed in Policy 12. In the event such Federal legislation is enacted, any unilateral California legislation on this subject shall be repealed.

## RUNOFF

### Findings

**Runoff Can Degrade Coastal Water Quality.** Abnormal silt loads (in runoff waters from construction, grading, removal of vegetation, and other upland developments and activities)

can damage marine resources, especially in estuarine areas, because of sedimentation and increased turbidity. In addition to silt and toxic substances, surface runoff can carry excessive organic matter (e.g., from failing septic tanks, logging debris, and agricultural operations) that further degrades marine waters. Siltation can also necessitate costly and environmentally damaging silt removal projects.

## Policy

### 14. Control Runoff That Degrades Coastal Waters.

Runoff shall not be permitted to degrade coastal waters, especially wetlands, estuaries, nearshore reefs, tidepools, kelp beds, and other sensitive areas. To this end:

- a. **Control Adverse Water Quality or Quantity Impacts of Runoff from Developments.** Developments that could directly or cumulatively aggravate runoff problems or create a significant adverse impact on coastal waters (because of such factors as induced erosion, harmful runoff materials, failing septic tanks, and animal wastes) shall be permitted only if adequate measures are taken to prevent degradation of water quality or unnatural changes in the rate of waterflow into coastal waters.
- b. **Treat Polluted and Contaminated Runoff at Source.** Runoff that contains substantial amounts of pollutants and contaminants (in-

cluding certain urban, industrial, agricultural, and boat and shipyard runoff) shall be treated or contained at the source, in accordance with areawide waste treatment management programs required to be developed by Section 208 of the 1972 amendments to the Federal Water Pollution Control Act. First priority for such programs shall be given to areas where the impact of pollutants and contaminants on the receiving waters is greatest. Storm water runoff shall be monitored periodically for the presence of pollutants; harmful pollutant loads found shall be traced and controlled.

- c. **Adopt Ordinances to Control Runoff, Erosion, and Silt.** A runoff, erosion, and silt-control model ordinance shall be developed by the coastal agency, the State Water Resources Control Board, the Division of Forestry, and other involved agencies, and shall be adopted and enforced throughout coastal watersheds by all appropriate regulatory agencies. (See also Policies 21-23 on watershed management.)

# COASTAL WATERS, ESTUARIES, WETLANDS

## Findings

**Coastal Waters Are Highly Productive.** Nearshore coastal waters (and especially estuaries and wetlands) are extremely productive. Coastal estuaries are mouths of rivers, lagoons, and enclosed bays (all areas that are connected permanently, periodically or occasionally to the sea and within which seawater is occasionally or periodically diluted with freshwater runoff from the land). Coastal wetlands, made up of tidal marshes and mudflats and related freshwater marshes, are a vital part of the productive coastal water system. Coastal waters are generally rich in nutrients carried from the land by the rivers and streams that also bring fresh water to these areas. And the generally shallow depths of estuaries and wetlands often allow sunlight to penetrate to the bottom, permitting plant growth to take place. The open water areas are also an important component of the total coastal marine environment, although they may not be as productive or fragile as shallow estuaries and wetlands.

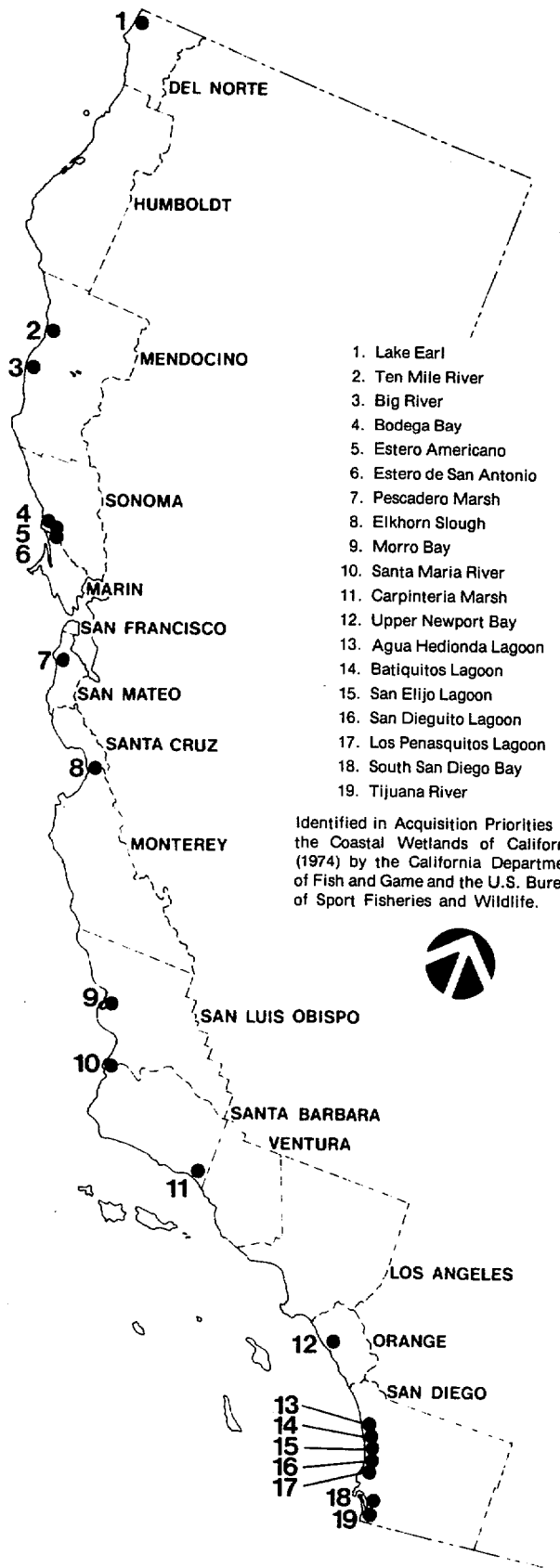
**Estuaries and Wetlands Are a Vital Link Between the Land and the Sea.** Salt marshes are one of the most productive living systems known, ranking in productivity with intensively cultivated rich tropical agriculture. Salt marsh plants transfer phosphorus compounds from the mud into the water, increasing the amount of this nutrient available to the microscopic plants (phytoplankton) that are a basic element in the marine food chain. Tidal mudflats support the growth

of blue-green algae that fix atmospheric nitrogen so that it can be assimilated by other plants. The estuarine system is much more extensive than the areas subject to tidal influence. The area between the upper edge of the tidal zone and the surrounding upland vegetation communities and freshwater marshes can be critical in maintaining the environmental balance in estuaries and in providing habitat for shorebirds. In addition, the amount, timing, and quality of fresh water entering an estuary is essential to the existence of plant and wildlife habitats.

**Many Fish, Bird, and Animal Habitats Are Found in Sheltered Coastal Waters.** Many fish, water-fowl, shorebirds, wading birds, and other animal species use the productive coastal estuaries and wetlands either directly for spawning, nesting, resting, or feeding or indirectly as a provider of essential food through the food chain. Many rare or endangered species are entirely dependent on habitats found in California coastal waters. Because of the abundant wildlife present, estuaries and wetlands are valuable educational, research, and scenic resources.

**Certain Wetlands Have Been Identified as Most Productive.** The California Department of Fish and Game and the U.S. Bureau of Sport Fisheries and Wildlife, in their joint report of April 1974, entitled *Acquisition Priorities for the Coastal Wetlands of California*, have identified 25 high priority wetland areas for acquisition, based primarily on their fish and wildlife values and threats to their continued existence as a

## Most Productive Coastal Wetlands



natural resource. Nineteen of these are in the coastal zone. Of the 19, nine have been given top priority and have been studied and mapped in more detail: Elkhorn Slough, Morro Bay, Carpinteria Marsh, Upper Newport Bay, Batiquitos Lagoon, San Elijo Lagoon, Los Penasquitos Lagoon, South San Diego Bay, and Tijuana River. Study continues on the other 10 priority coastal zone wetlands: Lake Earl, Ten Mile River, Big River, Bodega Bay, Estero Americano, Estero de San Antonio, Pescadero Marsh, Santa Maria River, Agua Hedionda Lagoon, and San Dieguito Lagoon.

**Estuaries and Wetlands Are Very Vulnerable to Abuse.** Coastal estuaries and wetlands are particularly vulnerable to being used by man in ways that provide economic benefits but nevertheless destroy their natural values. Coastal estuaries and wetlands have been dredged for ports and marinas, subjected to sedimentation from upland erosion, filled to provide new land for development, used as sumps for domestic sewage and industrial waste, and deprived of fresh-water inflow by water diversions. Of the original 197,000 acres of marshes, mudflats, bays, lagoons, sloughs, and estuaries in California (excluding San Francisco Bay), the natural productivity and open space values of 102,000 acres (52 per cent) have been destroyed by dredging or filling. Of California's remaining estuaries and wetlands, 62 per cent have been subjected to severe damage and 19 per cent have received moderate damage. In southern California, 75 per cent of the coastal estuaries and wetlands have been destroyed or severely altered by man since 1900. Two-thirds of 28 sizable estuaries existing in southern California at the turn of the century have been dredged or filled.

**Dredging and Mining Can Have Adverse Environmental Effects.** Dredging and mining can affect marine resources in several ways. Dredging tidal mudflats and salt marshes can completely destroy these most productive parts of the estuarine system. Newly dredged channels can change water circulation patterns in estuaries and can introduce new conditions that certain species cannot tolerate. Dredging and mining operations stir bottom mud, which can cause turbidity that limits photosynthesis in a small area and can recirculate oxygen-demanding or toxic materials that may have been trapped in the mud. These effects can be limited if careful dredging methods are used. Finally, disposal of the dredged materials ("spoils") can smother benthic (bottom-dwelling) organisms.

**Some Beneficial Effects Are Possible.** Dredging and spoils disposal can also be environmentally beneficial. Valuable marine environments may be able to be restored by dredging diked former wetlands to return them to tidal action, or by deepening lagoons that are drying up. The substrate for benthic plants and animals may be improved by dredging. Sandy dredge spoils placed on or near beaches or in littoral currents can aid in the replenishment of beach sand along the coast.

## Policies

**15. Give Special Protection to Estuaries and Wetlands.** All remaining coastal estuaries and wetlands and buffer areas necessary to protect their water areas, vegetation, waterfowl, fish, and other wildlife values shall be preserved, enhanced, and where possible, restored. To this end:

**a. Restrict New Development in Wetlands.** New development, including diking, filling, and dredging, in existing or restorable wetlands shall be permitted only if (1) the existing functional capacity of the wetland is maintained or enhanced (i.e., some alteration but no net reduction in the quantity and quality of species); (2) replacement areas are provided for dredged, filled, or diked areas (pursuant to Policy 17); (3) there is no less environmentally damaging alternative; and (4) the development conforms with an adopted comprehensive estuarine management plan (see paragraph [c] below) and is otherwise consistent with the applicable Coastal Plan policies. Any alteration of the State's 19 most productive coastal wetlands as identified and mapped in the report of April 1974 by the U.S. Bureau of Sport Fisheries and Wildlife and the California Department of Fish and Game entitled Acquisition Priorities for the Coastal Wetlands of California (see finding above) shall be limited to the following: very minor incidental public service facilities (e.g., burying cable or pipelines), restorative measures, nature study, possible commercial fishing facilities in Bodega Bay, and possibly other development in already-developed parts

of south San Diego Bay. Development in other wetlands shall be limited to the following: (1) military facilities essential to the national defense; (2) expansion of existing commercial fishing harbors, ports, or airports; (3) the minimum necessary entrance channel to a marina or other boating facility excavated from dry land; (4) those portions of coastal dependent energy facilities that cannot be located on dry land or in open water areas; (5) very minor incidental public service facilities such as buried cable or pipelines; (6) restorative measures pursuant to paragraph (b) below; and (7) nature study, aquaculture, or similar resource-dependent activity.

**b. Restore Degraded Wetlands.** Degraded marsh areas and diked but unfilled former wetlands capable of restoration shall be restored for natural resource values and biological productivity, and new marsh areas shall be created except where they would significantly reduce open water areas or adversely affect water circulation. A restoration priority list and schedule shall be developed cooperatively by the coastal agency, the Department of Fish and Game, the State Lands Commission, and appro-

Elkhorn Slough, north of Jetty Point Road





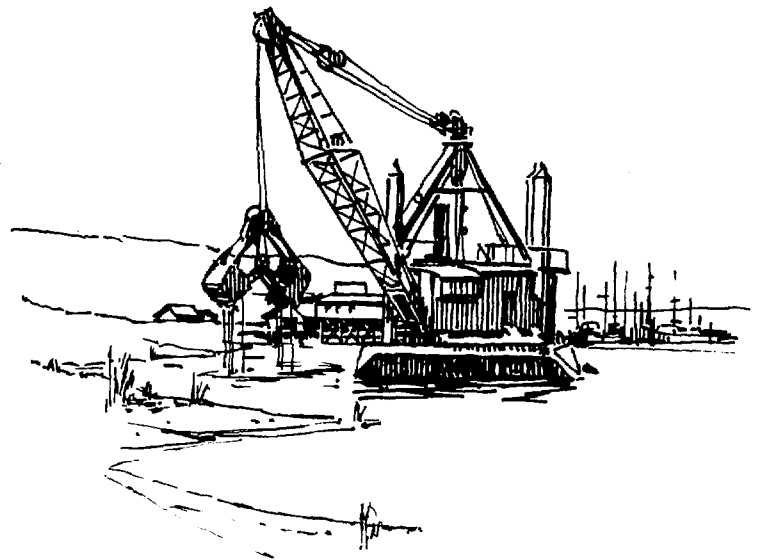
priate regional and local agencies specifying which sites shall be restored first to enhance coastal resource values, including fisheries production or the maintenance of rare and endangered species, and considering maintenance of prime agricultural lands created from former wetlands. No new development in restorable wetlands shall be permitted inconsistent with this policy. Restorable wetlands for the purposes of this policy shall include all degraded marshes or diked but unfilled former wetlands except that the coastal agency may exclude those that it determines, based on appropriate scientific study and Department of Fish and Game concurrence, are not capable of restoration and do not possess a significant wildlife value (e.g., existing or potential habitat of rare and endangered species or for species of sport, commercial, or special scientific interest, or functional contribution to the Pacific Flyway).

- c. Prepare and Implement Comprehensive Estuarine Plans.** Before any significant change in the functional capacity of a wetland or estuarine area is permitted, an overall management plan shall be prepared by the public agencies and private interests involved for review and approval by the coastal agency. The plan shall be based on the study of each estuary or wetland and its surrounding and tributary areas, encompassing an area defined by the surrounding physical and environmental characteristics rather than by existing political jurisdictions. The plan shall (1) place first priority on natural resource protection and restoration, research and educational opportunities, and recreational and aesthetic values; (2) assess public health issues, aquaculture potential, possible alternative sources of fresh water, whether the area is burdened with a public trust, and the impact of any proposed facilities that can be provided in accordance with other Coastal Plan policies; (3) specify the management programs necessary to protect, enhance, and restore the wetland and estuarine resources, including controls on development in adjoining upland areas; and (4) specify the responsible agencies and funding sources to carry out the management programs. For intensification of use in areas now committed to industrial or port use, a port master plan for that portion of the estuary, when certified by the coastal agency as consistent with the Coastal Plan, may be substituted for the otherwise required management plan. Such a port master plan shall include a review of existing

water quality, habitat areas, and quantitative and qualitative biological inventories in the area of the individual port, together with plans for enhancement or restoration of the marine environment and habitat. Any significant expansion of existing port or industrial areas into a wetland or estuarine area, however, shall be allowed only upon completion and implementation of a management plan for the surrounding estuarine or wetland area.

**16. Protect Other Coastal Waters by Limiting Dredging, Diking, and Filling.** The water areas and biological productivity of coastal waters other than wetlands shall also be protected from unnecessary encroachment. To this end:

- a. Criteria for Diking or Filling.** Diking or filling of coastal waters (other than for shoreline struc-



tures as defined in Policy 19) shall be permitted only where necessary and in accordance with applicable Coastal Plan policies and where there is no less environmentally damaging alternative for: (1) port or airport expansion, national defense, or coastal-dependent facilities; or (2) specifically approved restoration projects (e.g., diking to create freshwater habitats or reduce sedimentation).

- b. Criteria for Dredging.** Dredging of coastal waters shall be permitted in accordance with other applicable Coastal Plan policies and where there is no less environmentally damaging alternative for: (1) new or expanded port, energy, or national defense facilities; (2) maintaining existing or restoring previously dredged depths in existing navigational channels,

turning basins, vessel berthing and mooring areas, and boat launching ramps; (3) entrance channels or minor deepening of natural harbor areas for new or expanded recreational boating facilities; (4) new or expanded commercial fishing harbors; (5) incidental public service purposes such as burying cables and pipes, inspection of piers, etc.; (6) mineral extraction, including sand for restoring beaches, except in biologically sensitive areas; and (7) restoration purposes (e.g., to restore water circulation) provided that the results are carefully monitored and evaluated for restorative value. The need for dredging shall be minimized by careful design and location of facilities with respect to existing water depths and water circulation and siltation patterns and by efforts to reduce controllable sedimentation. Where bottom materials are highly contaminated, dredging or mining shall be avoided.

**17. Require Replacement Areas for Diked or Filled Areas.** Where landfill or diking of any coastal water or dredging of a wetland is permitted, except in accordance with an approved estuary or wetland restoration program pursuant to Policy 15(b), equivalent compensation areas of equal or greater biological productivity shall be created near the site (for example, by restoring degraded wetland areas) to replace the diked, filled, or dredged areas. If no appropriate restoration site is available to the applicant, an in-lieu fee sufficient to provide an area of equivalent productive value shall be dedicated to an appropriate public agency, a replacement site purchased by the public agency,

and the restoration activity begun before the dike or fill project may proceed. (See also Policy 153 regarding provision of replacement areas.)

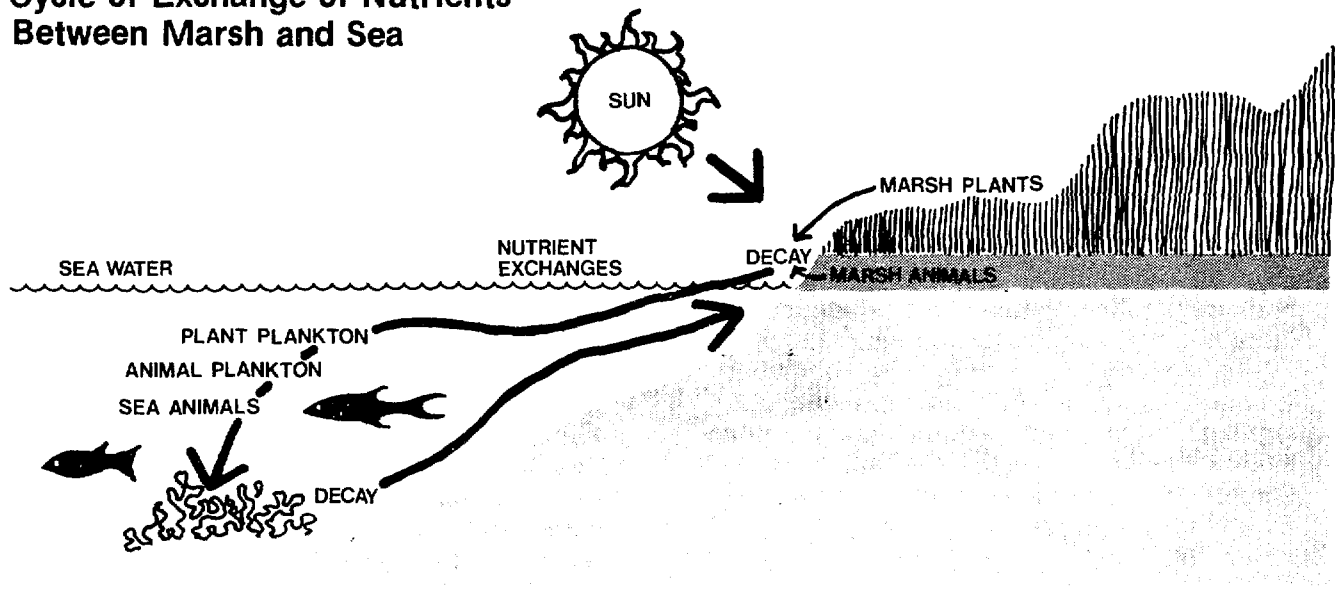
**18. Regulate Permitted Dredging.** Permitted dredging shall be planned, scheduled and carried out to avoid disruption to fish and bird breeding and migrations, marine habitats, and water circulation.

**a. Analysis Before Dredging.** Bottom sediments or sediment elutriate (basically materials that can go into solution when sediment is disturbed) shall be analyzed for toxicants prior to dredging or mining, and dredge spoils disposal regulated in accordance with the most recent approved dredging criteria promulgated by the Regional Water Quality Control Boards or the Environmental Protection Agency, whichever would most effectively achieve the objectives of this policy.

**b. Disposal of Dredged Sediments.** Specific disposal policies may be modified based on results of on-going research in coordination with the State Water Resources Control Board, the Environmental Protection Agency, and other involved agencies. Otherwise, the following shall apply:

- Dredge spoils suitable for beach replenishment shall be transported for this purpose to appropriate beaches or into suitable longshore current systems.
- Dredged sediments meeting criteria specified by the Regional Water Quality Control Boards

**Cycle of Exchange of Nutrients Between Marsh and Sea**



and the Environmental Protection Agency for freshwater, estuarine, or marine disposal may be deposited at open-water sites designated to minimize potential adverse impacts on marine organisms or in fill sites specifically authorized by the coastal agency. Dredge material shall not be transported from coastal waters into estuarine or freshwater areas for water disposal.

- Dredged material exceeding approved water quality criteria must be placed either on dry land in a manner that prevents pollution of marine, underground, or surface water or, if land disposal is infeasible or environmentally unacceptable, at designated deep ocean sites (depths greater than 100 fathoms).
- Ocean dumping of other materials shall be subject to Region IX EPA authorization.

## SAND MOVEMENT AND SHORELINE STRUCTURES

### Findings

**Ocean Beaches Depend on Sand.** Ocean beaches are one of the most highly valued recreational features of the California coastal environment. But many of these beaches are being lost to erosion. The stability of a sand beach depends on maintaining the dynamic equilibrium of a "sand budget" — a balance between sand brought to a section of beach and that removed from it, either by nature or by man's action. (See the Coastal Land Environment section on coastal streams regarding the supply of sand from inland sources).

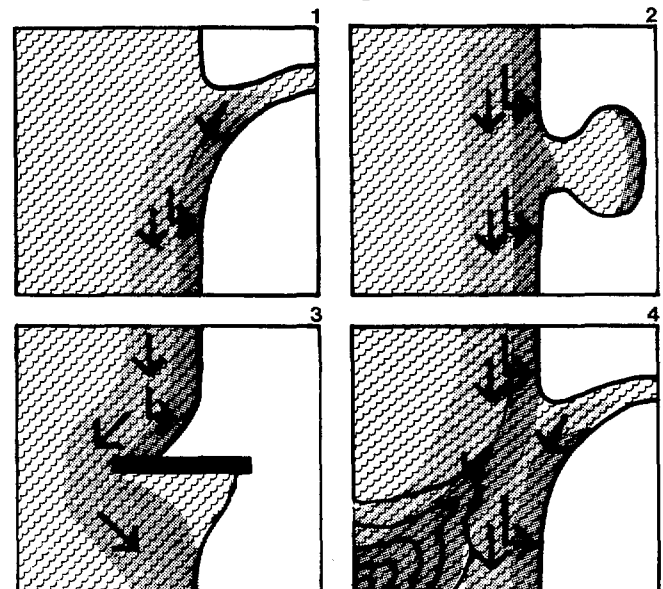
**Sand Is Moved Along the Shore.** Beach sand is transported by wind, waves, and wave currents in three kinds of movement — offshore, onshore, and longshore. The sand, when put into suspension by wave action, may move laterally along the shore in longshore currents; at the same time it is being transported offshore and returned onshore. The sand movement along the shore occurs within relatively distinct sections of the coast, sometimes called "littoral cells." These extend from the point where the sand supply is introduced to the shoreline, mostly by streams, downdrift to the place where it is swept out to sea, often irretrievably into offshore canyons. There sometimes are small indentations in the coast partly isolated from the sand movement system of the littoral cells by rocky headlands; within these areas, cliff erosion and onshore currents supply the sand to small pocket beaches. In addition to wave action, wind can move both beach sand and sand dunes. Sand is also lost by abrasion, coastal subsidence, and mining.

**Human Activity Increases Beach Sand Losses.** Human activity has not only reduced the supply of sand; it has also increased the rate of loss, or changed the distribution, through improper design and placement of groins, jetties, breakwaters, and dredged channel entrances in shoreline waters. Another problem can be loss of sand dunes to wind action due to their disruption by vehicles, removal of vegetation, or excessive foot traffic.

**Measures to Restore Beaches Involve Environmental Problems.** Several measures attempt to maintain sand

supplies on beaches, but many of these efforts involve environmental problems and require repeated work. Maintenance of beach sands is attempted by either increasing the supply of sand to a depleting beach or by decreasing the movement of sand off the beach. Several methods for

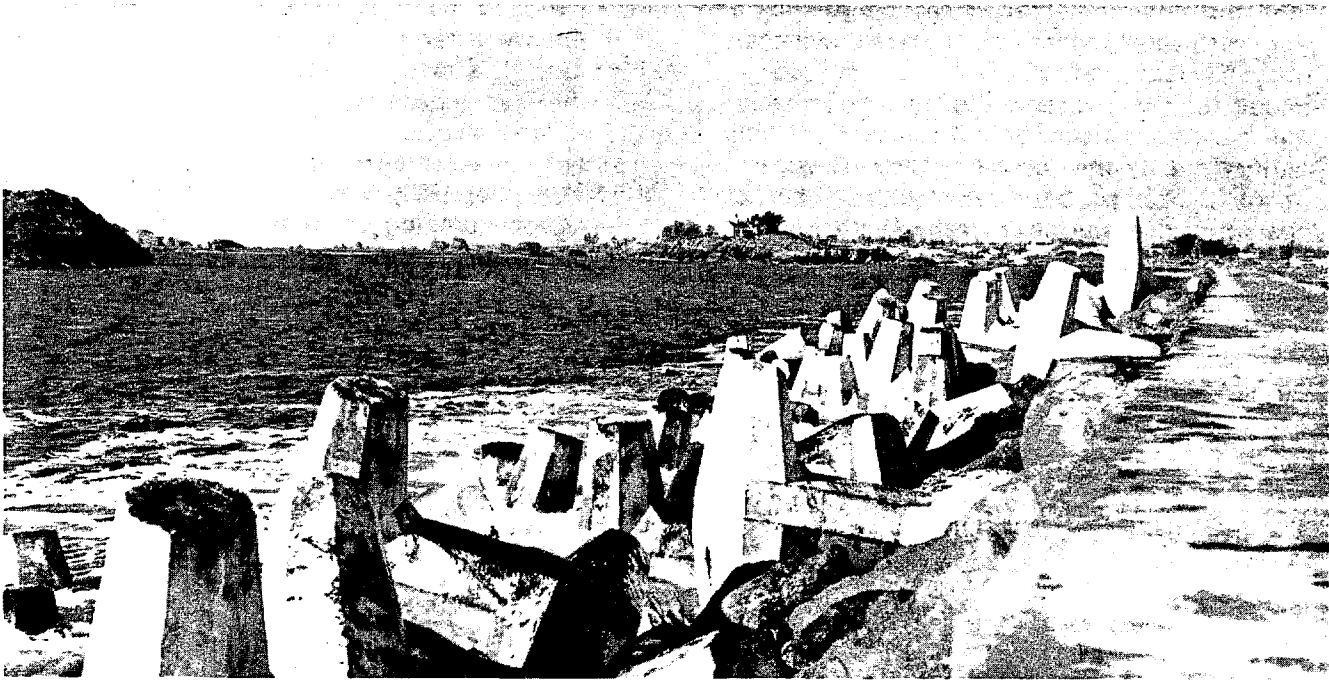
### Sand Movement Along the Coast



☐ Sand moving

■ Sand being deposited

1. Sand being introduced into littoral cell system by coastal stream.
2. Rocky headlands shelter pocket beach, supplied with sand by onshore currents and cliff erosion.
3. Marine structure interrupting sand movement, causing buildup on one side, sand loss downdrift.
4. End of littoral cell as sand is swept into submarine canyon, beginning of new cell as another stream moves sand into the coastal waters.



Crescent City breakwater constructed of tetrapods

increasing sand supply are:

- Mining offshore sand sources;
- Placing harbor dredge material on nearby beaches or into longshore currents; and
- Transporting material from inland sand sources to depleted beaches, including material accumulated behind inland dams.

Methods for decreasing sand loss from beaches may include:

- Structures to reduce the longshore movement of sand, such as groins and detached breakwaters;
- Devices to reduce wave action, such as submerged reefs or detached breakwaters;
- Sand bypassing systems to pass the sand by a harbor entrance that has altered the natural longshore movement of sand; and
- Recycling systems that collect sand at down-coast sinks and transport it to the up-coast end of the littoral cell.

To be effective, measures for controlling sand supply and loss must consider impacts on the total littoral system.

**Beach Sand Losses Are a Costly Problem.** The necessary combination of measures to maintain beach sands can be extremely expensive, costing over \$1 million for a single beach restoration project at Doheny State Beach, Orange County, for example, and often involving high annual costs for on-going sand replenishment. Damage due to beach erosion in California was approximately \$10 million in 1965. The Water Resources Council projects the annual loss to be \$15.7 million in 1980 and \$29.7 million by 2000, unless large-scale preventive measures are taken. The principal means to prevent continued property damage and public cost should be to control developments in erosion hazard areas and to protect and restore natural sand supply systems to the maximum extent possible. But positive sand supply management measures will also be needed.

**Shoreline Erosion Is Being Studied.** The U.S. Army Corps of Engineers and the California Department of Navigation and Ocean Development operate a cooperative program to

study shoreline erosion. The current study program is almost complete in southern California and is continuing in northern areas. These research programs only indicate broad erosion problems, however, and accurate understanding of erosion processes requires analysis of specific sites before protective structures are designed or constructed. Additionally, the Corps of Engineers' Coastal Research Center provides for public distribution of pertinent reports on coastal engineering and coastal processes.

**Shoreline Structures Also Affect Marine Life, Access, and Views.** In addition to their effect on shoreline sand movement, marine structures (such as dikes, piers, and jetties) can impair productive habitat areas by interfering with water circulation, although properly designed structures may provide positive benefits as havens for small fish and as nesting and roosting sites. Marine and shoreline structures can also impair access to and along the shore and degrade the visual qualities of the coast.

## Policies

**19. Criteria for Seawalls, Breakwaters, and Other Shoreline Structures.** Retnements, breakwaters, groins, harbor channels, seawalls, cliff retaining walls, and other such construction that alters natural shoreline processes shall be permitted only when designed to eliminate or mitigate adverse impacts on shoreline sand systems and when required (1) to maintain public recreation areas or to serve necessary public service, commercial fishing, energy, or transportation facilities (including ports) where there is no less environmentally harmful alternative, or (2) to protect principal structures of existing developments that are in danger from present erosion where the

coastal agency determines that the public interest would be better served by protecting the existing structures than in protecting natural shoreline processes. In addition:

- a. **Mitigate Impairment of Sand Supply or Transport.** Permitted shoreline works shall incorporate mitigation measures to minimize and compensate for any impairment of local sand supply or adverse effects on the longshore transport of sand. Incremental construction shall be required, where possible, to allow ongoing evaluation and appropriate modifications. The project owner shall be responsible for continued sand transport, where such transport is required.
- b. **Design of Structures.** Shoreline works and other marine structures shall be designed to (1) be the minimum necessary for their purpose (taking into account the geology of the area so that erosion is not accelerated at the edges of such structures), (2) be as visually unobtrusive as possible (see also Coastal Appearance and Design policies), (3) be compatible with maximum possible shoreline access and use (e.g., as far landward as possible in the case of seawalls), and (4) protect or enhance marine life conditions.
- c. **Phase Out Existing Harmful Structures.** Existing marine structures that are found by the coastal agency or other State or regional agencies to cause water stagnation contributing to pollution problems and fish kills shall be phased out or upgraded.

**20. Initiate Positive Programs to Restore Sand Supply.** Because of the extensive alteration of sand supply from past human activities and because of the importance of beaches for preventing erosion damage and for public recreation, positive programs for managing and restoring sand supply shall be given high priority and appropriate measures (such as recycling sand from downcoast sinks to upcoast beaches, removing sediment buildup behind upstream dams, sand bypassing techniques, or possibly innovative new techniques such as modifying the height, steepness, and direction of wave approach) shall be undertaken to provide continued beach sand replenishment. To this end, a comprehensive program to conduct and evaluate studies of sand supply and movement and to recommend and undertake management and restoration measures shall be developed cooperatively by all agencies involved, with the active participation of the coastal agency. An appropriate lead agency shall be designated by the Legislature, and technical resources of agencies such as the U.S. Geological Survey, Army Corps of Engineers, State Department of Water Resources, Department of Navigation and Ocean Development, Division of Mines and Geology, State Lands Commission, California Department of Parks and Recreation, universities, colleges, local and regional agencies, private entities wishing to participate, and marine laboratories shall be utilized in carrying out this program. The coastal agency shall review and report progress annually to the Governor and the Legislature.

# COASTAL LAND ENVIRONMENT

## Findings

**Coastal Land Environment Is a Dynamic System.** The coastal land environment is a combination of the soils, air, plants, animals, minerals and water courses as they are affected by or themselves affect the ocean — from the pounding surf line to the quiet inland valleys where the coastal fog influences plant species and growth. The land environment is a dynamic, interrelated system composed of:

- Streams that collect from entire watersheds to drain into coastal waters;
- Natural areas, including the vital shoreline habitats that are the link between life in the sea and life on land and that harbor many rare species;
- Coastal agriculture and forestry that are enhanced by rich soils and the maritime climate;
- Coastal mineral resources, primarily sand and gravel; and
- The coastal airshed that is directly influenced by the ocean.

# COASTAL STREAMS AND WATERSHED MANAGEMENT

## Findings

**Coastal Streams Are Vital to the Natural System of the Coast.** Coastal streams directly affect the coastal environment:

- They are vital to anadromous fish that live in both salt and fresh water;
- They collect and transport sand from the watershed to supply coastal beaches;
- They are valuable to the aesthetic and recreational enjoyment of coastal waterways; and
- They are interrelated with the estuarine systems that in turn are essential to the productivity of the marine environment.

Coastal streams also significantly influence flooding, natural ecosystems, agricultural water supply, and groundwater recharge within the coastal land environment. Watershed areas are thus an ideal focus for developing management techniques to maximize utilization and preservation of natural resources of the coastal zone.

**Streams Are Essential Habitat for Anadromous Fish.** Salmon and steelhead trout spend part of their lives in the sea and

part in freshwater streams. These fish are an important State recreational resource and, in the case of salmon, a commercial resource as well, but their abundance has declined by at least 50 per cent over the past 30 years, primarily because of human activities. The upstream spawning and nursery areas have been the most severely damaged habitat areas.

**Human Activities Damage Stream Habitat.** The upstream habitat has been damaged by many activities:

- Dams that provide no adequate fish bypass facilities and that flood large spawning and rearing areas;
- Water diversions and stream channelization;
- Sand and gravel mining from streambeds;
- Grading or logging operations that induce habitat-smothering erosion and siltation along streambanks, even from remote sites in the watersheds;
- Land fills for various purposes;
- Increases in water temperature caused by removal of shade vegetation; and
- Discharges of toxic, thermal, or organic pollutants into habitat streams.

**Present Regulations Are Inadequate.** The State Department of Fish and Game, Regional Water Quality Control Boards, and Division of Forestry all have some regulatory powers dealing with stream habitat, but there is no agency with authority over new projects affecting habitat areas, and funding of existing programs is inadequate to enforce present habitat protection measures. The Department of Fish and Game notes that existing authority and funding is inadequate to provide full protection to spawning areas.

**Beach Sand Is Generated and Transported by Coastal Stream Flooding.** Though beach sand may come from cliff erosion, landslides, dunes, or onshore transport, most of California's beach sands are delivered by coastal streams. The principal mechanism by which the sands are collected and transported is flooding. The amount of sediment contributed by each stream depends on such factors as the area of the watershed, erodability of the watershed formation, runoff, land use, and stream slope. A number of studies have been done in the transport of beach sands from major rivers. For instance, in the past two years the U.S. Geological Survey has completed studies on the Eel, Mad, and Russian Rivers and Redwood Creek.

**Human Activities Reduce Stream Flooding and Thus Affect Beach Sand Supply.** Dams, settling basins, all flood control works, watershed erosion control, certain farming practices, urbanization, control of natural runoff on range and forest land, etc., reduce the natural flood flows of coastal streams and so eliminate or impair the continued generation and delivery of beach sands. Where the normal process of sand supply has been seriously impaired, severe depletion of beach sands and accelerated beach erosion has resulted,

necessitating costly and continuous sand importation measures. (Conversely, in some cases downstream channelization in the alluvial plain may assist sand transport through the plain to the beaches.)

**Ground Water and Surface Water Are Interrelated.** Ground water and surface water are naturally interrelated. Surface waters recharge groundwater supplies and ground water often feeds springs, streams, and riparian habitat. Over-exploitation of surface water will prevent adequate recharge of aquifers, especially where stream flow is important in recharge. Overuse of ground water can affect surface supplies by drying up streams and springs fed by the ground water and can adversely affect the groundwater supply by drawing in salt water. This can often have a damaging effect on the native habitats that depend on this water supply. At present, there is no effective coordinated environmental management of groundwater and surface water resources.

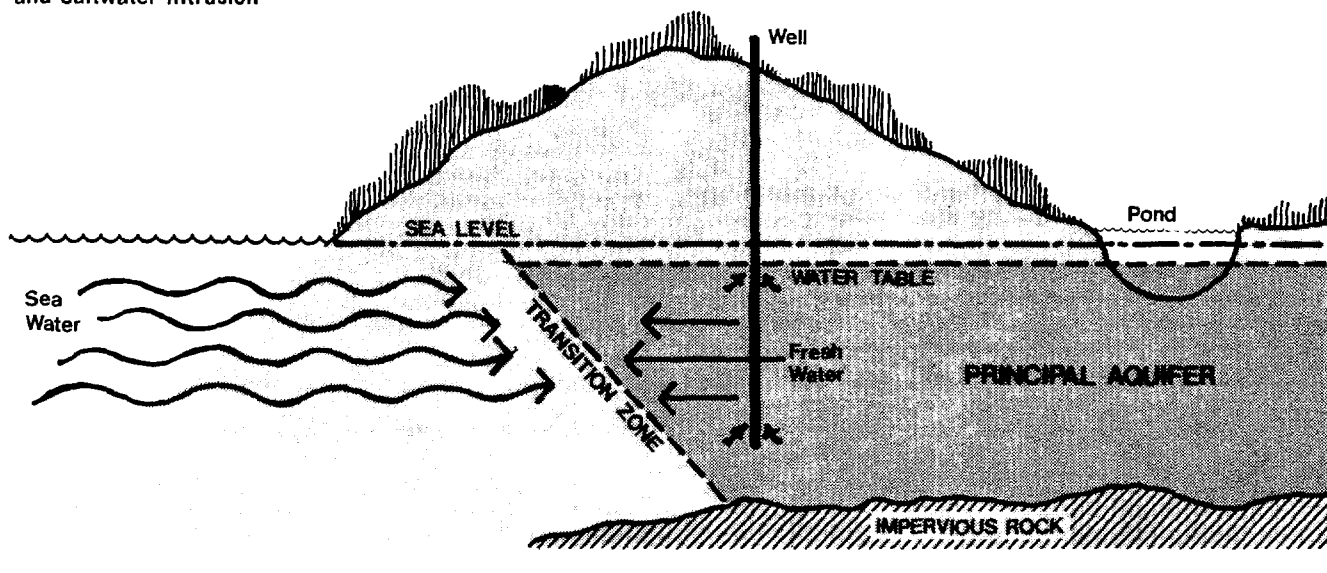
**Ground Water Supplies Are Recharged from Many Sources.** Groundwater supplies are recharged by precipitation, seepage from rivers and streams, absorption and storage of rainfall by soils, and in some cases from underflow from adjacent areas. The rate of recharge is dependent on the type of soil, density of vegetation, intensity of rainfall and terrain, buildings, coverage with impermeable surfaces, and compaction of soil. The recharge area of an aquifer (water supply) can be reduced by development that decreases the rate and area of permeability for recharge, by compaction of soil, and by channelization of rivers and other flood control projects. The underground geology of an area must be well known in order to have a clear understanding of the recharge and movement of ground water.

Sonoma County





## Groundwater Hydrology and Saltwater Intrusion



**Overdraft of Aquifers Has Adverse Effects.** If an aquifer is overdrafted, in addition to the adverse effects on surface waters noted above, the geologic structure of the aquifer itself (especially in thick clay formations) may be changed. The aquifer may lose its future water storage and structural capacity through subsidence or compaction. Subsidence, an actual sinking of the ground surface, can also cause damage to roads, buildings, and other structures.

**Overdrafts Also Threaten Water Quality.** As a result of continuing overdraft of groundwater supplies and the reduction of freshwater recharge, salt water has intruded into underground freshwater reservoirs. Natural causes, such as long periods of low rainfall, may also contribute to saltwater intrusion, but are relatively insignificant compared to man-induced causes. Saltwater intrusion contaminates the water supply and can harm soil quality for agricultural use by increasing the level of various salts with continued irrigation. The quality of the water can also be damaged by septic tank effluent, buildup of nitrates and pesticides from irrigation water, and other pollutants.

**Effective Groundwater Management Is Needed.** Because of these potential development impacts, it is crucial in effective water resources management to prepare and use accurate maps showing the geology of the groundwater basins and their recharge areas. The impact of development, both in terms of the amount of groundwater to be drafted and the effect on groundwater recharge should be assessed in terms of this geologic information.

**Alternatives to Groundwater Drafting Should Be Developed.** To offset the continued depletion of water supplies (both surface and ground water), alternative sources will be needed. Importation of water and use of reclaimed water are the main sources. Reclamation of waste water can help conserve limited water supplies, thus avoiding the potential adverse effects of overdrafts, including the problems of subsidence and saltwater intrusion. It can reduce California's dependence on costly and environmentally disruptive interbasin water transfers. Reclamation of waste water can also eliminate the adverse effects of disposing of partially treated waters

into coastal waters. In many areas the use of reclaimed water is preferable to importation because agricultural water costs (at lower than drinking water standards) may be stabilized or even lowered (in contrast with the often higher cost of imported fresh water), because water importation may entail high energy costs and because water importation may in some instances induce development in coastal resource areas. On the other hand, in some coastal areas the initial quality of the water may be so poor as to preclude its reclamation for beneficial uses.

**Water Injections May Be Able to Correct Saltwater Intrusion.** Saltwater intrusion can usually be alleviated, either by reducing overdrafts that lower the water table or by creating a freshwater barrier (by injecting water into wells located along the coast to raise the water level above sea level). Freshwater injections can also replenish underground reservoirs for continued use from inland wells, but they may be expensive and require consideration of complex hydrologic conditions.

**Water Conservation Reduces the Problems Associated with Increasing Water Supply.** The adverse economic and environmental effects of overuse of water supplies can all be reduced by lowering the rate of growth in demand for water use. Much water use is inefficient or unnecessary, such as overwatering of agricultural and landscaping areas, planting non-native vegetation that requires more water, and use of inefficient plumbing fixtures.

## Policies

**21. Basic Policy: Establish Comprehensive Watershed Management.** Within coastal watersheds as mapped in Part IV, the planning and management of land use, and the development of projects having the potential for adverse impact on coastal



resources, shall be on a comprehensive watershed basis, to avoid damage to coastal streams, estuaries, and wetlands. To this end: (1) watershed management plans shall be prepared under the direction of a lead agency (as designated by the Legislature) with the full participation of the coastal agency, and shall be completed within four years of the effective date of legislation implementing the Coastal Plan, as set forth in Policy 22; (2) land uses and water supply programs shall be compatible with watershed protection, as set forth in Policy 23; and (3) major projects located in or adjacent to streams or wetlands (e.g., water diversions, flood control projects, and other such works) that could have significant impacts on coastal resources shall be reviewed and regulated to prevent significant adverse impacts, as set forth in Policy 24.

## **22. Prepare and Implement Comprehensive**

**Watershed Management Plans.** Comprehensive watershed management plans shall be undertaken to provide long-term assurances that coastal land uses and development will not adversely impact coastal groundwater resources, streams, wetlands, and estuaries.

**a. Procedure for Preparation and Implementation of the Plans.** A lead agency at the State level designated by the Legislature (e.g., the Resources Agency, Department of Conservation, or Water Resources Control Board) shall coordinate watershed planning and work closely with affected local governments, other State agencies, and Federal agencies. The coastal agency shall participate in an advisory role in the overall watershed planning program and shall review and comment on that portion of watershed plans beyond the coastal resource management area. That portion of watershed plans within the coastal resource management area shall be submitted to the coastal agency for certification as to consistency with the Coastal Plan and for incorporation into local coastal plans. (To the extent that a program under Sections 201, 208, or 303[e] of the Federal Water Pollution Control Act fully addresses the concerns enumerated in these policies, such programs may be submitted as the management programs for coastal watersheds.)

**b. Content and Goals of the Plans.** The watershed management plans shall relate upland and shoreline land use management to the protection and restoration of the marine environment; use consistent assumptions, standards, and criteria for determining appropriate future population levels and land uses within each

coastal watershed; consider statewide interbasin interests (e.g., true costs of water importation); and otherwise assure that allowable development conforms to the Coastal Plan. The plans shall stress the protection of coastal groundwater resources, streams, wetlands, and estuaries, and shall prevent significant adverse impacts on these resources with particular attention to the following:

- Loss of natural riparian vegetation that has significant value for erosion control, flood restraint, wildlife habitat, or recreational amenities;
- Degradation of anadromous fishery resources;
- Loss of water-oriented recreational opportunities on coastal streams;
- Loss of or reduction of coastal sand supply where needed for protection against shoreline erosion, for maintenance of beaches, or for industrial sand supply;
- Adverse alteration of saltwater-freshwater balance in coastal wetlands;
- Sedimentation impacts on coastal streams and wetlands;
- Reduction of existing agricultural production and processes;
- Degradation of groundwater resources;
- Reduction of needed surface recharge areas as a result of development and accompanying increases in impervious surfaces;
- Saltwater intrusion, which has adverse impacts on agriculture, wildlife, or other resources;
- Land subsidence resulting from the lowering of the water table; and
- Irreversible commitment of recoverable mineral deposits, including sand and gravel.

## **23. Relate Development and Water Supply Decisions to Coastal Watershed Management Plans.**

Because water supply programs may significantly decrease the surface flow of key coastal streams and deplete groundwater supplies, and because they may also require costly, often environmentally damaging interbasin water transfers, reservoirs, diversion structures, and water supply plans shall be consistent with approved coastal watershed management plans. Because the amount and location of development heavily influences water supply plans and programs, levels of development shall be correlated with water supply programs that are consistent with approved watershed management plans.

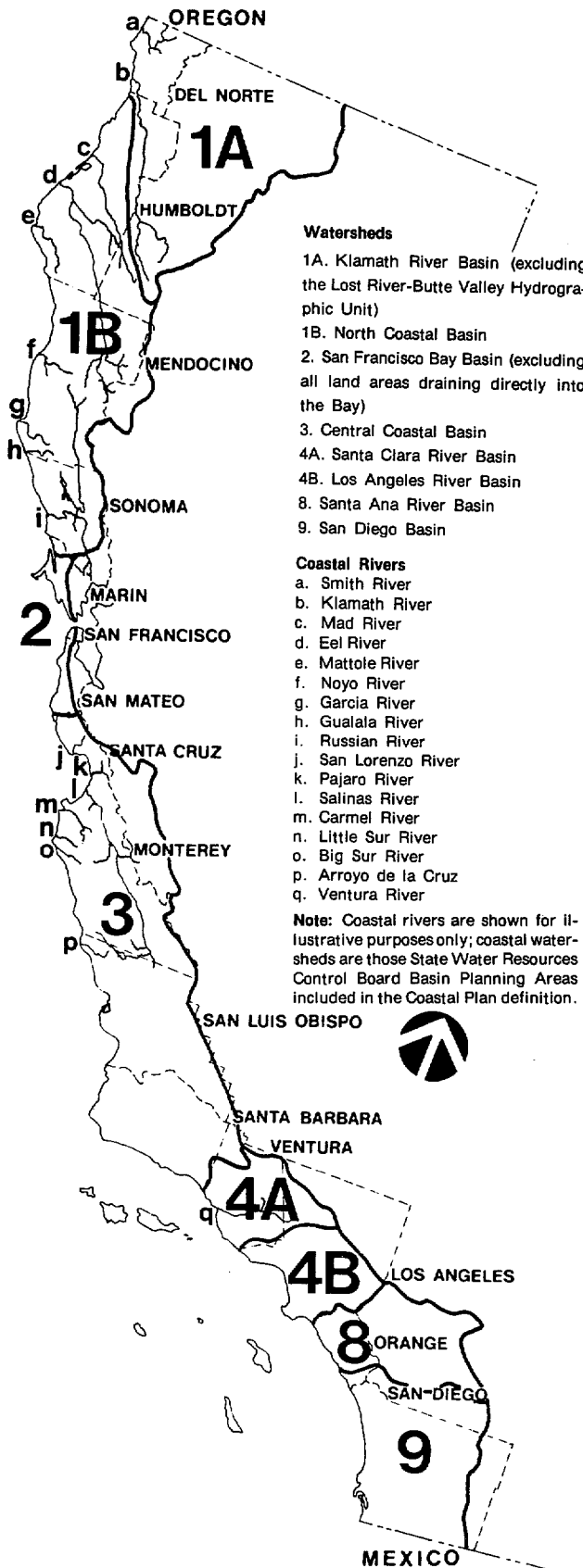
- a. Conform Water Supply Plans to Watershed Plans.** To avoid the potential adverse impacts of water supply projects on coastal resources, agencies that provide water service (for municipal, industrial, or agricultural use) shall develop water supply plans directed toward implementing approved watershed management plans and based on a thorough inventory of surface and subsurface supplies, coordinated wastewater management, and conservation of water.
- b. Development Shall Not Adversely Affect Local Water Resources.** Based on the local inventory of surface and subsurface water supply, new development may utilize local water supplies unless the responsible water supply agency or the coastal agency finds that the potential exists for substantial adverse impacts on coastal zone resources (e.g., degradation of anadromous fish runs, saltwater intrusion into groundwater supplies, reduction of groundwater recharge). The impact of development shall be evaluated to avoid depletion of underground water supplies and to assure protection of surface drainage necessary for water supply replenishment or habitats. Before development that could adversely affect water supplies is allowed, impervious surface limitations, floodplain zoning, and other development standards designed to protect groundwater and surface drainage areas shall be established at the local or regional level as part of the implementation of approved watershed management plans (see Policy 22).
- c. Avoid Need for Future Water Importation.** Because water importation may entail high energy demands, and may in some instances encourage inappropriate development in coastal resource areas, decisions concerning development in the coastal area shall be in accord with water management plans and programs that minimize the need for interbasin transfers and that consider total water basin impacts. Development that individually or cumulatively has the potential for inducing the future importation of water shall be permitted only if local, regional, or State water plans that have been determined to be consistent with the Coastal Plan provide for such importation.
- d. Water Management Shall Stress Conservation.** The Department of Water Resources shall be adequately empowered, and receive additional funding if needed, to gather and disseminate information on water supply and use, to research and implement regional and statewide programs for water conservation and reclamation,

and to assist in local programs. Cities and counties shall incorporate water conservation measures in both their planning and building code programs. It is recommended that the Legislature require the conservation element of local general plans to include specific provisions addressing water conservation. Appropriate alternatives for recycling and conserving water shall be implemented, including the reclamation of waste water, especially for non-domestic uses, restructuring of user charges to discourage unnecessarily high consumption, monitoring of private wells, and public education.

**24. Review Major Projects Affecting Coastal Streams.** Because of their potentially severe impacts on coastal streams, wetlands, and estuaries, structures such as permanent dams, flood control and water diversion projects, or stream channelizations, and major activities such as mining, removal of riparian vegetation, road construction, logging, grading, or discharge of toxic, thermal or organic pollutants in or near (within 100 feet) of coastal streams or wetlands shall be regulated to avoid or mitigate significant adverse impacts as listed in Policy 22.

- a. Project Review Procedures.** The coastal agency shall review and comment on projects outside the coastal resource management area that would adversely affect coastal resources, and through the Environmental Impact Report review process, recommend appropriate mitigation measures. Within the coastal resource management area this policy shall be implemented through certification (with appeals allowed) of watershed management plans as part of local implementation programs as specified in Part III. To prevent adverse impacts prior to implementation of a watershed management plan, an agency designated by the Legislature shall have interim permit authority in the watershed outside the coastal resource management area over all major projects involving stream diversion or permanent structures either in or adjacent to streams or wetlands (within 100 feet) to protect coastal resources; within the coastal resource management area the coastal agency shall have interim permit authority. Upon implementation of approved watershed plans, the coastal agency's permit authority over specific projects shall be limited to requiring mitigation measures that would enable the project to conform to the Coastal Plan; projects conforming to the approved watershed plan shall not be denied.

## Coastal Rivers and Watersheds



**b. Criteria for Projects That Would Alter Natural Streams.** Channelizations, dams, or other alterations of rivers and streams shall be permitted only for (1) necessary water supply projects or (2) flood control projects where no other method for protecting existing structures in the floodplain is feasible and such protection is necessary for public safety or to protect existing development. Permitted flood control projects shall be of the minimum size necessary to protect existing development. In the case of water supply, projects shall be of a size consistent with the long-term protection of surface water and groundwater resources and with the maintenance of optimal habitat functions of streams, wetlands, and estuaries.

**c. Approved Projects Must Mitigate Damage.** Any agency having permit authority over stream-blocking structures shall require that such structures incorporate the best available mitigation measures, including (1) provision of anadromous fish runs or fish ladders, (2) maintenance of sand transport capability within the streams or alternative supply or other replacement for the loss of needed beach sand, and (3) replacement of any fish, wildlife, or valuable plant habitat adversely affected by the project to a substantial degree (such as by increasing hatcheries' capacity or restoring degraded areas). Costs of such mitigation measures shall be included in the operating budgets of the projects.

**d. Provide Interim Protection of Sand Supply.** Where information is lacking or incomplete to document sand supply from inland sources or the effect of coastal mining, an appropriately designed study project shall normally be completed prior to approval of any activity that would interfere with natural sand supply and transport processes. However, if it can be established that such delay would result in unwarranted hardship, and that the public interest could be adequately protected through the posting of a bond or other appropriate legal guarantees, to be forfeited if the project is subsequently established to be detrimental to coastal resources, a project may be allowed to commence prior to the completion of such a study. (See Policy 20 regarding an overall program for study and management of sand supply and movement.)

**25. Provide Special Protection for Anadromous Fish Streams.** In addition to the regulation of stream-blocking structures, the upstream spawning and nursery areas needed by salmon and

steelhead trout shall be protected and restored.

**a. Extend Authority of Existing Agencies.** The authority and funding of the Department of Fish and Game, the Regional Water Quality Control Boards, and the Division of Forestry shall be extended if needed to ensure that salmon and steelhead trout habitats will be restored and protected from the adverse effect of human activities. It is recommended that Sections 1601 and 1602 of the Fish and Game Code be amended to provide protective measures prescribed by the Department of Fish and Game when a proposed project would have significant adverse impacts on the fish and wildlife resources of the State. Where spawning areas cannot be restored, appropriate mitigation measures (such as the building of additional fish hatcheries) shall be employed.

**b. Carry Out Systematic Stream Investigations.** The Department of Fish and Game shall be adequately funded and staffed to carry out a more comprehensive anadromous fish program, including (1) systematic surveys of anadromous fish streams to determine fish populations; (2) identification and delineation of critical spawning habitat and associated riparian vegetation, its conditions, and its potential for improvement; and (3) developing and undertaking appropriate management and restoration programs. Appropriate maps and reports shall be forwarded to the Division of Forestry to effectuate those provisions of the Forest Practice Act relating to stream protection and wildlife management and to appropriate agencies, including local agencies, for control of polluting discharges and other environmentally damaging activities.

## NATURAL HABITAT AREAS

### Findings

**Important Habitat Areas Are Found in the Coastal Zone.** Many and varied species of animals and plants make their homes in the natural environment of California's coastal zone. Each living community harbors a distinct group of birds, animals, and plants, which interact with each other and their environment as a complex, often unique ecosystem. Some of the types of living communities (ecosystems or habitat areas) in the coastal zone are: dunes, wetlands (including salt and freshwater marshes and associated vegetation), riparian (banks of water bodies) vegetation, tidepools, redwood and other forests, coastal scrub and sage, and grasslands. Agricultural lands are also of key importance to wildlife. Many species of animals range through several ecosystems for diverse food and shelter and some plants are found in more than one type of ecosystem. But many species can survive only in one such ecosystem.

**Natural Areas Provide Benefits to People.** The various natural areas within the coastal zone are utilized by people for food and fiber production, for enjoyment, for recreation as varied as birdwatching and hunting, for scientific investigation and experimentation, and for education and training.

**Many Human Activities Have Destroyed Coastal Natural Areas.** Substantial destruction of natural areas along California's coast has been caused by such factors as expanding urban development, the noise and pressure of recreational activities, alterations of vegetative cover, and the indiscriminate use of pesticides. These activities are reducing the habitat areas available to all plants and animals and are

threatening some species and some unique communities, which can exist only in limited areas, with extinction. The continued existence of abundant and varied life forms on the coast depends upon proper safeguards for whole living communities as well as for plant and animal habitats. An especially serious problem in coastal zone wildlife management is the degradation or reduction of wetlands, tidepools, and dunes — the narrow and often fragile transition zone between marine and terrestrial ecosystems.

**Unique Habitat Areas and Rare Species Need Protection.** Public land ownership, including wildlife refuge areas and parks, preserves many habitat areas, but much of the unique natural area of the coast is still unprotected. The State Department of Fish and Game has some regulatory power to protect habitat areas of rare and endangered animal species and to restrict hunting of threatened animals. Rare and endangered plant species have recently been extended some limited protection on the Federal level, and Section 5001.5 of the State Public Resources Code provides protection for rare and endangered living communities. However, there is limited, if any, regulatory power to assure that more living communities, and individual plant and animal species, do not become rare and endangered in the future.

### Policies

**26. Preserve Significant Natural Areas and Rare Species.** Ecologically significant areas of all coastal natural living communities shall be pre-

served by appropriate means such as public acquisition or incentives to private owners (e.g., conservation easements). (See Policy 150 regarding the establishment of coastal reserves to protect such habitat areas and Part IV for identification of areas.) Rare or endangered plants, animals, and communities shall be protected from destruction or further degradation, and restoration efforts shall be aggressively pursued. Activities shall be restricted and public access shall be carefully managed to prevent significant disruption of the habitat values. It is recommended that new legislation to assist in the designation, preservation, and restoration of rare or endangered plants and communities (habitat types) be adopted, patterned after or expanding existing laws mandating protection for endangered species.

**27. Protect Fragile Habitat Areas.** Natural habitat areas that are fragile, such as tidepools, sea caves, rocks, islets, dune plant habitat areas, and riparian habitat areas, shall be used only for those activities that are directly dependent on these natural resources, such as nature education or research, and only to the extent to which no significant disruption of habitats or environmental damage will occur, except as provided for coastal-dependent development (see Policy 62). (See also Recreation section on Controlling Recreation to Protect Resources.)

**28. Control Development Adjacent to Significant and Fragile Habitat Areas.** Development in areas adjacent to significant or fragile habitat areas shall be controlled carefully to prevent adverse impacts which may significantly degrade the qualities of those areas. Specifically:

- a. **Priority for Complementary Uses.** Priority shall be given to proposed developments or activities that are complementary to wildlife uses, such as hunting and fishing preserves or grazing lands that serve as auxiliary feeding areas for wildlife.
- b. **Restrict Disturbance of Shoreline Habitats.** New development shall be of a type and intensity and set back so as to prevent significant adverse impact to these habitat areas. No unnecessary disturbance or destruction of existing shoreline and intertidal habitats or dune vegetation shall be permitted.
- c. **Maintain Natural Vegetation.** New develop-



ment, including new divisions of land and construction on existing lots, shall be regulated to maintain a natural vegetation buffer strip along all lakes, lagoons, wetlands, and intermittent and perennial rivers and streams (excluding those carrying water only very rarely, and not in a distinct channel) in the coastal resource management area. The strip shall be as wide as necessary for protection of habitat areas, but in no case less than 50 feet wide except for minor intrusions upon natural vegetation (e.g., small boat docks, utility pipe lines, etc.). The strip shall normally consist of indigenous vegetation, but in partially developed areas appropriate landscaping may be acceptable where the habitat area will not be adversely affected.

**29. Minimize Habitat Damage Wherever Development is Permitted.** In addition to the special criteria governing significant or fragile habitat areas identified in Policies 26-28 above, development (including urban development, roads, logging, farm operations, or other human activities that reduce or affect natural areas) shall be regulated in other portions of the coastal resource management area to minimize the amount of natural land and vegetation that is altered and to strictly avoid unnecessary impact of such activities on these ecological resources.

# AGRICULTURE

## Findings

**Coastal Zone Soil and Climate Create Special Conditions for Agriculture.** Particular combinations of soil and climate along the coast create special conditions that provide high productivity for agriculture. The moderating marine influence extends the effective growing season, provides timing and yield advantages for national markets, and reduces the dangers of large-scale crop-loss from freezing. Crops realizing these benefits may be termed coastal-related. (See Glossary.) The rich soil resources of the coastal zone are not limited to the production of speciality crops, and in the event of need, agricultural production could be converted to staple crops. Many of the soils could grow varieties of wheat, oats, and other basic cereals, vegetables, and many other necessary crops.

**Type and Extent of Coastal Agriculture.** Over 3.5 million acres are now being used for agriculture within the coastal counties, with about 340,000 used for principal coastal-related crops. The balance is used for irrigated or non-irrigated pastures for sheep and for dairy and beef cattle. Some pasture lands could be converted to specialty crop-producing areas if market, financial, climatic, and water supply conditions were favorable. Even for grazing, coastal lands enjoy unusually high productivity. Coastal-related agricultural lands in many areas extend several miles inland.

**Much Coastal Agricultural Land Is Prime.** Much of the coastal agricultural land is considered prime by U.S. Soil Conservation Service standards and by the broader definition, which includes economic factors, used for the State's preferential tax program, the Williamson Act (Government Code, Section 51201), which is as follows:

- All land which qualifies for rating as Class I and Class II in the Soil Conservation Service land use capability classifications.

- Land which qualifies for rating 80 through 100 in the Storie Index Rating.
- Land which supports livestock used for the production of food and fiber and which has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the U.S. Department of Agriculture.
- Land planted with fruit- or nut-bearing trees, vines, bushes, or crops which have a nonbearing period of less than five years and which will normally return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than \$200 per acre.
- Land which has returned from the production of unprocessed agricultural plant products an annual gross value of not less than \$200 per acre for three of the previous five years.

**Non-Prime Lands Are Also Valuable.** Lower quality soils can also be valuable for producing crops with special climatic requirements, such as avocados, brussels sprouts, broccoli, artichokes, and celery. Grasslands constitute a major renewable resource that, as livestock feed, is converted to milk, meat, and other products.

**Coastal Agriculture Is Economically Important to California.** Coastal agriculture provides as many as 350,000 jobs in and serving agricultural operations within five miles of the coast. Agriculture and food processing employment is substantial in some counties (e.g., Santa Cruz and Monterey). Gross revenues from agricultural crops are a major factor in the State's economy. In 1969, the value of the 24 principal coastal crops in the 15 coastal counties was estimated at almost \$500 million — more than half of the State total for these crops. Nationwide, coastal crops are important economically and as food supply.

**Urban Development Threatens Coastal Agricultural Lands.** Vast areas of agriculturally productive lands in California

Harvesting lettuce, Guadalupe (south of Pismo Beach), San Luis Obispo County



have been lost to urban expansion. One out of 12 acres (about 8 per cent) of cropland in the coastal counties were lost in the 1960's. Although some recent studies indicate that public revenues from agriculture are greater than public costs, the traditional concern for an expanding economy, employment, and tax base, combined with current tax assessment policies, continue to give precedence to urban development. Urbanization pressure causes other problems for agriculture:

- Subdivisions and lot splits fragment land and ownership patterns, making some farm operations less practical;
- High land costs and taxes increase operating costs;
- Residential development near agricultural areas brings complaints about farm dust, odor, pesticides, and noise, while it increases the problems of vandalism, trespass, dogs and other animals, and air pollution that adversely affect agriculture.

**Retention of Coastal Agricultural Lands Provides Many Benefits.** World food shortages, price increases, and national balance of payment considerations have spurred public interest in preserving productive agricultural lands. Projections of future food needs — and the lesser efficiency or impossibility of growing many crops outside the coastal zone — make existing coastal agricultural lands a natural resource of statewide and national concern. Fuel and fertilizer costs, and the probability that future yield increases will be achieved only through energy-demanding techniques, add to the value of naturally fertile coastal lands. Retention of agricultural land, whether for specialty crops or less intensive grazing, not only helps provide food but can also guide urban growth, reduce public expenditures for urban service extensions, preserve open space and wildlife habitats, provide beneficial use of land that is hazardous or inappropriate for other types of development, and maintain future land use options, such as conversion of grazing lands to more intensive crops.

**Agriculture Can Have Adverse Environmental Effects That Require Control.** Agricultural operations may have such adverse effects as introduction of toxic pesticides and nutrients leading to eutrophication of watercourses, removal of large areas of native vegetative cover (common in the development of citrus and avocado orchards), and heavy drafts on surface and groundwater supplies.

**Greenhouses Have Special Characteristics.** In some coastal areas, prime agricultural lands are covered by greenhouses. Significant conversions of open field agriculture to greenhouses have occurred in recent years. Greenhouses may offer economic advantages in production of several crops (notably vegetable seedlings, flowers, and houseplants) but may also impose substantial environmental costs: loss of open space, increased per-acre energy and water use, loss of soil capability by grading or compaction, pesticide and nutrient concentrations in increased runoff.

**Greenhouses May Be Appropriate in Urban-Rural Fringe.** The profitability of greenhouses can support higher land and water costs. The visual impact of the structures is lessened by placing them adjacent to existing development. They may allow continued productive use of productive lands without many of the common urban-agricultural use conflicts (such as spraying affecting nearby residents).

**Additional Preservation Measures for Coastal Agriculture Are Needed.** Some agricultural preservation measures are now in effect in California, but new and expanded techniques and increased public awareness are needed to preserve

valuable production areas. Local and State efforts to preserve agriculture are hampered by the lack of a Federal agricultural land policy, although agricultural lands are a national resource. Existing laws do not adequately provide for the preservation of valuable agricultural land. This problem is not unique to the coast, although it is perhaps more urgent there due to high urbanization pressures. Possible techniques to discourage land speculation include:

- Further revision of State and local tax assessment policies;
- Strengthening the Williamson Act (for instance, by authorizing the coastal agency to designate preserves);
- Revision of State and Federal inheritance taxes;
- A "land gains" tax on land-sale profits.

Development easements or purchase-leaseback arrangements (scenic lands could be leased for limited grazing) could offer semi-permanent public protection of agricultural lands. Loan programs (such as long-term, low-interest loans for capital improvements needed to meet environmental quality regulations) and subsidies may also be necessary to maintain the economic viability of agricultural operations, as might the mandatory application of protective measures by local jurisdictions (for example, by requiring local governments to zone prime agricultural lands for exclusive agricultural use).

**Good Management Is Essential to Maintain Profitable Agriculture.** Whether or not individual agricultural holdings can be maintained as economically productive units is dependent on good management as well as resource (land capability) and fiscal considerations. Therefore, economic evaluations done on a parcel-by-parcel basis must consider the efficiency of current and past management practices for a particular parcel (including the willingness to make appropriate capital investments) as part of the determination of the parcel's long-term economic viability.

## Policies

**30. Basic Policy: Protect Agriculture and Its Economic Viability.** Because coastal agriculture contributes substantially to State and national food supply and is a vital part of the State's economy, the State's goal shall be to maintain agricultural lands in agricultural production.

- a. **Preserve Prime Agricultural Lands.** Prime coastal agricultural lands (as defined in the Williamson Act, Government Code, Section 51201) and all lands now being used or appropriate for producing coastal-related crops shall be maintained in agricultural use, except as provided in Policies 32, 33, and 35 below. These lands are to be protected both to meet current agricultural production needs and as a land reserve to meet future food production needs.
- b. **Preserve Other Agricultural Land in Suitable Locations.** Other coastal lands shall also be protected for productive use if (1) they are now in or have potential for agricultural use for crops and grazing and are suitable for such use (i.e.,

unless the applicant demonstrates that continued or renewed agricultural use is infeasible due to excessive farming costs); and (2) they are located in areas where a significant amount of land is in agricultural use or where maintaining agricultural lands in open space uses helps implement other Coastal Plan policies (e.g., watershed management).

- c. Assure Land Valuation Consistent with Maintenance of Agricultural Uses.** Because the economic future of much coastal agricultural land is threatened by many factors (e.g., inflation in costs of labor, energy, materials, and borrowing; production cost increases resulting from past development policies, high tax and utilities assessments; breakdown of land holdings into parcels of uneconomic size for agriculture; and conflicts with vandalism from nearby urban development), new programs are needed to help offset current practices whereby agricultural land is priced at non-agricultural uses by the private market. It is recommended that (1) tax relief measures be implemented as soon as possible (see Policy 31); and (2) other economic problems, such as high interest rates for farm loans, be analyzed statewide to determine whether the State should provide financial assistance to agriculture and, if so, what would be the best approach.
- d. Implement Land Use Policies While Developing Long-Term Programs.** The long-term statewide approaches outlined in paragraph (c) above and in Policy 31 may require considerable time to complete. In the meantime, many of the economic problems affecting coastal agricultural production that result from development pressures can be effectively addressed through Coastal Plan Policies 32-37. These policies shall be implemented as soon as possible while work continues on solutions to the broader economic problems confronting agriculture statewide.

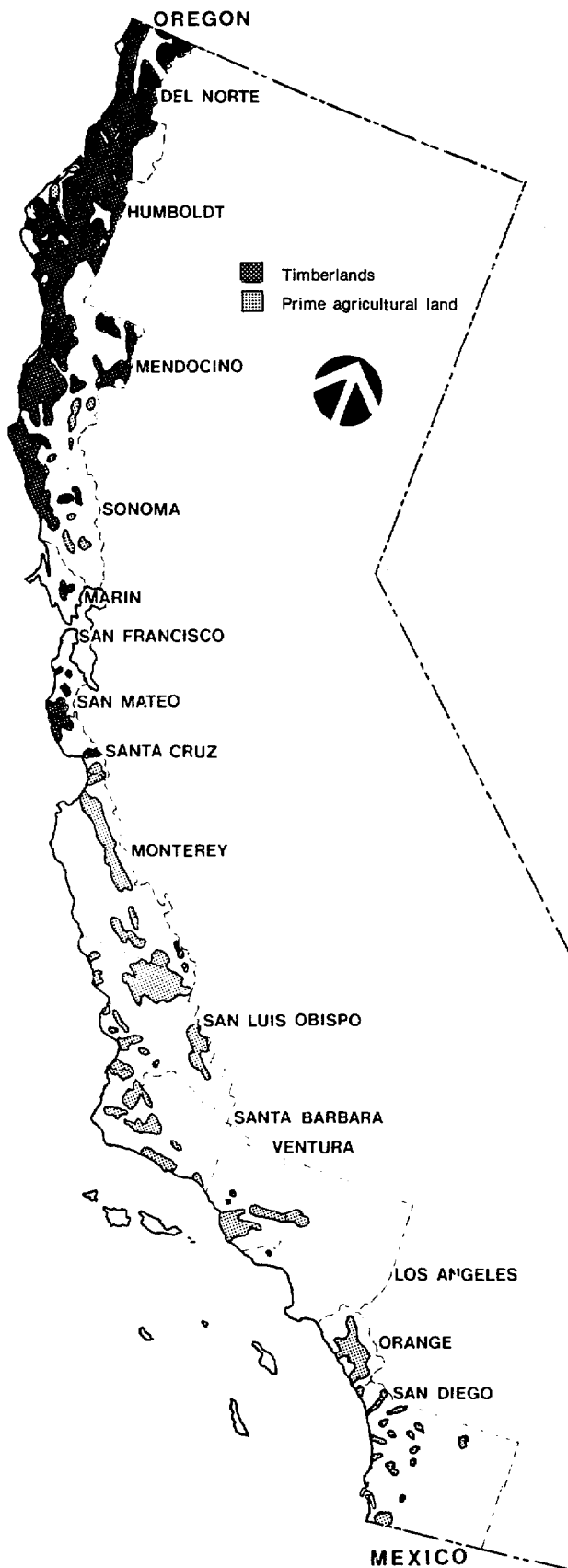
**31. Provide Statewide Programs for the Maintenance of Agricultural Lands.** Because protection of agricultural lands involves complex economic and land use problems resulting from urban encroachment and development pressures on remaining agricultural lands, it is recommended that high priority be given statewide to appropriate programs to assist in preserving and maintaining productive agricultural uses including: (1) agricultural zoning and land use regulation, (2) tax assessment based on agricultural value, (3) scenic easements and similar programs, and (4) statewide financial assistance and research programs. These statewide measures shall be vigorously

pursued, and the coastal agency shall cooperate with other agencies to implement the following:

- a. Maintain Agriculture Through Local Regulations.** Acting in accordance with Article 28 of the State Constitution, which establishes the importance of agricultural soils for the production of food and fiber and as an economically viable way to retain land in open space, it is recommended that the State provide permanent protection of such valuable lands through legislative action and require the application of protective measures (e.g., land use regulations that prevent unwarranted conversions and strengthened subdivision controls) by local jurisdictions statewide.
- b. Revise Tax Laws.** To prevent property tax hardships on owners of agricultural lands, it is recommended that (1) the Williamson Act be revised and/or existing laws (e.g., AB 4107, providing that property tax assessments shall reflect restrictions on use) be rigorously applied; (2) taxation of agricultural lands be based on actual productivity rather than on potential productivity or some non-agricultural use; (3) State and Federal inheritance and income tax laws be reevaluated and revised to avoid adverse impacts on agriculture; (4) specific consideration be given to exempting farm families from State inheritance taxes after permanent use restrictions have been placed on crop or grazing lands or to changing State inheritance taxes, similar to current Federal legislation recently introduced, to drastically reduce such taxes for farm families; and (5) legislation be enacted declaring that the regulation of agricultural lands in accordance with the provisions of the Coastal Plan be deemed an enforceable restriction and that, notwithstanding any other provisions of law, the highest and best use of agricultural land in the coastal zone is agriculturally related use.
- c. Develop Research and Other Programs to Assist Agriculture.** It is recommended that existing agencies (e.g., the University of California Division of Agricultural Sciences, U.S. Soil Conservation Service, State Department of Food and Agriculture, and others) continue and expand programs to assist agriculture such as research and development of integrated pest control management, agricultural waste controls, and long-term management practices designed to avoid soil erosion and soil degradation. Where severe erosion, soil degradation, or agricultural waste pollution is occurring, governmental agencies shall be authorized to require range improvement practices or other corrective measures.



## Timber and Agricultural Lands in Coastal Counties



- d. **Provide State Economic Assistance if Appropriate.** It is recommended that, where other means of preserving agricultural lands and maintaining agricultural uses are not effective, agricultural assistance programs be fully investigated and appropriate actions implemented, such as direct farm loans, loan guarantees, and agricultural use easement or purchase-leaseback techniques.
- e. **Selective Public Acquisition of Agricultural Lands in the Coastal Zone.** To permanently curtail urban intrusions into prime agricultural areas adjacent to expanding communities when all other methods of achieving this objective prove inadequate, selective public acquisition of easements or other interests in land shall be used to establish limited agricultural buffers (similar to such acquisition programs now in effect in a number of eastern states). Acquisition of such interest should also be used to protect prime lands not now in production but needed to meet long-term food needs. A revolving fund program should be established to assemble prime lands that are now subdivided into parcels of uneconomic size and then to resell the combined larger holdings to farmers and ranchers.
- f. **Provide Financial Help to Relieve Specified Hardships Situations in Coastal Zone Agriculture.** For farm families approaching retirement, scenic easements over agricultural lands might be purchased as an alternative to conversion as a source of retirement income. (See also Part III regarding acquisition programs.) Because of higher costs of farming near urban fringe areas resulting from public approval of development next to farms, public financial assistance in some form may be necessary to keep land in agricultural production (e.g., tax relief). If other techniques fail, public acquisition should be considered. To this end, selective acquisition of easements or other interests in land may be used by local governments and by the proposed Conservation Trust (see Part III).

**32. Establish Stable Urban-Rural Boundaries.** Because the sprawl of urban development into nearby agricultural areas has systematically diminished the available amount of agricultural land and has generated serious land use conflicts between existing agricultural and encroaching urban uses, further urban encroachment into prime agricultural lands shall be curtailed; however, some limited development may be allowed on the urban fringe to complete logical urban development patterns and to assure a well-defined, stable demarcation between urban and agricultural uses.



Carmel River

To establish stable urban-rural boundaries, a three-step program set forth in paragraphs (a), (b), and (c) below shall be implemented in coastal zone areas containing coastal agricultural lands. The three basic steps are: (1) analyze the subregional agricultural economy to determine generally the scale of agricultural activity necessary to provide the flexibility to meet changing market conditions; (2) establish specific local agricultural maintenance programs; and (3) establish stable urban-rural boundaries along the urban fringe by designating long-term land uses for specific parcels (based on the two preceding steps). These three steps shall be implemented as follows:

- a. **Consideration of the Subregional Agricultural Economy.** As part of the subregional planning process, an analysis of the local agricultural economy (relying primarily on existing data) shall be made to determine the steps necessary for the long-term protection of agricultural lands and for reconciling conflicts between agriculture and existing development in urban-rural fringe areas. One purpose of the economic study shall be to identify danger points where the cumulative effect of individual conversions aimed at establishing stable urban-rural boundaries could severely weaken or undermine the stability of the agricultural economy of the area. The study shall include at least the following considerations: (1) estimates of the acreage and types of agriculture sufficient to provide a safe and conservative margin of activity necessary for sustaining a viable agricultural economy and to maintain a scale of activity capable of meeting changing market conditions and providing competitive economies of scale for production and labor; (2) the level and mix of agricultural activity necessary to support the required service facilities and industries (processors, buyers, farmworker housing); (3) parcel sizes for individual crops of the subregion required to maintain a competitive market position; and (4) recommendations for implementing a program to protect remaining agricultural lands from conversion.
- b. **Assure Long-Term Agricultural Land Use.** Based on the subregional analysis of the agricultural economy, local general plans and zoning shall provide for (1) preservation of agricultural areas sufficient to protect the economic vitality of the subregion; (2) the orderly development for urban uses of available lands not suited for agriculture prior to

conversion of any agricultural lands; (3) an implementation program involving long-term measures in addition to zoning to protect agricultural lands (including the establishment of stable and clearly delineated buffer areas between urban and agricultural uses by such means as purchase of open space easements — see Policy 36(f); and (4) specific measures to assure that projected levels of urban development in the subregion will not significantly increase public service costs or assessment costs of agricultural lands (e.g., for sewer or water services) or degrade air quality to a degree that would have significant adverse impacts on agricultural productivity.

**c. Designate Land Uses for Fringe Area Parcels.**

The agricultural protection program may also designate some agricultural land for conversion where agricultural viability is severely limited by urban-rural conflicts or where conversion is necessary for development to create viable neighborhoods and establish a stable limit to urban development (with particular regard for the requirements of Policy 37). For instance, evaluations shall be conducted of existing fringe neighborhoods employing socio-economic and public services planning criteria to identify viable neighborhood sizes. Based on these evaluations a very limited number of fringe parcels may be converted; specific parcel designations shall be made on the basis of the criteria set forth in Policy 33(a) as related to the data and programs developed in the steps in paragraphs (a) and (b) above.

**d. Interim Policy for Urban Centers Surrounded by Prime Agricultural Lands.**

Because some coastal cities (i.e., developed areas of the Oxnard Plain, the Carpinteria Valley, the Salinas Valley, and the Pajaro Valley) are completely surrounded by prime agricultural land and might otherwise suffer disruption of recent efforts to foster orderly development, prior to completion of the subregional agricultural plan, expansion of an existing developed area onto prime agricultural lands shall be permitted if (1) there are no alternative areas for expansion that would result in less environmental damage; (2) the only parcels considered for conversion shall be those located within a contiguous band surrounding the developed area which already has major services in place (e.g., sewer trunk lines) and where parcels can reasonably be developed within one year of the effective date of legislation enacting the Coastal Plan; and (3) conversion would be consistent with the criteria of Policy 33(a).

**33. Designate Use of Remaining Agricultural Parcels Within Highly Developed Areas.** Because the designation of future uses of agricultural parcels located within highly developed areas generally would not involve significant impacts on the subregional agricultural economy (in contrast with fringe area parcels), designations of prime agricultural parcels located within these highly developed areas shall be made on a parcel-by-parcel basis, in accordance with the criteria in paragraph (a) below, rather than on the basis of a subregional agricultural economic study. Except as provided in paragraph (c) below, these parcels shall be designated as part of the subregional or local coastal planning process. The parcel-by-parcel decisions shall weigh the economic value of continued agricultural production on individual parcels against the potential benefits resulting from conversion pursuant to other Coastal Plan policies (for instance, encouraging the concentration of development within existing developed areas). Parcels not located within highly developed areas shall be governed by the provisions for urban fringe area parcels contained in Policy 32. For purposes of this policy, highly developed areas are those where 80 per cent of the land area within one-half mile of the perimeter of the parcel is developed to a density of at least three residential units per net acre or to 80 per cent of the maximum commercial or industrial usage permitted by zoning for the area.

**a. Criteria for Designation.** The designation of a parcel for either agricultural or urban use shall consider at least each of the following: (1) the long-term agricultural production yield potential of the parcel in question; (2) the size of the parcel and whether the parcel can be combined with adjacent or nearby agricultural parcels for agricultural purposes; (3) whether the parcel is contiguous with developed areas; (4) whether the parcel is in close proximity to urban services such as roads, sewer and water; (5) whether the parcel could be maintained in productive use by use of greenhouses; (6) energy, transportation, and water costs compared with inland areas where the same crops are grown; (7) potential for generating development pressure on nearby agricultural parcels; (8) the absence or presence (for five years or more) of agricultural-urban use conflicts and the severity of such conflicts; (9) whether the parcel could provide recreational uses; and (10) whether the conversion of the parcel to urban development would further other Coastal Plan policies (e.g., concentrating development in existing urbanized areas) or contribute to the completion of partially filled neighborhoods.

- b. **Designated Parcels Should Remain in Agricultural Use.** If a parcel is designated for agricultural use, the designation shall be for not less than 10 years.
- c. **Prevent Conversion Prior to Making Specific Designations.** Prior to adoption of subregional or local coastal plans, parcels or contiguous areas of prime land that are five acres or more in size and have been in agricultural production for at least two seasons in the past 10 years shall not be converted to development in whole or in part; conversion of other small-parcel agricultural land within a highly developed area shall be allowed only in accordance with Policy 34. Immediate conversions shall be allowed for parcels of two acres or less in existing subdivisions where more than 50 per cent of the parcels are already developed and the parcel is generally surrounded by urban development.

**34. Criteria for Maintaining Non-Prime Agricultural Lands in Production.** The conversion of lands that are not prime or suitable for coastal-related crops shall not be permitted unless (1) the applicant demonstrates, in accordance with paragraph (a) below, that continued or renewed agricultural use of the parcel is infeasible on a long-range basis because of the location, size, soil type, or other characteristics; (2) as specifically provided for prime agricultural lands; or (3) the conversion of non-prime lands would further the Coastal Plan policies of preserving prime agricultural lands and of concentrating development in existing urban areas in proximity to major employment centers or providing public recreational opportunities compatible with nearby agricultural uses.

- a. **Determination of Infeasibility.** Determination of infeasibility for continued or renewed agricultural use shall be made after consultation with local agricultural producers and appropriate professional advisors. If the infeasibility is economic in form, before conversion is permitted, the possibility of tax relief, public loan assistance and public acquisition, and probable future needs for agricultural production shall be examined. This shall include the possible recombination of small parcels (e.g., rural subdivisions) into larger units where agriculture can be profitably practiced.
- b. **Partial Conversion Preferred.** The partial conversion of such lands to compatible uses (see Policy 57) providing sufficient income to allow continued agricultural use of the remainder of the parcel shall be considered the preferred alternative to total conversion. Such partial conversions shall meet the following conditions: (1) the limited development is compatible with

continued agricultural use on the parcel and on surrounding parcels and does not increase tax assessments on nearby agricultural parcels (see Policy 37); (2) as much of the parcel as feasible will be kept in agricultural use; and (3) the area retained for agricultural production shall be placed under long-term (i.e., 25-30 years or longer) agricultural use restrictions. This partial conversion alternative shall be considered in primarily rural areas.

- c. **First Opportunity for Public Purchase.** Prior to the approval of any conversion of such lands, the applicant shall grant the Coastal Conservation Trust (see Part III section on Acquisition and Restoration of Coastal Lands) the first "right of refusal" to purchase such lands at a value equivalent to the conversion value.

**35. Permit Only Agriculturally Related Development on Agricultural Lands.** New development on agricultural lands shall be limited to construction necessary for farming and timber harvesting, such as farm residences and buildings, farm-worker accommodations, farm and lumber service facilities, farm and lumber roads, or other uses attendant to an agricultural or timber-harvesting economy, except for conversions approved pur-

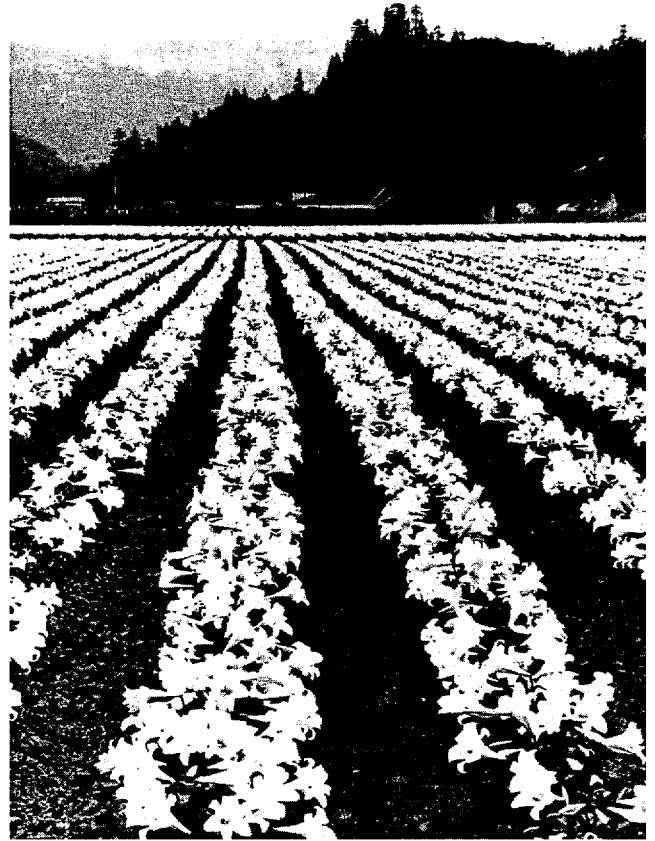
Sonoma County



suant to Policies 32-34 or for special facilities as provided in paragraph (b) below. Major agricultural service facilities, however, shall be located within rural communities unless such a location is infeasible. Any such development permitted on agricultural lands shall be sited and designed to minimize adverse impacts on agricultural operations.

- a. **Greenhouses.** Greenhouses may be permitted on agricultural lands within developed areas or the urban-rural fringe in accordance with agricultural protection plans. Outside of these areas, greenhouses that degrade soil capabilities of prime land shall be treated as conversions.
- b. **Special Facilities.** Agricultural lands may be converted to non-agricultural use where (1) conversion is required for public service, energy, and transportation facilities or for mineral extraction; (2) the proposed facility or activity is necessary and is consistent with other Coastal Plan policies; (3) there is no alternative location that would meet the same need with less environmental damage; and (4) such facilities are sited and designed to minimize adverse impact on the agricultural resource.

**36. Limit Division of Land Within Agricultural Areas.** Except for conversions permitted pursuant to Policies 32-35, subdivisions and lot splits shall not be permitted to reduce agricultural parcels to a size that could be uneconomic or impractical for continued agricultural production on the parcels in question or on adjoining parcels (e.g., 40-acre minimums would allow only a total of 25 residences in a 1,000-acre area whereas 5-acre minimums would allow 200 residences with the potential for significant increase in dog, road, and vandalism problems). Where divisions of agricultural lands are allowed for agricultural purposes (such as long-term leasing of specific parcels), the approval of such divisions shall be conditioned on the recording of appropriate restrictions precluding the future division of the parcels and limiting the use of the parcels to agricultural activities. It is recommended that the Subdivision Map Act be amended to exempt agricultural lands from the requirement for the recorded division of land for long-term leases



Field of lilies, Smith River, Del Norte County

where the purpose of the lease is for agricultural production or an agriculturally-related use.

**37. Regulate Development and Land Division Near Agricultural Areas.** Except for conversions permitted pursuant to Policies 32-35, new development, land division, or the formation of urban assessment districts shall be allowed adjacent to agricultural lands only if (1) the type of use proposed will not interfere or conflict with continued agricultural use and the development is designed to avoid conflict with farming practices (e.g., clustering housing as far away from agricultural spraying areas as possible); and (2) it will not have an adverse economic effect on the long-term preservation of agricultural lands (e.g., adjacent lands are under agricultural use restrictions and agricultural lands will not be assessed for urban services or taxed on the basis of urban property values).

# FORESTRY

## Findings

### **Commercial Timberland Is a Valuable Coastal Resource.**

The commercial timberland of the coastal zone is a valuable natural and economic resource. It must be managed carefully to ensure its maintenance as a renewable economic resource, to retain its valuable wildlife, fisheries habitat, and scenic and recreational potential, and to protect watersheds from erosion and excessive runoff due to the removal of vegetation. The basis of a sound, healthy timber industry is protection and husbandry of soil. The California Forest Practice Act of 1973 has as major objectives the maintenance of commercial timberland to ensure long-term sustained yield, and the protection and enhancement of fish and wildlife habitat, soil and watershed resources, and recreational use of timberland.

### **Improper Management Has Reduced Forest Resources.**

In the past, unsound forest management practices, conversions of timberland to other uses such as residential development or agriculture, and site dominance by non-commercial successional species have contributed to the decline in the historical timber inventory in California. Land divisions have often produced small uneconomic parcels that force the harvesting of timber when it is not desirable.

**Revision of Timber Taxation Methods Is Needed.** Current methods of timber taxation, which treat most mature standing timber as "property," encourage unsound forest management on small timber ownerships, resulting in reduced forest yield. Revision of present timberland taxation practices (for example, replacing the property tax with a "yield tax" that would tax the timber as it is removed) is needed to encourage conservation and long-term renewal of this resource.

## Policies

**38. Protect Coastal Forest Resources.** Because timber is renewable while many other vital construction and industrial raw materials are not, timber harvesting is a vital and necessary industry that should be encouraged and safeguarded. To that end, forestry resources shall be managed as part of comprehensive watershed management, as set forth in Policies 21-25. Timber harvesting

Old-growth coastal redwoods, Humboldt County



and timberland conversions shall maintain long-term productivity and protect environmental quality, including the fisheries resources of coastal streams, while encouraging appropriate use of this important renewable resource, using the criteria in the following sections. These policies shall be implemented primarily by the Division of Forestry and the Board of Forestry and through local coastal plans, with participation and comment by the coastal agency. The coastal agency shall review and report progress toward meeting these objectives annually to the Governor and Legislature.

- a. **Restrict Conversion of Productive Timberlands.** Conversions of high-quality redwood, Douglas-fir, or other coastal commercial timberlands (site I, II, or III) to other uses or their division into units of non-commercial size shall be allowed only for necessary timber processing and related facilities and for specific uses that may be permitted as provided in Policy 35 for agricultural lands. Other coastal areas now in use for forestry shall be protected for productive use and open space value except as provided for non-prime agricultural land conversion (see Policy 34).
- b. **Protect Scenic Qualities of Timberland.** Timber harvesting, including road construction and debris removal, shall be regulated to protect the scenic quality of areas that are highly visible from public roads, foot and bicycle trails, coastal rivers and streams, beaches, and parks. Such regulation shall favor use of selective timber-harvesting methods or the use of small, carefully designed clear-cut areas. Buffer areas shall be preserved to provide maximum feasible

screening of new logging operations from such public viewing points.

- c. **Protect Water Quality from Adverse Effects of Logging.** Timber harvesting in key watershed areas (those that are vital to the water supply of coastal communities or that drain into sensitive coastal water areas such as wetlands) and along all stream banks shall be strictly regulated and forest management practices within these areas conducted to prevent such adverse effects as damage to stream and riparian habitats, siltation, or harmful runoff. Specific "buffer zones" shall be established (with assistance from water quality, wildlife, and fisheries agencies) where commercial harvesting of timber shall be closely regulated or not allowed.
- d. **Restore and Enhance Timber Resources.** Programs for rehabilitation and enhancement of commercial timber resources shall be developed, with State encouragement or appropriate incentives, and implemented according to priorities developed as part of watershed plans.

**39. Modify Taxation to Encourage Sustained Yield.** Because the current practice of annually assessing timber lands encourages the conversion of those lands rather than sustained yield timber management, it is recommended that State laws governing timber taxation be amended to require taxation of timber when it is harvested (i.e., stumpage tax) instead of taxation annually in the manner of real property. Although the ultimate tax yield over the years would be the same, appropriate adjustments to offset the temporary inequities that may occur to both timber property owners and local governments during the conversion to the new taxation system need to be included.

## SOIL AND MINERAL RESOURCES

### Findings

**Soil Quality Is Important to Coastal Conservation and to Development Decisions.** Soil is a valuable and irreplaceable coastal zone resource. Soil absorbs and stores rainfall that recharges underground aquifers, sustains agriculture and timber production, and supports natural vegetation, wildlife habitat, and a great variety of human activities. Soil maps inventory the distribution, quality, and limitations of the land.

Such maps can aid in land use planning and in review of development proposals by identifying areas of prime soil for agriculture and timber production and areas with potential soil erosion, waste disposal, instability, or other problems. Several coastal counties have already completed detailed soil surveys. Data presently available includes the California Soil Vegetation Survey, which includes soil and vegetation information for over eight million acres of upland soil, and Department of Water Resources surveys classifying California lands for suitability for agriculture in terms of slope, soil



texture, and other limiting characteristics. Major land use categories, including urban development, agriculture, and certain types of recreation, are being mapped periodically to determine changes in land use. Most of the coastal areas have been mapped twice at an interval of about 10 years.

**Several Non-Petroleum Minerals Are Extracted in the Coastal Zone.** California's coastal zone contains many non-petroleum minerals; sand and gravel are the most important economically. Construction material needs can be largely met by mining non-coastal mineral deposits, with the exception of specialty sand and other unique coastal minerals. Increased demand for non-petroleum minerals is leading to increased interest in offshore mining. Recent developments in offshore mining technology are helping to make offshore mining competitive with land operations. Seawater also holds promise as a source of more salt, magnesium, and other minerals. On land, the geographic sprawl of cities threatens to cover many mineral deposits, primarily sand and gravel resources located near urban areas. Also, urban residents often object to nearby mining operations.

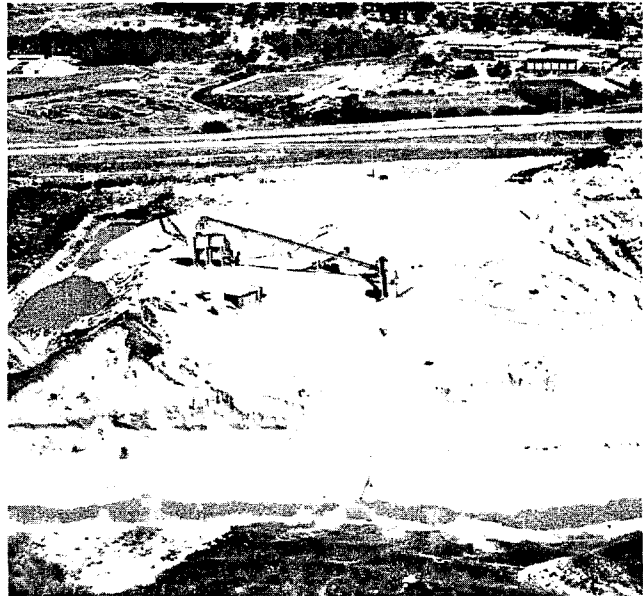
**Sand and Gravel Extraction Involves Environmental Impacts.** Mineral extraction, primarily of sand and gravel, involves many environmental hazards. Open-pit mining removes all vegetation, creates disposal problems, may pollute both air and surface water, and deprives wildlife of habitat. Suction dredging (using vacuum pressure to recover underwater resources) disrupts bottom life, can pollute the water with silt and residual material, and can create dredge-spoil disposal problems. Dragline mining, which scrapes off surface materials with a bucket suspended from an arm, either on land or underwater, can cause the environmental damages of either open-pit mining or suction dredging. Sand and gravel extraction also can reduce spawning grounds. Mining of coastal sands has noticeably depleted this resource in some locations.

**Mining Regulations Are Needed.** Strict environmental controls such as dredge disposal standards, dust and noise control equipment, and reclamation of pit mines, could alleviate many of the problems, although they would also increase mineral extraction costs. Some such regulation is now being done, but it is not uniform throughout the coastal zone.

## Policies

**40. Protect Coastal Soil Resources.** Soil productivity shall be protected and development regulated to prevent soil depletion or degradation. Existing building and grading regulations aimed at minimizing erosion shall be strengthened and strictly enforced, including review of local ordinances to ensure that they fully conform with the Coastal Plan. To this end, natural resource inventories, including detailed soil surveys, shall be completed for the entire coastal zone and used to identify valuable soils that shall be protected when formulating land use plans and evaluating proposed projects.

**41. Regulate Mining.** Mining shall not be allowed in sensitive areas such as marshes, lagoons,



Sand mining, Seaside, Monterey County

“living dunes,” some streams, and other coastal water areas and landforms that are fragile, valuable, or highly scenic natural environments. Mining shall be allowed in other coastal areas if (1) the mineral extraction will not have a substantial or long-lasting adverse impact upon coastal resources; and (2) in the case of sand mining, the sand supply of the particular watershed is sufficient or alternative sand supply is provided to allow mining without significant adverse impact. (See also Policy 18 regarding dredging and spoils disposal, and Policy 24 regarding stream mining.) In addition:

- a. **Provide Buffer Areas.** Buffer areas shall be preserved to provide maximum feasible screening of new on-land extraction operations from coastal roads, trails, water bodies, beaches, and recreation areas.
- b. **Restore Mined Areas.** After completion of permitted mining operations, mineral extraction areas shall be reclaimed and replanted to ensure slope stability, erosion control, and adequate drainage and to offer as natural an appearance as possible. Park and open space use shall have the highest priority for the utilization of restored extraction sites.
- c. **Establish Environmental Protection Standards.** Noise and dust, surface water pollution, and waste materials and spoils disposal shall be controlled to minimize adverse impacts. It is recommended that uniform statewide regulations be adopted and enforced to provide appropriate standards for these impacts, as well as for reclamation of extractive sites. Implementing these requirements will require the cooperation of the many local, regional, and



statewide agencies that would be involved, coordinated by an agency such as the State Office of Planning and Research.

#### **42. Inventory and Reserve Mineral Deposits.**

To reduce the pressure to mine sand and gravel and other non-petroleum mineral resources in fragile coastal areas, the location, quantity, and

quality of mineral resource deposits shall be inventoried statewide, concentrating on potential resources near urban areas where materials can be transported at reasonable cost. Near-city mines and reserves shall be protected from urban encroachment. Designations of appropriate mining sites shall be a part of comprehensive watershed management plans, described in Policy 22.

## AIR QUALITY

### Findings

**Clean Air Is a Coastal Zone Resource.** Clean air is an identifiable economic resource contributing to activities such as cut-flower and specialty crop agriculture and recreation. Coastal areas with clean air also provide a needed refuge for people with asthma and other illnesses. Beyond these tangible benefits, the fresh ocean breeze is appreciated by residents and visitors throughout the coastal zone.

**Air Quality Varies Throughout the Coastal Zone.** Air quality varies greatly among different sections of the coast. Pollution sufficiently severe to damage human health occurs in some locations (generally urbanized areas with adverse meteorological and topographic conditions) and contrasts with normally clean air in others. Certain areas of the State where the national ambient air quality standards are not expected to be achieved by 1980 or to be maintained through 1985 have been designated as Air Quality Maintenance Areas by the California Air Resources Board. Designations were based on the following criteria: (1) areas where the standards are currently exceeded and are not projected to be achieved by 1980, (2) areas currently meeting the national standards in which increased emissions are expected to cause a violation of the standards before 1985, and (3) in the San Francisco Bay Area and South Coast Air Basins, the entire air basin, if any county in the basin meets the criteria above. Coastal areas or air basins designated by the State include the South Coast, San Francisco Bay Area, and San Diego Air Basins, and Monterey County.

**Air Pollutants Originate from Many Sources.** Air pollutants originate from many sources. Motor vehicles constitute the single largest source of nitrogen oxides, carbon monoxide, and organic gases; industry, including fossil-fueled electricity-generating plants, is the chief source of sulfur dioxide. Suspended particulate matter comes from mining, agricultural, and lumber operations, as well as from motor vehicles, incineration, and the combustion of fuel. All these are in addition to natural pollutants such as dust and saltwater particulates.

**Distinct Climate of the Coast Affects Air Pollution.** Several distinct meteorological aspects of the coast affect air pollution problems. Temperature inversion layers, which trap pollutants by stopping upward air movement, tend to occur more frequently, at much lower levels, and last longer into the

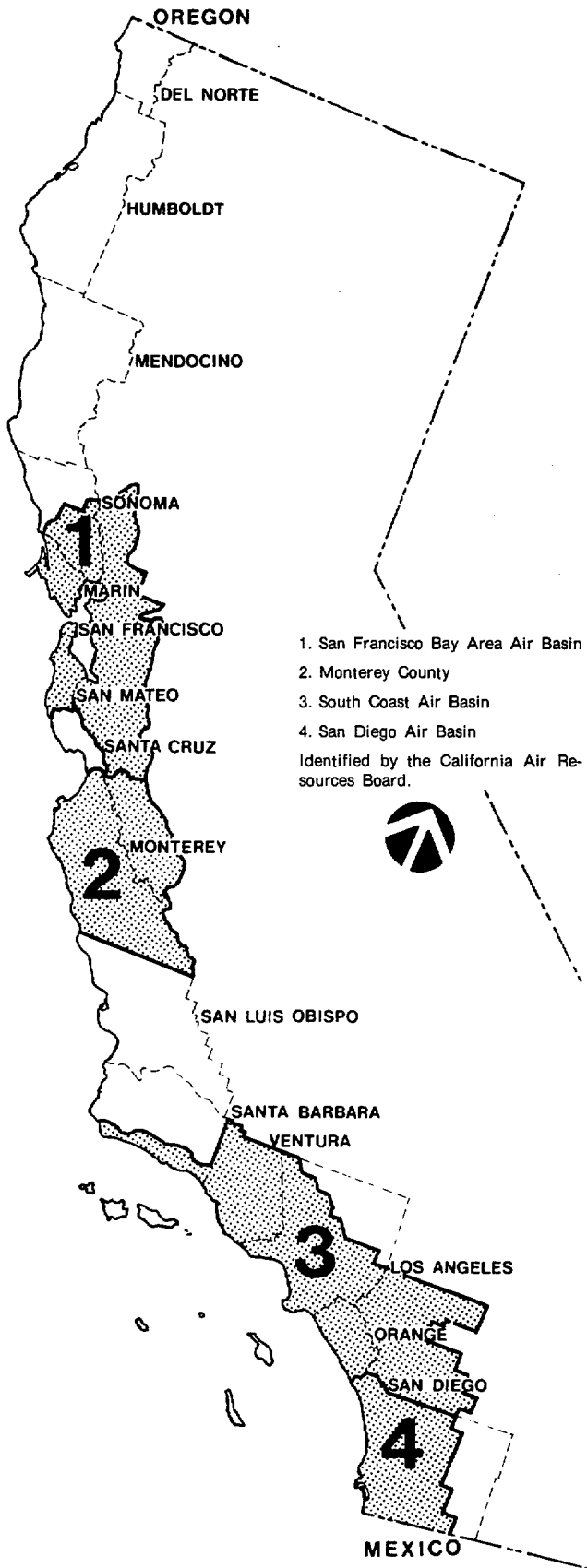
day along much of the coast, because of high-pressure centers off the Pacific Coast or land-water temperature differentials. Land-sea breezes are caused by the temperature differential between the land surface and the ocean surface, on both a daily and seasonal basis. These breezes may push pollutants back and forth without dispersing them throughout a larger area, especially where the topography helps trap pollutants and when winds are relatively weak, as they are in winter. During the summer season, the fog and low clouds along the coast usually prevent formation of photochemical smog, but as winds move the air inland, pollutants produced in the coastal zone can contribute to severe smog at inland locations where the pollutants react with sunlight. Sulfur dioxide pollution is more dangerous in coastal fog areas, where chemical reactions can produce a weak solution of sulfuric acid, injurious to human, animal, and plant health, and damaging to many materials.

**Air Pollution Threatens Public Health and Coastal Zone Resources.** Air pollution limits specifically set to protect human health are now being exceeded in some locations along the coast, creating not totally quantified but very real damage and human suffering. Studies made under Environmental Protection Agency (EPA) auspices are increasingly quantifying the detrimental effects upon health of air pollution levels even under existing secondary standards. In addition to the impacts on human health, the extent of air pollution damage to wildlife and vegetation (including native plants, forests, landscaping, and agricultural crops) is also increasingly being documented. A statewide study estimates crop losses alone from air pollutants in 1970 to be almost \$26 million, not including invisible damage.

**Development Patterns May Affect Air Pollution.** The location and intensity of air pollution concentrations greatly influence its effect. Studies suggest intensive transportation corridors are major sources of concentrated vehicle emissions creating a special hazard for humans, wildlife, and plants located nearby. When freeways encourage a net increase in vehicular mileage, they also add to total air basin pollution. Buildings also affect pollution dispersal, generally slowing wind speed over urban areas and modifying wind patterns within particular building masses.

**Project Design Can Help to Minimize Air Pollution.** Careful project design can minimize interference with wind currents,

## Coastal Air Quality Maintenance Areas



especially in local circulation patterns, and can thus maintain natural ventilation. Properly located vegetation barriers ("green belts") can substantially reduce particulate air pollution and some types of gaseous pollutants, especially near ground level, by trapping it on the foliage. Even a 30-foot-wide strip densely planted with trees and shrubs can filter out more than a quarter of some types of pollutants. Project designs which minimize automobile use also aid in reducing pollution.

**Further Air Quality Regulations Are Needed.** Present regulation of air pollution in California is shared among local Air Pollution Control Districts, the State, and the Federal government, and is coordinated by the State Air Resources Board. Present regulations focus on limiting pollutants emitted from stationary and vehicular sources. There is currently no authority to coordinate land use and transportation systems as a means to control air pollution, but this is now being proposed by the Air Resources Board and the EPA. Indirect source controls are also being developed. The EPA is also considering limiting the extent of allowable degradation of existing air quality in any air basin, rather than setting only upper limits on total pollution levels. In addition to requiring each state to prepare and enforce a plan to meet the primary national ambient air quality standards, the Federal Clean Air Act also required each state to prepare and submit by June 1975 an air quality maintenance plan showing how air quality standards will be maintained.

## Policy

**43. Design and Operate Coastal Developments to Protect Air Quality.** New coastal developments (including small-scale development that, together with other projects of the same type would have a cumulative adverse effect upon coastal air quality) shall be planned, designed, and operated to protect and restore coastal zone air quality to the maximum extent possible.

**a. Strive for Maintenance and Restoration of Coastal Air Quality.** Air quality maintenance plans stressing maintenance and restoration of coastal air quality shall be prepared by the appropriate air quality agencies with the cooperation and participation of the coastal agency. Similar cooperation shall be exercised in developing air quality carrying capacity estimates for each clean air region.

**b. Major Pollution Sources.** Major pollution-generating developments, including but not limited to refineries, oil separation, treatment, and storage facilities, airports, freeways, fossil fuel electric generating plants, and major modernization or expansion of any existing such developments shall:

- meet all applicable Federal, State, and local performance and emission standards and regulations;

- be designed, sited, built, and operated using the best available technology and operating procedures to minimize pollution;
- not prevent or interfere with the attainment or maintenance of any applicable ambient air quality standards; and
- not cause significant deterioration of local or regional coastal air quality with respect to any pollution type.

In addition, such developments shall not be built in areas of the coastal zone designated by the California Air Resources Board as Air Quality Maintenance Areas (areas where any national ambient air quality standards are exceeded currently and are not projected to be achieved by 1980, or where such standards are currently being met but increased emissions are expected to cause a violation of the standards before 1985), or in locations where such coastal resources as resort or agricultural areas would be adversely affected, unless (1) there is no alternative inland or coastal location where siting would result in less environmental degradation, and (2) further criteria in Policy 79, re-

garding fossil fuel power plants, and Policy 88 regarding refineries, are met.

**c. Residential and Commercial Development.**

Additional residential development shall wherever possible be located in areas served by public transit systems. (See Policy 59 regarding limitation on remote, auto-dependent developments.) Public transportation and reductions in total vehicle miles traveled shall be strongly encouraged in all new and existing developments by such means as requiring financial contributions to public transit systems in lieu of otherwise required parking spaces (normally in areas served by public transportation), public subsidies of bus systems, and restricting arterial design capacities and on-site parking. (See also Transportation chapter.)

- d. Project Siting and Design.** New projects in the coastal zone shall be evaluated and appropriate mitigation measures required to reduce pollution problems (e.g., on-site open space, green belts, internal circulation systems, and buildings designed and sited to maintain favorable wind currents).

# COASTAL APPEARANCE AND DESIGN

## Findings

**The Coast Is a Visual Resource.** For the most part, the California coastline is an outstanding visual resource of great variety, grandeur, contrast, and beauty that can be enjoyed by all the people of the State. Visual attractions such as the dramatic meeting of land and water, clear skies, unspoiled natural areas filled with wildlife, and the rich texture of urban shorelines add to the quality of life for coastal residents, visitors, and workers, and contribute to the economic success of the tourist industry by attracting many vacationers to the coastline.

**Complexity of Analyzing Coastal Visual Resources.** The systematic analysis and management of coastal visual resources are complex and difficult because of the great variety of natural conditions and the wide spectrum of the degree of development along the coast. At the broadest level the following nine types of landforms have been found to encompass most conditions along the coast; therefore, these are reasonable categories for coastal zone appearance and design policies and guidelines, and lend themselves to greater specificity at the local level based on detailed inventories of existing conditions and problems:

- **Beaches** that may be narrow to broad sand, shingle, cobble, or rock with a wide degree of vegetation ranging from none to thick grasses, such as the Silver Strand, Ten Mile Beach, and Stinson Beach.
- **Sand Dunes** that vary greatly in height and in the degree of vegetation they support, such as Murray Dunes, Monterey Bay Dunes, and Salmon Creek Beach.
- **Coastal Bluffs** that are the angular, irregular coastal edges of marine terraces rising at least ten feet above sea level, such as Point St. George, Santa Cruz North Coast, and Goleta Point.
- **Headlands** that usually fall steeply into the sea along a jagged angular, irregular shoreline, such as Big Sur, Cape Vizcaino, and the Golden Gate Headlands.
- **Wetlands and Estuaries** that encompass bays, lagoons, inlets, and their surrounding wetlands, such as Bolinas Lagoon, San Dieguito, and Pescadero Lagoon.
- **Islands** ranging from large rocks to the expansive Channel Islands, such as Indian Island, Farallon Islands, and Santa Catalina Island.
- **Headlands, Hillsides, and Canyons** that are usually steep and rugged and include rare vegetation, small scale features, abundant wildlife, and outstanding visual features,

such as Bixby Canyon, Los Trancos Canyon, and the San Clemente hillsides.

- **Upland Terraces and Plains** that are generally broad, flat coastal lands stretching inland from the sea to the coastal mountains, such as much of the Mendocino Coast, San Mateo coastline, and the Irvine Properties.
- **Rivers and Streams** that are the upland portion of estuaries that are connected to the sea and that are often meandering, broad open areas shaped by the paralleling hills, such as the Smith, Tijuana, and Russian Rivers

**Deterioration of the Appearance of the Coast.** In some areas, manmade changes have provided new access to the coast and new opportunities to enjoy the coast, while respecting the special visual quality of the coastal environment. But in other areas, the coastline has been degraded by new developments and other alterations that do not harmonize with the scenic qualities of natural areas or do not respect the unique visual resources found in developed coastal areas. In its most general terms, this deterioration is due to various aspects of urbanization that could have been better designed to minimize their negative effects. These issues include:

- **Scale, height, materials, and colors** of buildings and structures that, when inappropriate to the landform and existing patterns and scales of development, can degrade the appearance of both communities and natural areas.
- **Community boundaries** that are often ignored, creating visually displeasing "sprawl" development. (See Policy 59.)
- **Signs** that can block views, create visual clutter, and mar the appearance of otherwise attractive communities.
- **Alteration of natural landforms** by cutting, grading, filling, or vegetation removal that can cause visual scars, result in unsightly erosion, and destroy scenic areas.
- **Landscaping** that is often inadequate in new development, creating the appearance of harsh structures imposed on the coastline.
- **Views** that when blocked destroy the most important visual quality that identifies coastal areas.
- **Utility and communications facilities** that can cause visual blight when overhead lines, towers, and poles intrude into scenic areas or clutter views of the coast in developed communities.
- **Public service, commercial, and industrial facilities** such as manufacturing plants, shopping centers, power plants, sewage treatment facilities, solid waste disposal facilities, water storage tanks, pumping stations, and power and communication substations that can be major visual

intrusions in the coastal environment because of their size and appearance.

- **Transportation and parking facilities** that can result in cutting and filling of the natural landscape and the well-known "sea of asphalt" in urban areas. (See Transportation chapter policies on roads and parking lots.)
- **Mineral extraction and timber harvesting** that are generally considered to be unattractive activities that should be screened from public view. (See Policies 38 and 41.)

**The Need for Design Evaluation.** The Coastal Zone Conservation Act of 1972 requires that one objective of the Coastal Plan be "the maintenance, restoration, and enhancement of the overall quality of the coastal zone environment, including, but not limited to its amenities and aesthetic values" (Public Resources Code, Section 27302 [a]). In order to achieve this objective, it would be ideal if highly specific

design criteria could be established for all new development along the coast. But because of the great variety in the existing character of the coastline, because of the dynamic changes taking place in social values and building technology, and because different people have different concepts of "beauty," necessitating intensive involvement of community residents in determining the desired visual qualities that should exist in the hundreds of communities along the coast, highly specific criteria cannot be established for the entire coast at this time. Until design plans, specific criteria, and enforcing regulations can be formulated by coastal communities and the coastal agency, the application of general design guidelines, refined to as much specificity as possible by regional and local amplification, through a design review process, appears to be the best method for guiding development to preserve or restore the attractive appearance of the coast. (See also the Restoration of Coastal Resources chapter.)

## PROTECTING COASTAL VISUAL RESOURCES

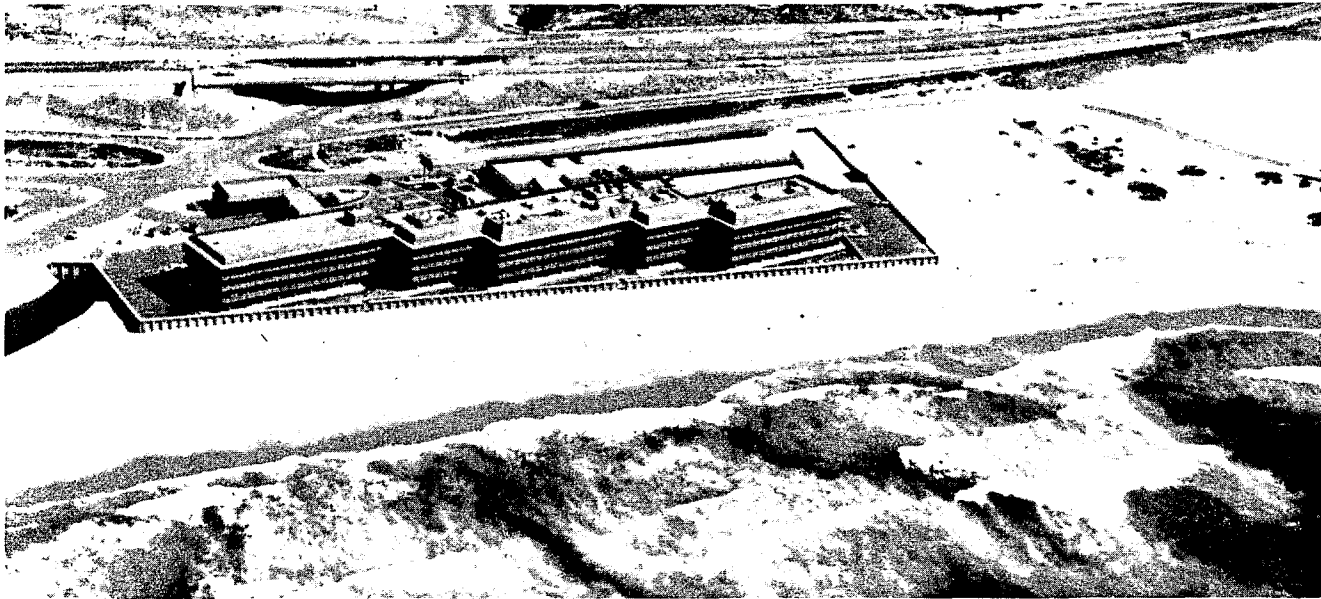
### Policies

**44. Design Development to Protect Coastal Viewshed.** The visual qualities of the California coast shall be considered a resource of public importance. Within the "coastal viewshed," as defined below, new development shall be designed so that the viewshed quality can be preserved where existing natural or manmade areas are scenic, can be enhanced by the addition of attractive improvements, and can be restored by the removal of undesirable visual elements (see chapter on Restoration of Coastal Resources for restoration policies). The coastal viewshed is the coastal lands and waters that can be seen from the major coastal access roads, trails, and railroads (those paralleling the coast and those leading to the coast from inland areas); from public vista points and recreational areas; and from the water's edge.

**45. Protect the Visual Quality of Highly Scenic Areas.** New development shall not be permitted to degrade highly scenic natural, historical, or open areas and shall be visually subordinate to the scenic quality of these areas. The areas that require this special consideration shall include: (1) landscape preservation projects designated by the State Department of Parks and Recreation in the California Coastline Preservation and Recreation Plan; (2) open areas identified in the Coastal Plan as being of particular value in providing visual contrast to urbanization, in preserving

natural landforms and significant vegetation, in providing attractive transitions between natural and urbanized areas, in carrying out the policies of the Coastal Plan, or as scenic open space; and (3) scenic areas and historical districts designated by cities and counties in their design procedures and standards prepared pursuant to Policy 46.

**46. Establish Local Design Procedures and Standards.** Cities and counties within the coastal viewshed shall prepare and implement design procedures and standards as a part of their general plans. These shall be required to include appropriate guidelines, criteria, and standards that are consistent with appearance and design policies of the Coastal Plan; a sign ordinance to apply the guidelines set forth in Policy 54; and definitive design criteria for improving the appearance of the shoreline based on detailed studies of the oceanfront area carried out by cities and counties. Areawide design guidelines shall be formulated as part of design procedures and standards so that development proposals can be coordinated in order to maximize open space preservation; to protect view corridors, natural vegetation, landforms, and other features; to effectively link open space systems with paths and bikeways; to reduce the need for duplicating circulation systems; and to minimize the appearance of visually intrusive structures. Transportation, land use, utility, and recreational planning shall be coordinated with the preparation of the design procedures and standards.



Hotel on open beach and dunes, Seaside, Monterey County

**47. Establish a Design Review Process.** New development within the coastal viewshed that would have a significant visual impact shall be subject to design review. This review shall be to ensure that development and its cumulative impact are consistent with the design guidelines contained in Policies 49 to 56 and with the special policies for each individual Region.

**a. Design Review Process.** To evaluate visual aspects of development proposals and to advise public regulatory agencies on both design issues and the application of other Coastal Plan policies through design techniques, and, in particular, to assist in determining whether a proposed development that would not comply precisely with the guidelines in Policies 49 to 56 would, nevertheless, be visually compatible with the surrounding environment's attractive qualities because of its innovative and sensitive design: (1) professional design assistance shall be available to the staff of the coastal agency; (2) local governments shall consider establishing design review boards; and (3) regional design review boards shall be established by the coastal agency when necessary to evaluate and advise on development proposals that are of regional significance or that are in areas not served by local design review boards. Design review boards shall consist of persons who have displayed an understanding and appreciation of the history, aesthetics, and goals of coastal communities, and design professionals (e.g., architects, landscape architects, urban designers, planners, engineers, artists, sculptors, etc.).

**b. Require Coordinated Design Plans.** Where development is proceeding rapidly in small neighborhood areas or on adjoining or nearby

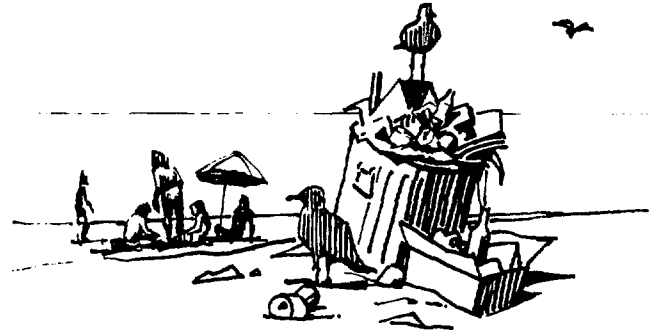
properties in undeveloped areas, the area shall be considered as a single unit, and the project sponsors shall be required to jointly prepare an overall design plan to coordinate open space, internal circulation, design themes, view protection, and other visual elements and to meet the requirements of the design guidelines and other Coastal Plan policies.

**c. Prepare Area Plan for Intense Development.** Major new development that would be of a substantially greater density or intensity of use than the surrounding area shall be in accordance with an area plan, prepared at the project sponsor's expense, that specifies the general location of uses by height, bulk, and density, and that indicates the location or methods for preserving open space, ocean breezes, views, and public access. The impact of any proposed major structures on views, shadows, glare, and wind patterns shall be evaluated as part of the area planning.

**d. Large, Intensive Subdivisions and Developments Must Have Detailed Design Plans.** A detailed design plan shall be required for subdivision and development of nearcoast area properties larger than three acres, or development proposals of more than 15 dwelling units per acre in suburban areas (20 per acre in urban areas). It shall be prepared at the project sponsor's expense and shall demonstrate that the development will comply with Coastal Plan design policies.

**48. Reduce Litter in Coastal Areas.** All public recreational areas, scenic road turnouts, and other such areas shall contain adequate, well-designed

litter receptacles. Maintenance (emptying) of these receptacles, raking of beaches, and anti-litter patrols along highways and in wilderness areas shall receive high priority in state budgeting and local cleanup campaigns. To greatly reduce litter along the coastal roads, waterfront recreational areas, and in shoreline communities, it is recommended that the Legislature consider enacting laws to prohibit the sale in California of non-returnable glass bottles, aluminum and metal pop-top cans, and non-biodegradable plastic packaging.



## DESIGN GUIDELINES FOR VIEWSHED DEVELOPMENT

### Policies

**49. Design Guidelines: Compatibility with Natural Environment.** The scenic value of natural landforms shall be preserved, enhanced, and restored. Development shall be compatible with existing natural features and terrain. The visual intrusion of structures into scenic open spaces shall be minimized by clustering the structures near other existing natural and manmade vertical features (such as tree masses, hills, rock outcrops, and existing structures). To ensure that structures are compatible with the natural environment, the following guidelines for development on specific landforms shall apply except either (1) where it would make an existing parcel unusable and where public acquisition of such a parcel is not appropriate (see Policy 155), or (2) where it is determined, under the provisions of Policy 47 (a), that a proposed development that would not comply with the guidelines would, nevertheless, be visually compatible with the natural environment's visual qualities.

**a. Design Guideline: Beaches.** No permanent structures shall be permitted on the open beach itself except facilities necessary for public health and safety (e.g., beach erosion control structures and life guard towers) or structures found to be necessary for public welfare. Other structures or other improvements shall be located inland from the open beach.

**b. Design Guideline: Sand Dunes.** Development that would significantly hamper natural dune movement, that would conflict with the visual form of dune ridgelines, or destroy dune-stabilizing vegetation, shall not be permitted. Pedestrian and vehicular traffic in fragile sand dune areas shall be minimized.

**c. Design Guideline: Coastal Bluffs.** Development on bluffs shall be controlled to minimize bluff degradation. No structures shall be permitted to be built on a bluff face except for access stairways (which shall be for public use, few in number, and conveniently located to public accessways) and erosion control structures, such as seawalls, that would be in conformance with Policy 19. Approved structures shall be constructed of materials that reproduce natural colors and textures as closely as possible. Drainpipes shall be minimized by collecting runoff and directing it landward, where possible, and shall be unobtrusive in appearance. No dumping over coastal bluffs shall be permitted except where necessary for erosion control measures specifically authorized by the coastal agency and consistent with other Coastal Plan policies. Blufftop development shall be set back from the bluff edge sufficiently far to ensure that the development would be visually unobtrusive when viewed from the shoreline except in highly developed areas where adjoining development is nearer the bluff edge, or in special cases where a facility that would be used by substantial segments of the public has been

justified in an approved urban design plan for the area. (See also Policy 70 regarding development in bluff hazard areas.)

**d. Design Guideline: Wetlands and Estuaries.**

The open visual appearance of estuaries and their surrounding beaches and wetlands shall be retained intact. Public accessways shall be designed to respect the visual and ecological fragility of estuaries and their adjacent land areas. Coastal roads shall be located on the inland side of the estuaries. (See also Marine Environment section on Coastal Waters, Estuaries, and Wetlands.)

**e. Design Guideline: Islands.** Development on islands, except for lighthouses and ancillary facilities necessary for public safety, shall blend with the natural visual form of islands and shall not extend above the natural silhouette of the island.

**f. Design Guideline: Headlands, Hillside, and Canyons.** Private roads on headlands shall be visually screened, and driveways connecting to the coastal highway minimized in number. The transitions between headlands and related stream canyons shall be left in a natural state with bridges over canyons minimized in number, combined, and located at the narrowest crossing points as far inland as physically feasible and environmentally acceptable. Grading, cutting, and filling in canyons and arroyos and on hillside shall be in accordance with Policy 53. Buildings on canyon edges and hilltops shall be visually unobtrusive when seen from the canyon or valley floors below. Coastal canyons with recreational and natural study value shall not be used for sanitary landfill sites where satisfactory alternatives are available.



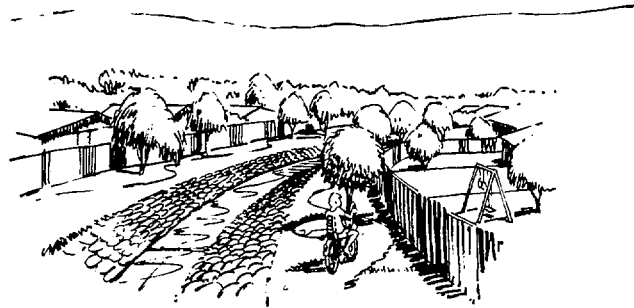
**g. Design Guideline: Upland Terraces and Plains.**

Structures located in open grassland areas where they would be highly visible shall be minimized in number and clustered near existing natural or manmade vertical features, and development on upland hilltops and ridges

shall be visually unobtrusive when seen from the terraces or plains below.

**h. Design Guideline: Rivers and Streams.**

Development shall be set back from the edge of coastal rivers, streams, and other natural waterways to protect riparian vegetation, minimize erosion, and preserve the visual contours of the waterway. Channelization projects, where specifically authorized and consistent with other Coastal Plan policies, shall include landscaping, public trails, and linear parks to mitigate the visual damage resulting from the channelization and to maintain, enhance, or restore recreational opportunities.



**50. Design Guideline: Protection of Coastal Views.**

Except as provided in Policy 47(a), development (including buildings, fences, paved areas, signs, and landscaping) shall not be allowed to significantly block views of the shoreline from key public viewing points such as roads that terminate at the coast, roadside turnoffs, recreation areas, and beaches. In addition:

**a. Views of Natural Features from Roads.** In major new development, views of attractive natural features (such as dunes, the surf, coastal bluffs, outcroppings, and estuaries) from the nearest public thoroughfare shall be protected and public vista areas shall be provided.

**b. Limit Seaward Extent of Oceanfront Development.** To protect existing views in developed areas, new oceanfront area development shall not extend farther seaward than the adjacent structures unless (1) this would make an existing parcel unusable and where public acquisition of such a parcel is not appropriate (see Policy 155), and (2) such development is in accordance with other policies of the Coastal Plan.

**51. Design Guideline: Scale, Height, Materials, and Colors.**

Except as provided in Policy 47(a), development either shall be visually compatible with the character of the surrounding attractive area or shall enhance the quality of areas that have been degraded by existing development.



Materials and colors used in coastal construction shall be selected for compatibility both with the structural system of the building and with the appearance of the building's natural and manmade surroundings. Pre-set architectural styles (e.g., pseudo-Spanish mission and standard fast-food restaurant designs) shall be avoided.

**52. Design Guideline: Landscaping.** Except as provided in Policy 47(a), plant materials shall be used to integrate the manmade and natural environments, to screen or soften the visual impact of new developments, and to provide diversity in developed areas. In new development, existing attractive vegetation shall be protected and plants similar in habit, form, and water requirements to vegetation common to the particular coastal region shall be used as the predominant additional landscaping material in order to reduce the need for irrigation systems and extensive maintenance programs.

**53. Design Guideline: Alteration of Natural Landforms.** The visual destruction of natural landforms caused by cutting, filling, grading, or vegetation removal shall be minimized, and the following guidelines shall apply, except as provided in Policy 47(a):

**a. Minimize Landform Alterations for Permitted Developments.** Landform alteration for building sites, access roads, and public utilities shall be minimized by (1) concentrating development on relatively level areas so that steeper hillsides can be left undisturbed, (2) designing structures to fit hillside sites rather than altering the landform to accommodate buildings designed for level sites, (3) waiving minimum street-width requirements and using one-way circulation systems so that necessary hillside roads can be as narrow as safely possible and can conform to natural topographic contours, and (4) prohibiting new buildings and their support facilities (such as road and utility expansions) that would require grading, cutting, or filling that would significantly and permanently alter the appearance of natural landforms.

**b. Restore Natural Contours.** After any permitted temporary alteration of natural landforms during construction, timber harvesting, or mineral extraction, the topography shall be restored to as close to the natural appearance as possible, and the area landscaped in accordance with Policy 52.

South of Shelter Cove, Mendocino County



**54. Design Guideline: Signs.** Signs and billboards shall not be allowed to block significant coastal views, cause visual clutter that conflicts with the ordered design of coastal communities, or detract from the natural beauty of the coast. Cities and counties, as part of their design procedures and standards shall develop sign ordinances applying the following guidelines. Until these ordinances have been enacted, the guidelines shall be applied by the coastal agency to specific coastal areas that can be seen from principal coastal access roads, trails, and railroads along the coast, and from major lateral transportation corridors with views of the coastline, except as provided in Policy 47(a).

- a. **Ban Off-Premise Commercial Signs.** New off-premise commercial signs (those that do not advertise a use being made of the premises, the name of the owner or use, or a product, service, or entertainment available on the premise) shall not be permitted. After a suitable amortization period not to exceed 10 years, existing off-premise signs shall be removed.
- b. **Alternatives to Commercial Signs and Billboards.** In place of off-premise commercial signs, coastal communities could provide alternative means for informing the public about commercial services and products available in the communities. These alternatives could include low-power radio broadcasts or local radio station programs and spots designed for travelers, and kiosks or other well-designed, integrated displays at roadside turnouts near major community entrances. The California Department of Transportation shall cooperate in designing and erecting attractive signs to alert travelers about these informational displays and in providing roadside turnouts.
- c. **Design of On-Premise Commercial Signs.** On-premise commercial signs, for identification and information purposes only, shall be designed as an integral part of the structure they are identifying, shall complement or enhance the appearance of the surrounding area, and shall not block coastal views.
- d. **Design Few, Simple, Harmonizing Information and Direction Signs.** Public information and direction signs shall be of a simple, easy-to-read design, shall make use of materials and colors that harmonize with surrounding elements, and shall be as few in number as possible.

**55. Design Guideline: Utility Structures.** The visual degradation of the coastal landscape caused by power and communication lines and towers shall be minimized by applying the following



North of San Diego

standards except as provided in Policy 47(a) or where immediate compliance would be infeasible:

- a. **Avoid Duplication of Facilities.** Utility distribution and transmission facilities shall be designed as a coordinated system to avoid unnecessary duplication.
- b. **Undergrounding of Distribution Facilities.** New distribution facilities and service connections shall be placed underground except where undergrounding would be inconsistent with sound environmental planning or where the cost of undergrounding would be so high as to deny service. Cities and counties shall develop programs for undergrounding existing distribution facilities and service connections in scenic and highly visible coastal areas as part of subsequent planning (see Policy 161).
- c. **Undergrounding of Transmission Facilities.** New and existing transmission facilities (i.e., powerlines of more than 40 KV) within highly scenic areas (as identified in Policy 45) shall be undergrounded where feasible in accordance with a program developed jointly by the coastal agency and the California Public Utilities Commission.

**d. Design of Above-Ground Facilities** Except where inconsistent with sound environmental planning, new above-ground transmission facilities shall (1) follow the least visible route (e.g., canyons, tree rows, and ravines), (2) cross ridgelines at the most visually unobtrusive locations, (3) follow, not compete with, either natural features of the terrain or man-made features in developed areas, and (4) be well designed, simple and unobtrusive in appearance, have a minimum of bulk, use the minimum number of elements permitted by good engineering practice, and make use of colors and materials compatible with local surroundings.

**56. Design Guideline: Major Public Service, Commercial, and Industrial Facilities.** Except as provided in Policy 47(a), major public service

facilities (such as power plants, sewage treatment facilities, solid waste disposal facilities, water storage tanks, pumping stations, power and communications substations) and major industrial and commercial facilities (such as manufacturing plants and shopping centers) that do not require water- or oceanfront locations shall not be located in the oceanfront area unless there is no less environmentally damaging alternative. Wherever located, these facilities shall be designed in a manner that is compatible with the surrounding natural landforms and manmade environment (e.g., by use of harmonizing colors, textures, and massing or by undergrounding). Where safety, noise, or other functional considerations make it impossible to integrate public service or industrial facilities into the community structure, they shall be screened from public view (by use of natural terrain and vegetation or buffer areas and artificial screening).

# COASTAL DEVELOPMENT

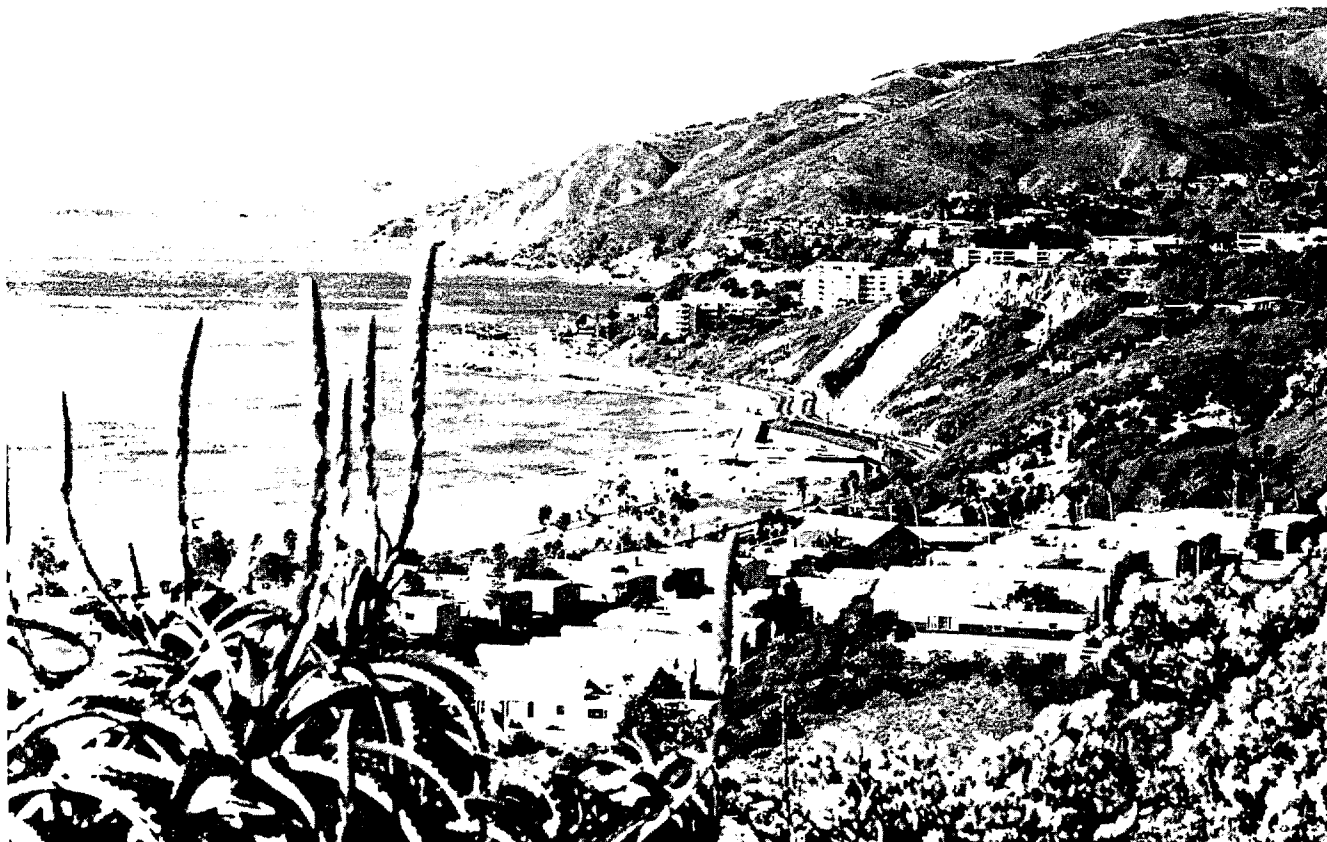
## DEVELOPMENT AND NATURAL RESOURCES

### Findings

**Natural Resources Support Human Life and Uses of the Coast.** Valuable natural resource areas of the coastal zone have been identified in preceding Plan chapters. These finite resources, which often extend inland farther than 1,000 yards, support human life and make possible enjoyment and use of the coast. Such resources include:

- wetlands and estuaries,
- tidepools,
- coastal streams vital to anadromous fish runs and continued sand supply to the coast,
- natural areas that should be preserved for future scientific study, education, and public enjoyment,
- habitats of rare and endangered species of animals and plants,
- agricultural (including grazing) and forestry lands,
- mineral deposits,
- clean air,

Pacific Palisades



- sandy beaches and dunes,
- recreational lands and waters, and
- highly scenic areas and coastal landforms.

## Policy

**57. Design Development to Complement Natural and Scenic Resource Areas.** In natural and scenic resource areas other than those designated for maintenance in agricultural or forestry uses (see Policies 30-34 and 38) and where some development may be allowed consistent with the resource protection and access policies of the Coastal Plan, first priority shall be given to activities that

complement the resource values of the site (such as farm residences) or allow for compatible recreation use (such as horse stables and riding facilities, dude ranches and summer camps, outdoor recreation, fishing and hunting preserves, and small-scale tourist facilities to the extent that the need for them outside already developed areas can be demonstrated). If no other use is feasible or appropriate, individual homes may be permitted, provided that minimum acreage and siting requirements are first established in accordance with the resource preservation and scenic view policies of the Coastal Plan, with particular regard to the cumulative impact of potential development in the area for which the requirements are to be adopted.

# SPECIAL COASTAL COMMUNITIES AND NEIGHBORHOODS

## Findings

**Certain Small Towns and Neighborhoods Within Large Urban Areas Are Significant Coastal Resources.** Certain communities and neighborhoods have special cultural, historical, architectural, and aesthetic qualities that are as important to the coastal zone as are its natural resources. These areas are resources either because they have a physical coherence that complements the visual character of the coastal zone, or because they provide significant opportunities for access to the coast through pedestrian orientation or through the provision of housing and recreation-oriented commercial facilities in a broad price range.

**Special Characteristics of Such Coastal Areas.** These resource areas include both small coastal towns and coastal neighborhoods in larger cities that are characterized by orientation to the water, usually a small scale of development, pedestrian use, diversity of development and activities, public attraction and use of facilities, distinct architectural character, historical significance, or ethnic or cultural characteristics sufficient to yield a sense of identity and differentiation from nearby areas. Examples include such different coastal communities as:

- The Ocean Beach and La Jolla areas of the City of San Diego and the community of Encinitas in San Diego County,
- The Naples area of Long Beach and the Venice area of the City of Los Angeles,
- The Pierpont Beach area of the City of Ventura,
- Summerland in Santa Barbara County,
- Morro Bay and Cayucos in San Luis Obispo County,
- Carmel in Monterey County,

- The town of Bolinas in Marin County, and
- The towns of Mendocino in Mendocino County and Ferndale in Humboldt County.

**Careful Development Is Required to Complement the Distinctive Qualities of Special Neighborhoods.** As recreational and visitor attractions and as an integral part of the experience of the coast, distinctive coastal neighborhoods are of value to their residents and the public at large. Maintaining their qualities is dependent on maintaining the prevailing scale and mix of development. In some areas large-scale condominiums, townhouses, highrises, shopping centers, and motel developments are replacing architecturally interesting and lower-density, smaller-scale uses, destroying special places and neighborhoods, displacing lower-income residents in favor of the more affluent, and increasing the level of traffic congestion in the community for residents and visitors alike.

## Policy

**58. Protect and Enhance Special Coastal Communities and Neighborhoods.** The unique cultural, historical, architectural, and aesthetic qualities of special coastal communities (e.g., La Jolla, Carmel, Mendocino) and neighborhoods that contribute to the enjoyment of the coast shall be protected and, where feasible, enhanced. New developments shall not be allowed to significantly detract from the special qualities of these areas. The protection

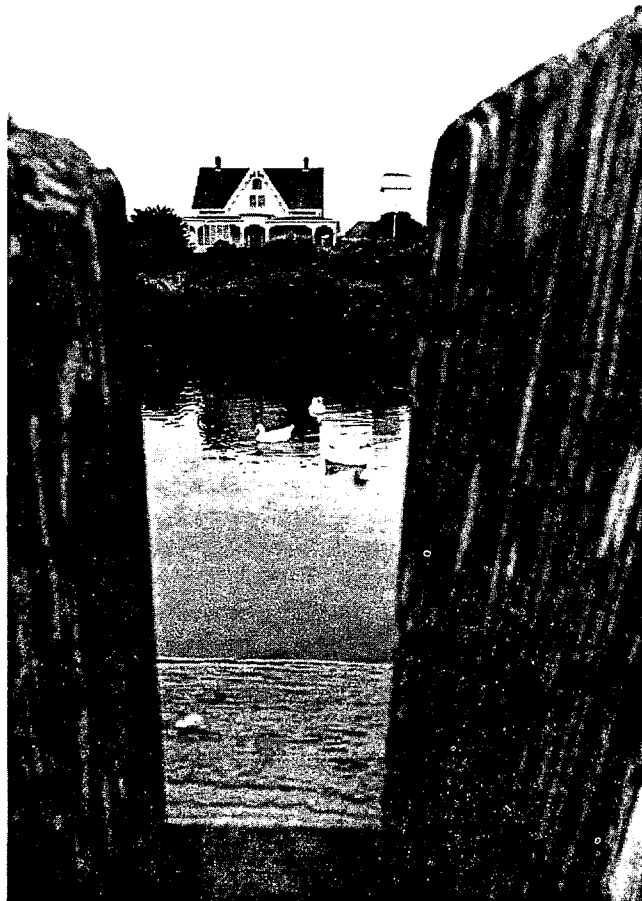
this policy offers may not be used in any way for exclusionary purposes.

**a. Identification of Special Communities and Neighborhoods.** The special qualities of coastal communities and neighborhoods, although hard to define with precision, nevertheless exist in a limited number of places and include the following: (1) areas characterized by a particular cultural, historical, or architectural heritage and continuity that is distinctive in the coastal zone; (2) areas presently recognized as important visitor destination centers on the coastline; (3) areas with small-scale and limited automobile traffic providing opportunities for pedestrian and bicycle access for visitors to the coast; (4) areas having a physical scale consistent with and complementary to coastal landforms or having a particular physical coherence that adds to the visual attractiveness of the coast for residents and for the general public traveling to the coast; (5) areas that provide a diversity of coastal housing opportunities, particularly for low- and moderate-income persons and the elderly; or (6) areas within walking distance of a beach with generally 20 per cent of all parcels in either small-scale hotel-motel or beach-oriented commercial uses. Normally such coastal neighborhoods and communities will be within walking distance of the coastline — roughly 1,000 yards — but in some cases they may extend further landward.

**b. Community Participation.** As part of the subregional or local coastal planning process (see Policies 161 and 162), residents of a coastal neighborhood or community, perhaps organized in community advisory committees, shall assist in determining the particular values of their area and how new development can be consistent with them.

**c. Restrict Inappropriate Development.** Development out of scale, size, or social character shall not be allowed in designated special communities and neighborhoods. In determining the appropriateness of a proposed development, consideration shall be given to intensity of use (e.g., lot size, unit size, residential composition, height, bulk), pedestrian accessibility, open space, economic and social factors, and the cumulative impact that potential development would have on an area's resources.

**d. Coastal-Dependent Development and Access Facilities Desirable.** Considerations of appropriateness of development shall not preclude coastal-dependent development or coastal access and visitor-serving facilities. In coastal villages in rural surroundings, visitor facilities



McCallum House (inn), Mendocino

shall be consistent with the local community scale in size and shall not necessarily be concentrated in any one village or location.

**e. Design Guidelines.** Permissible new or expanded development shall be designed to be compatible with the special values and character of the community and shall avoid the overcrowding of access roads and local streets. Development shall (1) strengthen the physical form of the community or neighborhood, (2) enhance and restore visual qualities by being of a bulk, height, and color that is compatible with the existing character, (3) harmonize with the essential design characteristics that distinguish the place from other communities (e.g., a rustic weathered or whitewashed appearance of the waterfront), (4) protect ocean views from many vantage points, and (5) provide for maximum pedestrian circulation and shoreline access. Motels in rural coastal villages, for example, shall be unpretentious in appearance (stereotyped motel-chain architecture shall be prohibited) and shall feature some small separate structures rather than large bulky facilities so as to complement the detached homes and small commercial buildings that characterize most such villages.

# ORDERLY, BALANCED DEVELOPMENT

## CONCENTRATING DEVELOPMENT IN URBAN AREAS

### Findings

#### **Priorities Are Needed Among Competing Coastal Zone Uses.**

The coast is an extremely desirable place to live, work, and play. In the past 30 years, California's population has tripled to more than 20 million; 85 per cent of this population lives within 30 miles of the coast, and 64 per cent within the 15 coastal counties. In San Diego County, nearly 56 per cent of the population lives within 5 miles of the coast. Pressures for all types of development on or near the coast are high and can be expected to increase due to increased leisure time, mobility, changing life styles, and immigration from some inland communities. The finite resources of the coastal zone cannot, however, accommodate all the pressures for development and change and still meet the needs of present and future generations for recreation, production of agricultural crops, and the enjoyment of unique coastal experiences. Therefore, priorities must be established among competing uses of the coast, to assure orderly, balanced use and preservation of coastal zone resources.

#### **Concentrating Development Enhances Use of the Coastal Zone.**

If development is prevented from sprawling over large land areas by being channeled to already developed areas (where public services exist), and by increasing the intensity of development in some areas consistent with the objectives of the Coastal Plan, the following advantages over sprawling development will often result:

- Natural, agricultural, and other coastal resources will be preserved for the economic benefits and human enjoyment they provide;
- A desirable contrast and diversity between city and country will be maintained;
- Air pollution and energy needs will be diminished because of shortened trips and the increased feasibility of public transportation;
- Duplication and costs of public services will be reduced by utilizing services already in place;
- Opportunities for increased physical and visual access to the coast for all people will be increased;
- Options for the future will be preserved by setting aside larger areas of land for potential future uses;
- Irreversible and irretrievable commitments of land inconsistent with the Coastal Plan will be avoided; and
- Existing downtown areas that have declined as a result of suburban sprawl will be revitalized.

#### **Growth Can Be Accommodated Away from the Coastline.**

There are many alternatives to intensive urbanization of the shoreline and nearcoast area. Many existing urban areas inland from the coast could accommodate such growth without degrading coastal resources.

#### **Properly Located High-Intensity Development Can Absorb Some Demand for Coastal Land.**

High-rise office buildings, large apartment and condominium buildings, shopping complexes, amusement parks and tourist attractions, and similar high-intensity developments in appropriate areas of cities can, if properly designed and located, absorb a substantial portion of the demand for those purposes that is now directed at older residential neighborhoods, open space areas, and other resource areas in the coastal zone. In addition, such high-intensity development near the coast, especially in existing downtown areas, could at the same time enhance the viability of mass transit and reduce the consumption of energy used for heating and cooling because of the milder climate of coastal areas. High-intensity development could also take up some of the presently underused capacity of many sewer and water systems without the need for costly new expenditures for public services and, by being located in existing urban areas, avoid the extension of growth-inducing services to open space or resource areas.

### Policies

**59. Concentrate Development in Already Developed Areas.** New residential, commercial, industrial, and institutional development shall be channeled into existing developed areas able to accommodate additional development, areas suitable and planned for redevelopment, or in areas determined in subregional or other approved implementation plans (see Policies 161 and 162) to be consistent with the goals set forth in the findings above. (The developed areas delineated in Part IV of the Coastal Plan are shown for general reference purposes and not for purposes of applying this policy. The precise designation of where growth should be concentrated consistent with Coastal Plan policies shall be as shown in approved Regional Supplements, subregional plans, or local coastal plans.) To this end:

- a. **Use Developed Areas Effectively Before Allowing Expansion Along Coast.** New residential, commercial, industrial, and institutional development shall not be permitted to sprawl, project by project, into open areas. Expansions of existing developed areas (other than expansion on the inland side of the community) shall





New subdivision, Half Moon Bay

not be allowed until the land resources within the existing developed areas are effectively used.

- b. **Locate Visitor Facilities Near Existing Developments.** Visitor-serving facilities shall be located in or adjacent to some existing developed areas consistent with the community scale objectives of Policy 58, in existing isolated developments (such as Sea Ranch and Timber Cove), and at selected points of attraction for visitors such as at the entrance to Point Reyes National Seashore).
- c. **Concentrate Commercial Development.** Commercial development shall be located where travel conflicts between residents and coastal visitors are minimized. To this end, general commercial development such as shopping centers shall, wherever feasible, be located where local residents may travel to such developments without driving along major routes to and along the coast. Existing general commercial developments that cause significant adverse impacts on coastal access shall be relocated to areas consistent with this policy where possible.
- d. **Channel High-Intensity Development to Appropriate Areas.** High-intensity development

shall be channeled towards existing downtown areas and other areas within and outside of the coastal zone where: (1) development would not adversely affect coastal resources or coastal access; (2) mass transit capable of serving the development already exists or is planned and funded; and (3) development pressure on resource areas is relieved through enforceable development restrictions.

- e. **Restrict Significant Developments in Areas Removed from Employment and Commercial Centers.** Major new residential, commercial, institutional, or industrial developments or other traffic-generating uses in locations removed from employment and commercial service areas shall be permitted only if (1) the project will be adequately served by public transportation that reduces pollution, total vehicle mileage, and energy consumption (such as buses); or (2) the project will not contribute directly or cumulatively to significant degradation of air quality and will not result in unnecessary fuel consumption. Determinations of air quality impact and fuel consumption shall include consideration of distances to employment and service centers and alternative locations for such developments.



**f. Plan Development to Reduce Auto Dependence.**

New development shall be planned to: (1) facilitate provision or extension of transit service, (2) provide commercial facilities within or adjoining residential development to minimize the need for outside travel, and (3) provide non-automobile circulation within the development (e.g., shuttles, bikepaths, and walkways).

**60. Criteria for Divisions of Rural Land.** The division of land outside areas designated for concentrating development (see Policy 59) shall be permitted either if it is in accordance with an adopted subregional or local coastal plan or, in the absence of such an approved plan, if all of the following conditions are met: (1) more than 80 per cent of the usable lots in a non-urbanized area have been developed to existing zoned capacity; (2) the parcels resulting from the division would be no smaller than the average size

of surrounding parcels; (3) no significant growth-inducing impact or precedent for development in a natural resource or scenic resource area would be established by the division; (4) the division would not restrict future options for productive lands or lands of significance because of their scenic, wildlife, or recreational values; and (5) all public services are readily available. (See also Policy 36 regarding agricultural lands and Policy 38 regarding forestry lands.) Where an increase in the number of parcels available for residential use is permitted, priority shall be given to lands in or near already developed areas. This policy shall not be interpreted to require development of parcels that would adversely affect coastal natural and scenic resources. This policy shall not apply to areas where 80 per cent of the land within a half-mile radius of the proposed division of land is developed to a density of two units per acre or more.

## PROVISION OF PUBLIC SERVICES

### Findings

**Public Services Availability Influences Development.** The type, size, timing, and location of providing public service and transportation facilities, such as roads, water, and sewers, are major determinants of the pattern of land use. Their availability, or lack thereof, often directly encourages or discourages development. Extending urban services into coastal recreational, agricultural, and wildlife areas would make possible development that might not otherwise occur. Excessive expansion of services in already-developed areas can result in additional development to the extent of creating unwanted congestion and impeding public access to the coastline. Programming service provision in accordance with land use objectives is necessary for balanced and orderly development.

### Policy

**61. Regulate New or Expanded Public Service and Transportation Facilities.** Public service and transportation facilities, especially sewer and water systems and roads, shall be provided or

expanded only to the extent that the location and amount of development and population that the systems will potentially serve is consistent with other Coastal Plan policies. Similarly, special districts or local governments shall not be formed or expanded except where assessment for and provision of the service would be in accord with these policies. Where the physical effects of the expansion of the public service system itself are in conflict with Coastal Plan policies, service system expansion shall not be permitted, and development shall be regulated to assure that the capacity of the existing service system is not exceeded. Plans for major sewer, water, and road systems and assessment districts with the potential for adverse effects on coastal resources or access shall be reviewed by the coastal agency for conformity with the Coastal Plan. (See also the Coastal Land Environment section on Coastal Streams and Watershed Management, regarding water supply systems; the Transportation chapter regarding transportation facilities; and Policy 56, regarding siting and design of major public facilities.)

# COASTAL-DEPENDENT AND INDUSTRIAL DEVELOPMENT

## Findings

**Coastal-Dependent Developments Require Oceanfront Area Sites.** Some developments are "coastal-dependent" in that they must have an oceanfront area site to be able to function at all. These include fishing, aquaculture, and port facilities, extraction of coastal minerals (e.g., sand and offshore petroleum), tanker terminals, boat works and shipyards, and marinas.

**Industrial Developments May Have Special Siting Requirements.** Although obviously essential to the State's economy, industrial developments can have major impacts on the coast, consuming valuable lands, intruding on the visual qualities of the coast, interfering with access, and affecting air and water quality. Locations for industry must take into account these impacts on the coastal environment. In addition, planning for industrial sites should take into account safety concerns and growth-inducing effects.

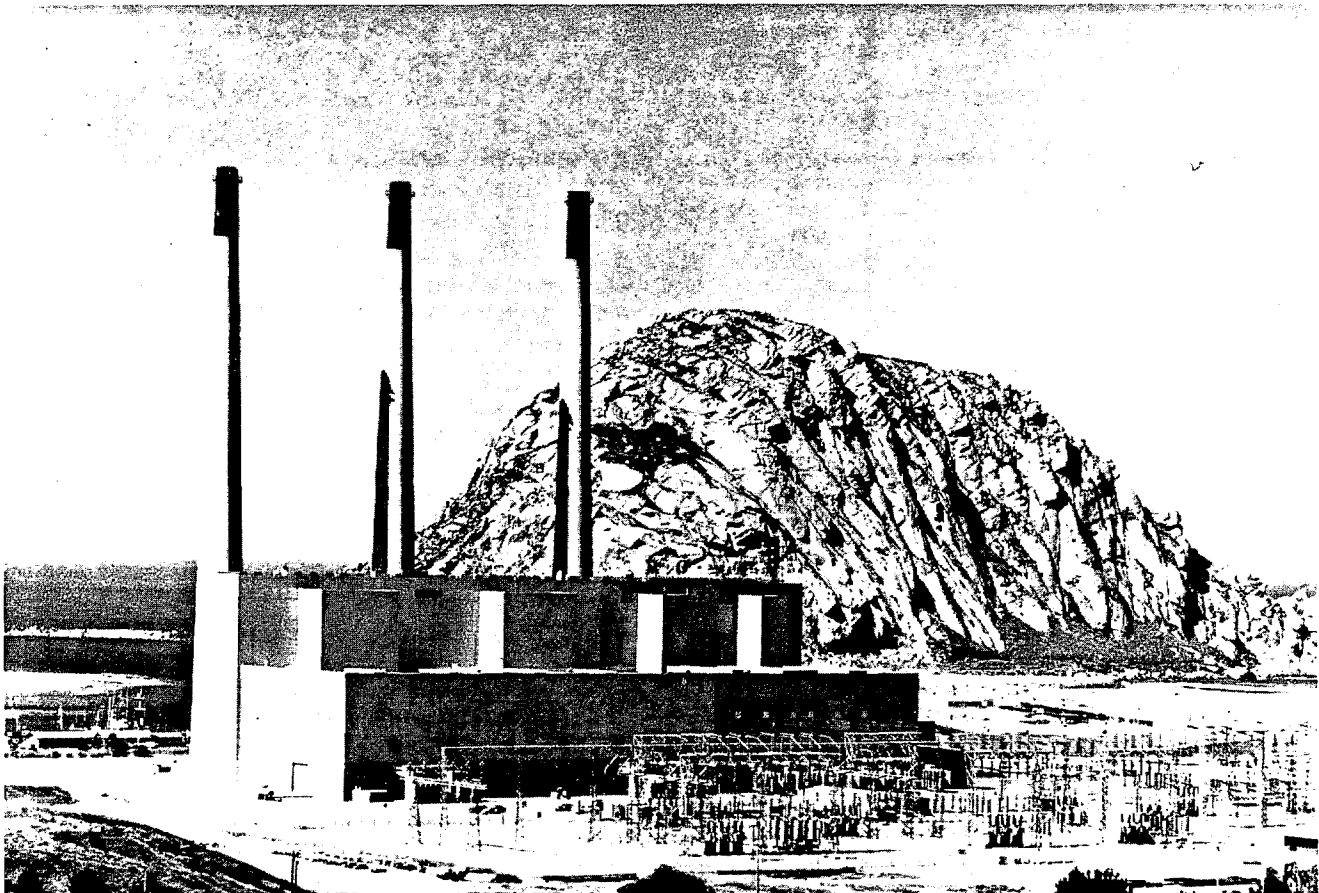
## Policies

**62. Give Priority to Coastal-Dependent Development.** Coastal-dependent developments, which by their very nature require a coastal site, shall

have priority over other development on or near the shoreline. Where coastal-dependent industrial, commercial, and recreational developments (such as ports, yacht basins, certain mineral extraction activities —such as salt evaporation or special grades of sand for glass) would have a substantial adverse effect on coastal resources, they shall be permitted only if (1) alternative locations are either infeasible or more environmentally damaging; (2) a careful balancing of environmental effects against regional, State, and national economic needs is made, with irreversible environmental damage weighing heavily in the comparison; and (3) the environmental damage is mitigated to the maximum extent technically feasible in the design and execution of the project. (See also relevant policies in the Coastal Land Environment, Recreation, Transportation, and Energy chapters, and Policy 153 requiring restoration measures for developments that degrade coastal resources.)

**63. Criteria for Location of Industrial Development.** Industrial development shall be concen-

Power Plant, Morro Rock





trated in already developed areas unless public health or safety requires other locations as provided in the Energy chapter. New industrial faci-

lities (except for coastal-dependent industry as provided in Policy 62) shall not adversely affect environmentally sensitive coastal resources, highly scenic areas, and manmade resources. All potentially hazardous industrial activities or other industrial development that Coastal Plan policies have determined cannot be located in already-developed areas (e.g., possibly liquefied natural gas plants or nuclear power-generating facilities) shall be sited a safe distance away from population centers. All potential industrial sites in such areas shall be used to the maximum extent feasible (subject to safety requirements) prior to the commitment of any new areas.

## DEVELOPMENT IN HAZARDOUS AREAS

### Findings

**Certain Coastal Areas Are Hazardous for Development.** Certain types of land areas are hazardous for development and this should be taken into account in locating future

development. Hazardous areas include:

- Presently unprotected and undeveloped flood hazard areas;
- Fault zones and other areas of high seismic risk;
- Tsunami (seismic sea wave) run-up areas, and
- Unstable soils, slopes, coastal cliffs, and bluffs subject to landslide and mudslides.

## FLOOD-HAZARD AREAS

### Findings

**Coastal Stream Flooding Provides Several Benefits.** Minor flooding is a frequent occurrence; major floods occur less frequently but unpredictably. Although the harmful effects of flooding are well understood, people do not always realize that the beneficial role of floods on coastal streams include:

- the maintenance of salmon and steelhead spawning grounds;
- the continued supply of beach sands;
- the removal of vegetation choking the river channel, restoring the channel's capacity to contain minor flood flows;
- the long-term deposition along the floodplain of sediments that provide highly fertile soils;
- flushing of undesirable salts from the surface layers of soils; and
- the preservation of valuable plant communities on overflow lands, such as giant redwood groves.

During flooding, floodplains augment the streambed's normal capacity and provide a temporary storage area for flood waters. Uncontrolled development in flood-hazard areas (i.e., 100-year floodplains) diminishes both of these functions.

**Flood Damage Results from Poorly Conceived Uses of Floodplains and Flood-Hazard Areas.** The loss of life and property damage caused by floods is due in large part to man's poorly conceived uses of floodplains. Because clearing of vegetation and surface paving of areas reduce the porous surface area, they can contribute to the intensity of flooding. Buildings, bridges, and other obstructions back up the flood water until those obstructions are swept away. Demolished structures may then contribute hazardous debris and pollution downstream. The cumulative effect of many small structures reduces the floodplain's storage capacity. Along with changes in hydrologic characteristics of the watershed, such reduction may increase velocity of flood waters, thereby diminishing seepage necessary for groundwater recharge. Flooding may also destroy valuable habitat areas and kill wildlife.

**Necessity to Restrict Development in Flood-Hazard Areas Is Increasingly Recognized.** In the past, emphasis has been on flood control projects that often ignore the beneficial aspects of floods. Public policy now recognizes that many floodplains should not be developed in a way that requires construction of costly public-financed flood protection works, and that allowable uses should be those that can endure periodic flooding and not contribute to the flood hazard. Under the Flood Disaster Protection Act of 1973 (PL 93-234), the flood insurance program of the Department of Housing and Urban Development (HUD) offers incentives and will soon implement sanctions to encourage local governments to restrict uses in identified flood-hazard areas. On the State level, the Cobey-Alquist Floodplain Management Act now requires establishment of floodplain regulations as a condition of State contributions toward the cost of lands, easements, and rights of way for local flood control projects.

**Costly Flood Control Projects Can Be Avoided by Floodplain Controls.** Substantial public funds can and should be saved by early planning that permits acquisition of right-of-way before land costs escalate and by land use regulations that eliminate the need to build costly protective structures. Additionally, flood insurance premiums and federally subsidized insurance costs can be reduced by preventing inappropriate floodplain uses. Because flood-hazard area policies (or lack of policies) in one community can endanger communities at far distant points, consistent application of flood-hazard area policies throughout a watershed is needed.

## Policy

**64. Restrict Development in Flood-Hazard Areas.** To avoid the need for new flood control works and interference with natural watershed processes that would adversely affect coastal resources such

as sand supply and anadromous fisheries, development in flood-hazard areas shall be regulated as follows:

- a. **Criteria for New Developments in Unprotected Flood-Hazard Areas.** Only new developments that can sustain periodic flooding and that will not create public burdens by aggravating the flood problem, impeding floodwater storage capacity, or increasing pressure for new flood control projects shall be allowed in presently unprotected flood-hazard areas (those subject to inundation by a 100-year flood), consistent with the existing Federal insurance program. Examples of permissible uses include agriculture and recreation, with necessary incidental structures.
- b. **Restrict Use of Flood-Hazard Areas during Flood-Prone Periods.** During flood-prone periods, flood-hazard areas shall not be used for log decks or storage of materials that can be carried downstream by flood waters unless mitigation (such as anchoring devices or berms) is adequate.
- c. **Review Inland Flood-Hazard Area Projects That Could Affect Coastal Zone.** It is recommended that the Legislature establish procedures to ensure opportunities for public review of proposed inland flood-hazard area projects that could adversely affect lives and property in the coastal zone. (See also Coastal Land Environment section on Coastal Streams and Watershed Management.)

# GEOLOGIC HAZARD AREAS

## Findings

**Four Major Geologic Hazards Pose Substantial Risks to Human Life and Property.** The four major geologic hazards in the California coastal zone are: (1) earthquakes (ground shaking, rupture, or liquefaction); (2) tsunamis (seismic sea waves) and storm waves; (3) landslides and mudflows; and (4) bluff and shoreline erosion, including loss of beach sands. All of these may involve substantial risks to human life or property. Subsidence of land areas can also pose major problems for development. Development that interferes with or ignores these natural geologic processes may impose direct or indirect danger and costs on the public and accelerate or aggravate long-term natural geologic

processes of the coast. Of direct concern for shoreline management are the shoreline erosion processes; most of the others are of broad concern throughout the State.

## EARTHQUAKES

**Earthquakes Are Common in the Coastal Zone.** Much earthquake activity in California occurs within the coastal zone, which is part of the earthquake-prone belt extending around the rim of the Pacific Ocean. The coastal area contains many complex fault zones. Ground shaking and liquefaction of certain soil materials (especially fill) can cause tremendous damage in addition to the rupture at the

fault; however, proper engineering can overcome some of these hazards.

**Earthquakes Are Unpredictable.** Almost every section of the coastal zone has experienced earthquakes with various intensities. The recorded history of approximately 175 years is too brief, however, for definitive assessment of the earthquake vulnerability of any coastal section. In all areas, seismic activity is virtually certain, but it may not occur for centuries. Similarly, the absence of any high-intensity shock in any area in the past 175 years does not rule out earthquake possibility.

**Definitive Studies of Earthquake Hazard and Probability Are Lacking.** Definitive studies of earthquake hazard and probability are lacking. The technology of data collecting, processing, and interpretation, although rapidly improving, is still in a state of development. Only the areas of recent high-level earthquake activity have been intensively studied. Instrumentation and seismic theory itself is in the process of continual revision. Maps of active fault areas only indicate a portion of the earthquake-prone areas in the State. Many earthquakes occur in previously unmapped areas.

**Potential Earthquake Damage in the Coastal Zone Is Great.** The scale of earthquake shaking hazard is indicated by the California Division of Mines and Geology projection of \$21 billion in damage statewide between 1970 and 2000 if the present rate of losses continues into the future. A large amount of this damage would occur in the coastal zone.

## TSUNAMI AND SEA WAVES

**Tsunami and Other Sea Waves Can Cause Coastal Damage.** Large-scale seismic sea waves (tsunami) in the Pacific Ocean basin have caused some degree of damage along much of the California coast; for example, large waves followed the 1964 Alaskan earthquake. Nearshore earthquakes can generate localized tsunami, such as the Santa Barbara Channel event of 1812. Much damage can also occur as a result of waves and winds during great storms, as for example the storm of February 1960 in northern and central California. A combination of storm waves and high tide, or storm waves and a tsunami, or all three, could cause especially severe damage along the California coast.

**Susceptibility to Tsunami Varies Along the Coast.** Tsunami damage recurs in certain areas of the coast more than in others, because waves may be focused by the configuration of the ocean floor. Generally, the coast north of Point Conception is more susceptible to Pacific Ocean events, while areas such as Santa Barbara and Santa Monica are more susceptible to locally generated tsunami. Crescent City on the north coast has been repeatedly damaged. Areas from Santa Barbara to San Diego suffered minor damage from the great waves of 1964. These tsunami struck the southern coast at low tide; had high tide prevailed, damage might have been greater.

**Identifying Areas of Probable Tsunami Risk Can Aid Land Use Decisions.** Assessment of tsunami hazard on the California coast is based on a brief and partial history. No such assessment can anticipate future extraordinary events. However, identifying areas of probable tsunami risk can provide useful information for land use decisions. Limited mapping of possible runup areas in southern California is now under way by the U.S. Army Corps of Engineers for

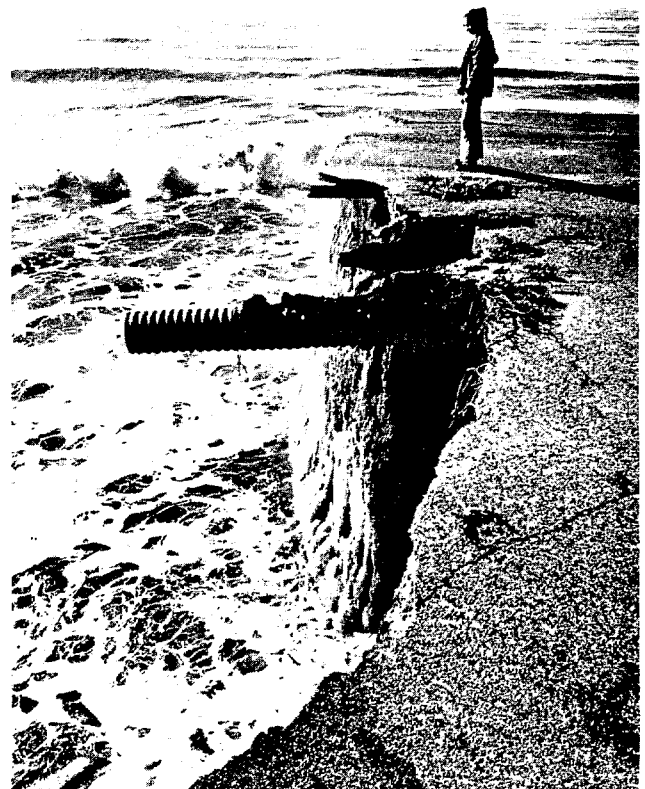
the Federal Flood Insurance Program (in part based on earlier work by the U.S. Geologic Survey). The State Division of Mines and Geology has outlined general areas vulnerable to tsunami along the coastline. Local and regional studies are often available to augment this information.

## LANDSLIDES

**Many Landslides Occur in the Coastal Zone.** Much of the landslide activity in California occurs in the coastal zone, due to the instability of the prevailing rock units and the steep-canyon topography of the coastal ranges. Many types of landslides, both ancient and recent, are observable, including rock falls, slides, and slow and fast mudflows, but many have been obscured by erosion and subsequent vegetation growth. Landslides and fast mudflows are caused by earthquake ground shaking, unstable rock formations, supersaturated ground material, torrential rainfall, and poorly planned development of landslide-prone areas. (For example, building on steep slopes, especially involving cuts and fills, may increase landslide risk if not properly planned).

**Fast Mudflows Are Also a Problem in the Coastal Range.** A special problem in the California coastal range is the potential for fast mudflows on canyon walls and on alluvial plains or canyon mouths. The potential for these mudflows is greatly increased by sudden heavy precipitation and by loss of ground cover, especially from fire. Revegetation programs after fire can help in reducing risks, but complete

Old coastal highway, Princeton, San Mateo County



stabilization of these flow-prone areas is virtually impossible. In spite of this, these sites are often developed and suffer from later damage (for example, Topanga Canyon in southern California and the Big Sur area in central California). If the present rate continues, for the 30-year period after 1970 landslide damage statewide is expected to total \$10 billion, according to a projection by the Division of Mines and Geology. Much of this will occur in the coastal zone.

**Slope Stability Hazards Can Be Minimized by Mapping and Regulation.** Slope-stability mapping is a primary tool for assessing potential landslide hazard, while regulation of land use and site preparation is the chief means of minimizing slope stability hazards. At present, both mapping and regulation are incomplete within the coastal counties. Mapping has often been undertaken only when intensive development is contemplated and landslide hazard is suspected; however, the Division of Mines and Geology has or is preparing maps for Sonoma, Marin, Santa Cruz, Ventura, Los Angeles, Orange, and San Diego Counties. Regulation is normally adopted only after damaging landslides occur. Slope-stability maps must be supplemented by specific analysis of individual sites if construction is proposed in areas indicated to be hazardous.

## SUBSIDENCE

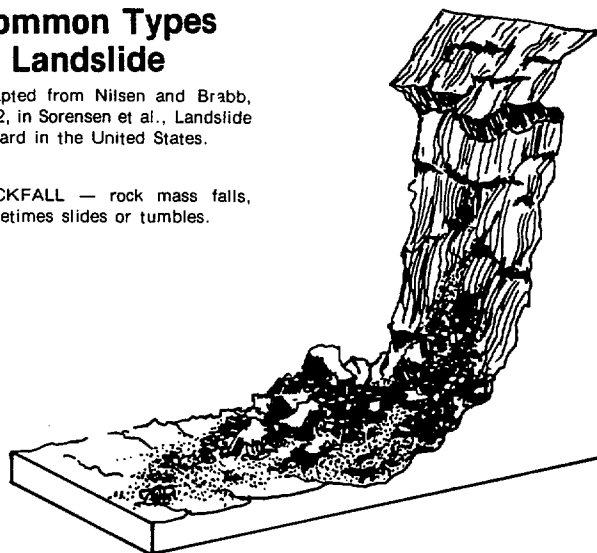
**Subsidence Is Also a Hazard in Some Coastal Areas.** Subsidence is the relative sinking of the surface of the earth's crust in limited areas. This geologic hazard can be either natural or man-induced (primarily from overdraft of subsurface liquids such as water and petroleum); can break or shift many structures, such as buildings, transmission lines, and pipelines; and can cause inundation of beaches and low-lying areas. The South Coast Region has suffered and may still suffer from the greatest amount of subsidence in the coastal zone. The Division of Mines and Geology estimates that statewide losses due to subsidence will total \$26 million between 1970 and the year 2000 if current practices are continued. Continuous monitoring of surface elevation changes and associated horizontal movements is necessary for early detection of subsidence. (See Policy 83[g] regarding measures to minimize subsidence hazard in petroleum extraction operations).

**Legislation to Expand State Geologic Hazards Program Has Been Recommended.** The Joint Legislative Committee on Seismic Safety in January 1974 recommended several measures, including (1) broadening the provisions of the Alquist-Priolo Act (which presently is limited to concern about construction on or near certain active fault traces) to include all major geologic hazards and to cover State and Federal, as well as local and private, projects; and (2) assigning responsibility for setting criteria for and reviewing land use policies related to geologic hazards to an effective State agency able to work with local governments. Legislative response, however, has been incomplete. In 1974 the Seismic Safety Commission Act was enacted, establishing a Seismic Safety Commission, which is developing valuable information through the strong-motion instrumentation program and will make further recommendations. Legislation that would have required geologic reports for subdivisions in areas of high geologic risk (as designated by local Seismic or Safety Plan Elements) and in all areas of 2:1 slope or greater was passed by the Legislature in 1974 but vetoed by Governor Reagan.

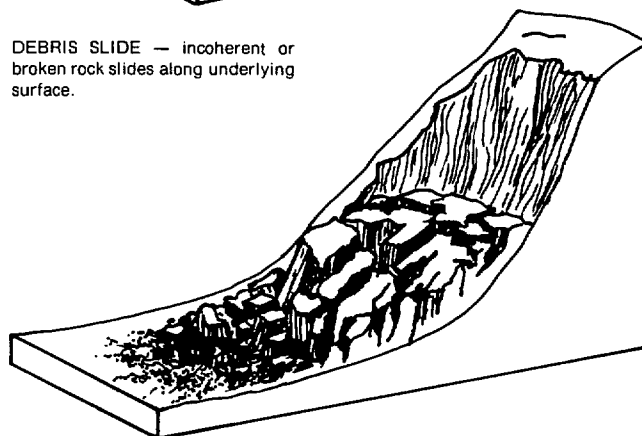
## Common Types of Landslide

Adapted from Nilsen and Brabb, 1972, in Sorensen et al., *Landslide Hazard in the United States*.

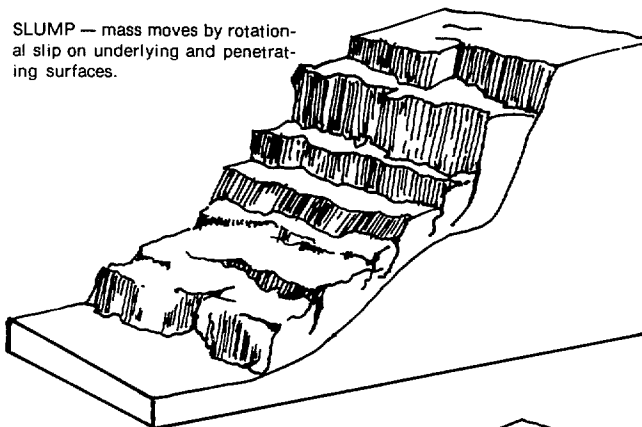
**ROCKFALL** — rock mass falls, sometimes slides or tumbles.



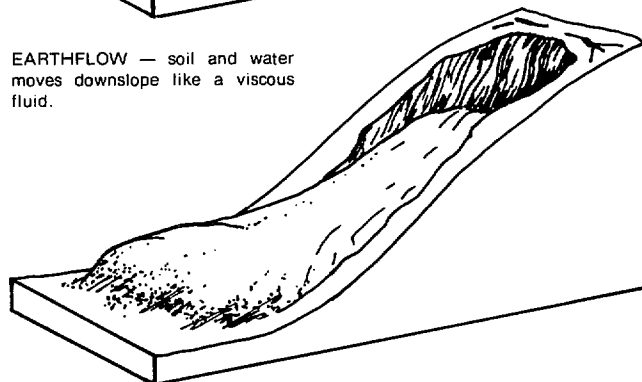
**DEBRIS SLIDE** — incoherent or broken rock slides along underlying surface.



**SLUMP** — mass moves by rotational slip on underlying and penetrating surfaces.



**EARTHFLOW** — soil and water moves downslope like a viscous fluid.



## Policies

### 65. Improve Statewide Geologic Safety Measures.

Measures to ensure geologically safe land use in California and particularly within the coastal zone are necessary to protect the public. To this end:

- a. **Improve Local Government Geologic Hazards Programs.** Local governments' seismic safety elements of general plans, and planning, funding, and implementation of city and county geologic hazards programs, shall be improved. It is recommended that legislation be adopted requiring local governments to: (1) adopt, implement, and enforce at a minimum Chapter 23, dealing with earthquake-resistant design requirements, and Chapter 70, dealing with grading requirements, of the Uniform Building Code; and (2) conduct geologic evaluations and require adequate engineering specifications to determine to the extent possible site stability and structural safety for all proposed construction projects and subdivisions that are in areas identified by appropriate governmental agencies as being of high geologic hazard or for projects that involve public service facilities and high-occupancy buildings (e.g., police and fire stations, schools and hospitals, major utility and industrial structures, multi-story residential and commercial buildings).
- b. **Strengthen State Role in Geologic Programs.** It is recommended that legislation be enacted assigning, empowering, and adequately funding the State Division of Mines and Geology or other appropriate State agency to: (1) designate geologic risk areas; (2) recommend and, where necessary, impose appropriate land use and building regulations related to the designations; (3) research and recommend appropriate improvements to the Uniform Building Code to both the International Conference of Building Officials and local governments; (4) be responsible for enforcing standards and site review for proposed State projects and for advisory review of Federal projects; (5) establish criteria for local governments' specific review of construction projects in hazard areas; and (6) review and approve local seismic safety plans, land use policies, and building code standards and enforcement for consistency with statewide designations and goals. State funding assistance to the local government for disaster relief and other such programs could be made contingent upon satisfactory geologic hazards policies and enforcement. The State agency shall also compile and distribute to all appropriate State, regional, and local agencies,

the large amount of pertinent data on geologic hazards being developed by such agencies as the State Division of Mines and Geology, U.S. Geological Survey, National Ocean Survey, U.S. Army Corps of Engineers, the Seismological Laboratory of California Institute of Technology, local governments, universities, colleges, and private organizations. This information shall be fully utilized in the formulation of land use plans and building standards, and in development evaluations, including septic tank and erosion control considerations, affected by geologic conditions.

### 66. Require Filing of Geologic Hazards Information.

Geologic hazards information developed by qualified personnel and approved by an appropriate governmental agency for specific areas or sites shall be permanently filed in the public records of the coastal counties. The full reports shall be cited and a summary of all relevant conclusions, understandable to the layman, shall be included as part of the chain of title to property (and be a normal part of a title report) and also as part of the State Real Estate Commissioner's report for subdivisions.

**67. Review and Regulate New Developments for Geologic Safety.** In coastal areas of high geologic hazard as defined below, all proposed structures for human occupancy and other developments that could significantly alter geologic processes or contribute to hazards shall be reviewed and regulated to avoid risks to life and property.

- a. **Definition of High Hazard Areas for Development.** Areas of high geologic hazard include: (1) seismic hazard areas delineated on fault maps as subject to potential surface rupture, on soils maps indicating materials particularly prone to shaking or liquefaction, and in local and regional seismic safety plans; (2) tsunami runup areas delineated by U.S. Army Corps of Engineers' 100-year recurrence maps, by other scientific or historic studies, and other known areas of tsunami risk; (3) landslide hazard areas delineated on slope stability maps, and in local and regional geologic or safety plans; (4) bluff and cliff areas designated as unstable (see Policy 70); (5) beach areas that are subject to erosion; and (6) other geologically hazardous areas designated by the Coastal Plan.
- b. **Project Review Procedure.** Where such project review is necessary, geologic and soils reports of the site prepared at the applicant's expense shall be required unless adequate and currently applicable information is already available. Until



the statewide system recommended in Policy 65 is in effect, project review shall be by the coastal agency or an agency designated by it to carry out this function subject to independent review by the coastal agency within its area of jurisdiction. (For example, some local governments are or may become adequately staffed and authorized to perform project review, and the Forestry Board may adequately review potential hazards of timber operations).

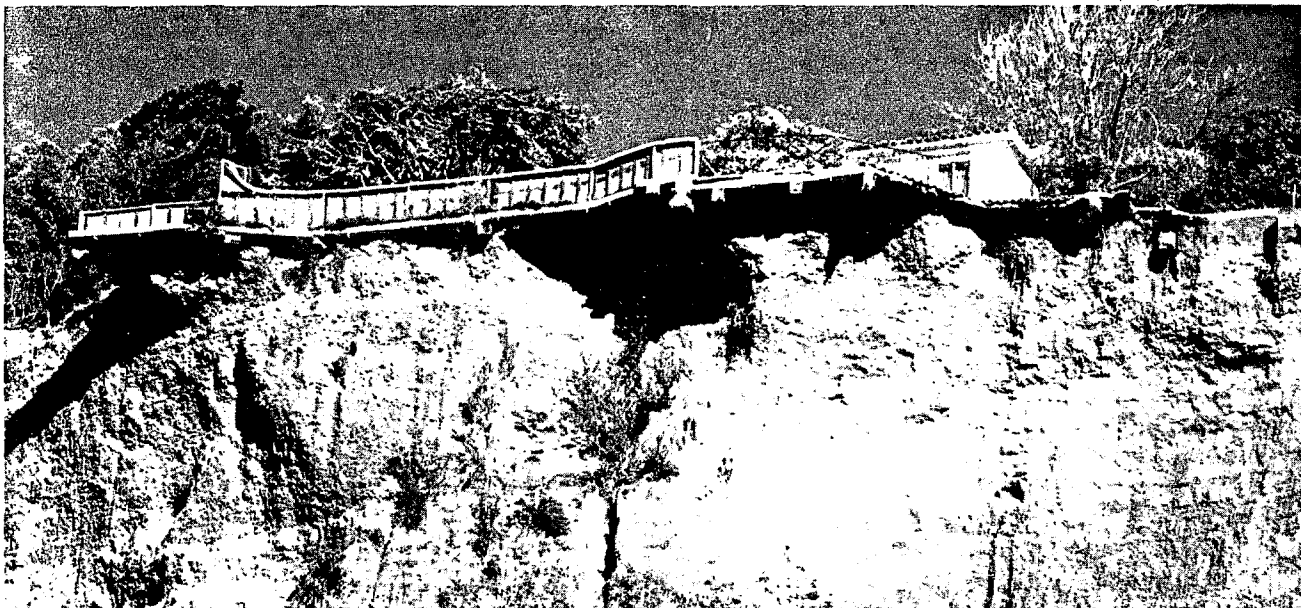
- c. **Division of Mines and Geology to Assist.** It is recommended that the Legislature enable and fund the Division of Mines and Geology to serve in an official advisory capacity to the coastal agency to assist as necessary in project review. A review team shall be available, where necessary, with expertise in geology, seismology, coastal processes, oceanography, soils engineering, engineering geology, structural engineering, civil engineering, architecture, landscape architecture or coastal botany, and building code enforcement. The team may include personnel from other State agencies as well as local experts. The coastal agency may also establish advisory boards to supplement this agency assistance.
- d. **Interim Land Use Designations.** Pending more precise data and land use regulations, appropriate land uses, such as agriculture, forestry, sand and gravel mining, outdoor recreation, and parking lots, shall be encouraged in all currently undeveloped areas of high geologic hazard.
- e. **Criteria for Development in Hazard Areas.** Proposed structures for human occupancy or

developments that could contribute to potential hazards, such as cuts and fills in landslide areas, shall be permitted in high geologic hazard areas only if site treatment and construction techniques (permissible in accordance with other Plan policies) are adequate to overcome the hazard.

- f. **Public Buildings in Hazard Areas.** All existing high-occupancy public buildings within areas of high geologic hazard shall be phased out or adequately protected as soon as feasible.
- g. **Restrict Reconstruction in Hazard Areas.** In locations where structures have been rendered unfit for human occupancy by geologic instabilities, reconstruction shall be prohibited unless geologic and engineering data on the site demonstrates that the proposed replacement structure will not be rendered unfit for human occupancy in the future by the same type of geologic event.

**68. Prevent Public Subsidy for Hazardous Developments.** While the standards set forth in Policy 67 above shall be binding in the coastal resource management area and are strongly recommended for all areas of high geologic hazard statewide, it is recommended that State legislation be enacted to further assure that, if for any reason new structures for human occupancy are built in high geologic hazard areas without precautions to substantially eliminate risk to life and property: (1) there shall be no public assistance for such construction or reconstruction (e.g., FHA loans, publicly-financed service facilities, etc.) and no presumption of public liability for property loss (e.g., disaster loans or forms of insurance borne

Pacific Palisades, north of Santa Monica





by the general public); and (2) all occupants and successor purchasers of such structures shall be advised of the hazard and liability.

**69. Establish Safety Measures for Possible Tsunami Occurrence.** Communities within the 100-year tsunami (seismic sea wave) runup zone shall include within their safety elements a disaster preparedness plan for a tsunami occurrence; such

a plan shall include evacuation routes and an effective emergency warning system capable of adequately informing all residents and visitors of an impending tsunami occurrence. Based upon accumulated information, the Department of Navigation and Ocean Development shall establish and enforce standards for marinas and harbors, including debris clearance and emergency evacuation procedures, to reduce potential damage from tsunami occurrences.

## BLUFFTOPS

### Findings

**Bluff Erosion Is Caused by Natural Processes and Human Activities.** The breakdown of seacliffs and bluffs by wave action is a natural and constant process, the rate of erosion depending on such factors as the resistance of the cliff material, the conformation of the shoreline, the height of the cliff, the erosion from upland areas, and the direction of approach, height, and frequency of waves. Much of the coast consists of terraces of former beach sand overlying a bedrock; the sand layer is very erodible. In addition to natural causes, cliff erosion can be accelerated by saturation from irrigation or other increased water runoff at bluff tops, disruption of surface materials (for example, by foot traffic over bluffs), undercutting of the base, removing sand or rock materials that protect the base, loading by structures on the top, and improperly designed walls or stairways down the bluff face. Runoff water and saturation can be the major source of cliff and bluff erosion in many areas where landscaping and irrigated fields have been permitted on bluff tops. In many cases, drainage could be directed away from the bluff to correct this problem.

**Natural and Artificial Measures Can Protect Bluffs.** The best natural defense of seacliffs against wave action is a fronting beach that is both high and wide. Areas of seacliff lacking natural protection can be preserved by artificial means, such as construction of a beach seaward of the cliffs; armoring the cliff with rock or other non-erodible material; construction of offshore reefs or breakwaters to reduce wave energy that reaches the cliffs; and construction of cliff retaining walls.

**Bluff Protective Works Are Costly and Involve Problems.** However, these measures can be extremely costly, may be unsightly in the case of retaining walls, may interfere with access along the shore, may require continual sources of sand for replenishment, and must be carefully engineered to avoid beach erosion and shoaling elsewhere along the shoreline. A decrease in sand supply (especially affecting pocket beaches) also may result in some cases when artificial protective measures interfere with natural bluff erosion processes.

**Avoiding Extensive Protective Works Requires Control of Development.** The best means of avoiding the many problems associated with construction of bluff protective works, including public costs and visual impact on the natural landforms of the coast, is to limit construction on or near bluffs that might eventually require such works. Some additional protective works may be required, however, for certain public service facilities and for protecting existing structures.

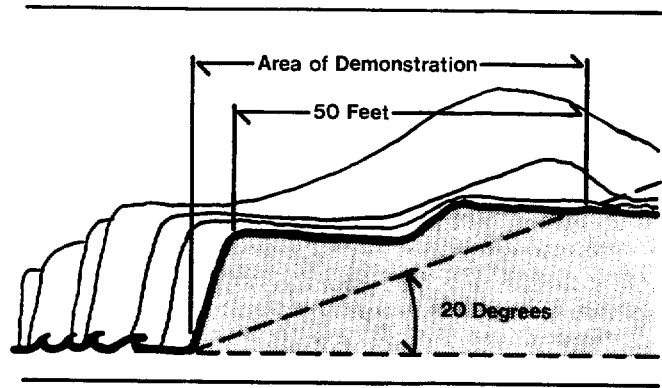
### Policy

**70. Regulate Bluff and Cliff Developments for Geologic Safety.** Bluff and cliff developments shall be permitted if design and setback are adequate to assure stability and structural integrity for the expected economic lifespan of the development and if the development (including storm runoff, foot traffic, grading, irrigation, and septic tanks) will neither create nor contribute significantly to erosional problems or geologic instability of the site or surrounding area. Design solutions shall in no case include destruction of cliffs and bluffs by excavation or other means. Bluff protection works may be permitted only in accordance with Policy 19. With that exception, no new lot shall be created or new structure built that would increase the need for bluff protection works.

**a. Expert to Evaluate Site Stability.** The demonstration of stability shall include a report prepared by a registered geologist, a professional engineer specializing in soils engineering, and/or a certified engineering geologist acting within their areas of expertise, based on an on-site evaluation. The report shall consider (1) historic cliff erosion, (2) cliff geometry,

(3) geologic conditions, including soil and rock characteristics, (4) landslides, (5) wave and tidal action, (6) ground and surface water conditions and variations, (7) potential effects of earthquakes, (8) the effects of the proposed development including landscaping and drainage measures, and (9) any other factors that may affect slope stability. The report shall express a professional opinion as to whether the site and development will meet the above standards during all foreseeable normal and unusual conditions, including ground saturation and maximum 100-year probable seismic forces (using best available information), throughout the lifespan of the project. The report shall use a currently acceptable engineering stability analysis method and shall also describe the limitation in this professional judgment due to assumptions and unknowns in the analysis. The degree of analysis required shall be appropriate to the degree of potential risk presented by the site and the proposed project; no significant risk to human life shall be acceptable.

**b. Area of Stability Demonstration.** As a general rule, the area of demonstration shall include the base, face, and top of all bluffs and cliffs



(of 10 feet in height or greater measured from the toe of the cliff face) extending inland to a line formed by a 20-degree angle from the horizontal plane at the base of the cliff or bluff (a 2.75:1 slope) or 50 feet from the top edge of the cliff, whichever is greater. However, the coastal agency may designate a lesser area of demonstration in specific areas of known geologic stability (as determined by adequate geologic evaluation and historic evidence) or where adequate protective works already exist, and may designate a greater area of demonstration and/or an area of absolute development exclusion in areas of known high instability.

# ENERGY

## ENERGY AND THE COAST

### Findings

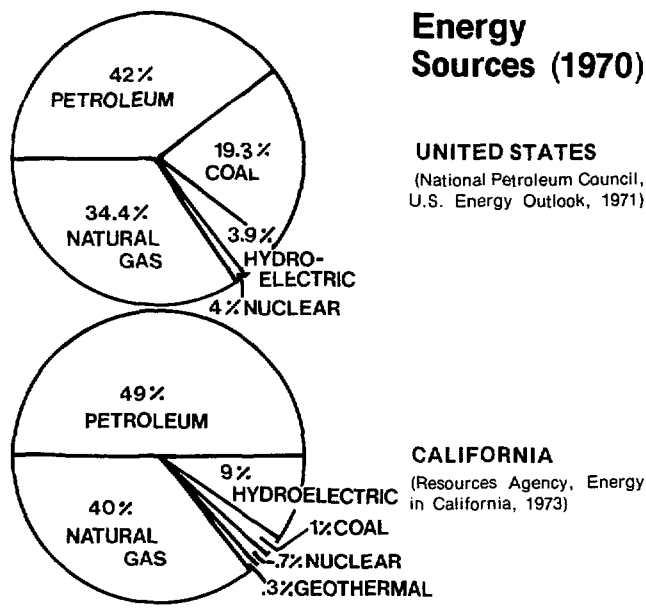
**California Coastal Zone Contributes to the State's Energy Supply in Several Ways.** The land and water of California coastal zone is now used, and can be used more to contribute to the State's energy supply in five principal ways:

- To provide sites and ocean cooling water for power plants that generate electricity;
- To provide sites for drilling, production, treatment, storage, and pipeline facilities for oil and gas operations onshore and on submerged lands beneath State and Federal offshore waters;
- To provide terminals to moor and offload tankers and barges bringing crude oil and refined products to California, the region, and the nation;
- To provide sites for oil refineries; and

- To provide special terminals and onshore plant facilities for liquefied natural gas imports.

**Coastal Plan Seeks to Protect the Coast Yet Provide for Needed Energy.** A principal goal of the Coastal Plan is to protect, enhance, and restore the coastal environment while also providing for energy facilities for which a clear public need and a need for siting along the coast can be shown. Coastal planning does not seek to sacrifice the environment of the rest of California; little would be gained if a coastal area were to be saved at the price of even greater environmental damage inland. Energy planning for the coastal zone must take into account estimates of State and national energy needs, strategies for reducing the need for coastal energy development through energy conservation programs and application of alternative energy forms, and the environmental impacts of locating energy facilities in the coastal zone and inland.

**Demand and Supply Forecasts for Conventional Energy Sources.** Primary conventional energy sources used in California are petroleum (crude oil), natural gas, hydropower, and nuclear power. Based on present demand/supply forecasts (using traditional forecast methodology), demand for these primary sources will exceed supply.



### PETROLEUM SUPPLY AND DEMAND

**Petroleum Demand Exceeds Supply.** California petroleum demand at present outstrips in-State production, and the deficit is likely to increase.

**New Sources Needed to Meet Even a Reduced Demand Growth.** To meet even a reduced demand growth for petroleum, new sources of supply will be needed. Supply requirements can be met by:

- Increased development of onshore petroleum, including increased exploration and expanded secondary and tertiary recovery and development of the Elk Hills Naval Petroleum Reserve;
- Development of State and Federal offshore petroleum resources; and
- Alaskan and foreign imports.

Increased on shore production offers the least environmental risk, but, except at Elk Hills, has a limited potential for increasing supplies. New sources could require major new developments in the coastal zone which could have substantial adverse environmental impacts.

#### **California's Role in National Petroleum Supply Needs**

**Updating.** At present, California's only defined role in national energy supply is based on its historical and continuing role within Petroleum Administration for Defense District V (PAD V — California, Arizona, Nevada, Oregon, Washington, Alaska, and Hawaii). Proposals currently exist, however, to make California a transfer point for crude oil to be brought by tanker from Alaska and sent by pipeline to the Midwest.

**California Is Heavily Oil-Dependent.** Oil now accounts for more than 50 per cent of California demand for primary energy. The major oil requirements are for energy (electricity generation, agricultural and municipal water pumping, industrial process heating, vehicle fuels, liquid petroleum gas) and production of oil-derivative products.

**Present Oil Demand Growth Projections Foresee Increased Demand Levels.** Leading studies on oil demand growth for California completed during 1973-75 have forecast high oil demand growth (4-5 per cent annually) because of: (1) a continued decrease in the availability of natural gas; (2) failure of nuclear plants to come on line as scheduled; and (3) a continuation of pre-1973 gasoline consumption growth. However, such projections did not consider the significant potential for demand growth reduction (to 2-3 per cent annually) from (1) increased oil prices, (2) conservation measures, and (3) accelerated development of alternative energy sources. Consequently a re-examination of traditional forecast assumptions and methodology is needed.

**Oil Prices Increase May Reduce Demand.** Since late 1973 foreign oil prices have risen abruptly by as much as 100 to 300 per cent, in turn forcing price increases in domestic oil and petroleum products. Such oil price increases, and the 1974 oil embargo, have led to new emphasis on energy conservation measures and alternative energy source development, and may depress oil demand growth. A major effect of the price surge is to throw into question all public projections of demand and supply of petroleum that pre-date the increase.

**Several Other Factors May Also Help Reduce Oil Demand Growth Rate.** Both the Federal Energy Administration and the new California State Energy Resources Conservation and Development Commission are specifically charged with developing conservation programs to help conserve oil. The Coastal Commission is also required to conserve and manage coastal resources, including both energy resources and other coastal resources that would be affected by energy-related development. Most existing petroleum demand forecasts do not reflect adequate consideration of the potential for demand reduction through such programs.

Factors besides price increases and conservation programs that could help reduce the oil demand growth rate include:

- An increased availability of natural and synthetic gas, methanol, and alternative energy sources to replace reliance on petroleum (especially for electrical power generation);
- Changes in lifestyle, particularly in reduced use of the private automobile and of electricity;
- A continued decline in the State population growth; and
- A lower growth rate in the national economy.

**State's Crude Oil Production Fails to Meet Demand.** California crude oil production has steadily declined since 1968-69 from about 1,000,000 barrels per day in 1968 to about 917,000 barrels per day in 1973. In 1973, only 55 per cent of the crude oil for California refineries came from within the State; 31 per cent came from foreign sources and 14 per cent came from other states. Projections for 1975 indicate that California will furnish only 49 per cent of its own crude oil for refineries, with 41 per cent coming from foreign countries and 10 per cent from other states. If demand/supply trends of the recent past should continue, the portion of State demand satisfied by State crude production would drop markedly by 1985. However, because of possible demand growth reduction factors considered above and the potential for increased development of California's potential recoverable onshore and offshore oil resources, a huge in-State deficit is by no means inevitable.

**Alaskan Crude Oil Will Reduce Need for State Production and Foreign Imports.** Much of California's future crude oil supply is expected to come from the Alaska North Slope project via pipeline and tanker, beginning as early as 1978. Although the Stanford Research Institute forecast in mid-1973 that oil from this source would amount to 600,000 barrels per day per day in 1980, and 850,000 barrels in 1985, more recent information indicates that California could receive as much as 1.2 million barrels per day beginning as early as 1978.

**State Demand for Low-Sulfur Fuel Oil Exceeds Present Supply.** As natural gas supplies have recently been curtailed, the short-term demand for fuel oil for use in industry and in electric power generation has increased. State air quality regulations require the use of low-sulfur oil when natural gas is not available. Much of California's crude oil is high in sulfur content, and although several new projects are under construction or planned, California refineries presently lack adequate direct desulfurization capacity to meet low-sulfur crude oil demands. Therefore these demands must be met either by import of low-sulfur crude for refining in California, or by import of refined low-sulfur fuel oil.

**State Petroleum Planning Needs Better Coordination with Energy Planning.** At present no State agency is responsible for planning petroleum-related development activities within the context of a comprehensive program of energy development and conservation in California. The State Division of Oil and Gas forecasts petroleum supply and demand and drafts policies for petroleum development, but it does not directly determine policy for other sources of energy. The State Lands Commission makes decisions relating to development of the petroleum resource underlying State-owned lands. The new State Energy Commission determines policy for power plant siting and energy conservation, studies petroleum supply and demand, and recommends development and conservation policy, but under present law it cannot determine policy for siting petroleum-related development.

## **NATURAL GAS SUPPLY AND DEMAND**

**Natural Gas Demand Exceeds Supply.** Natural gas is a desirable fuel because it is relatively clean burning. Its extraction and transportation, however, involve many impacts similar to those associated with oil. The demand and supply of natural gas is important to coastal planning because it will help determine the need for:

- Liquefied natural gas (LNG) facilities in California;
- Facilities proposed by electric utilities and oil companies to provide additional low-sulfur fuel oil to substitute for

natural gas in power plants and other industries; and

- Production of natural gas associated with oil reservoirs in California's outer continental shelf.

In California, as in the rest of the U.S., the demand for natural gas continues to increase rapidly while traditional sources of supply are dwindling. At the present projected growth rates, without additional supplies some curtailment in peak service to residential and commercial customers could occur as early as 1978 in southern California.

**Conservation Programs, Price Increases, Other Factors Influence Future Demand.** Future demand for natural gas will be influenced by the impact of energy conservation programs and price increases. Price elasticity studies suggest that increases in price may decrease demand for natural gas through conservation and customer switching to alternative forms of energy. On the other hand, although broad energy conservation programs will presumably result in more efficient use of existing gas supplies, they may also stimulate additional gas demand in the residential and commercial sectors, where direct use of natural gas is more energy efficient than use of electricity. Moreover, price increases of other energy sources may also increase customer switching to gas. For these reasons it is difficult to firmly estimate future demand.

**Present Natural Gas Supply Sources Cannot Meet Demand.** California produces less than one-fourth of its natural gas needs. Moreover, California's total proved reserves of natural gas have been declining since 1963; if present State production and demand trends continue, only 17 per cent of demand will be met by the State reserves by 1985. In 1973, California imported 78 per cent of its gas supply — 61 per cent from the southwestern states and 17 per cent from western Canada. However, both the El Paso Natural Gas Company and the Transwestern Pipeline Company have been allowed by the Federal Power Commission (FPC) to curtail their deliveries of gas to California, and further curtailment can be expected in the near term. Additionally, in 1974 the Canadian National Energy Board refused to permit expanded deliveries of natural gas to the U.S. from Alberta, pending evaluation of the adequacy of reserves to meet Canada's own project needs.

**New Domestic Sources Could Conceivably Increase State Supply.** Potential new domestic natural gas sources include: (1) large reserves of natural gas on the Outer Continental Shelf; (2) large natural gas reserves associated with Alaskan oil deposits; (3) significant quantities of gas trapped in tight rock formations in the Rocky Mountains; and (4) two synthetic natural gas-from-coal (SNG) plants proposed in northwestern New Mexico using coal strip-mined in Utah. All have major environmental impacts that will have to be taken into account. If the SNG project is completed despite the environmental problems, California may receive as much as two-thirds of the output of these plants via pipeline beginning as early as 1970-80, representing a very small percentage increment in overall supply. Other potential sources capable of incrementally supplementing natural gas supplies are methane gas produced from sewage, sanitary landfills, or individual units; and SNG from oil (naphtha), production of which is being considered at a proposed refinery near Carlsbad.

**Alaskan and Foreign Natural Gas Imported as Liquefied Natural Gas (LNG).** Where pipelines for long-distance transportation of natural gas do not exist, natural gas is being transported in ships in very cold (about -260° F.) liquid form, which reduces its volume by a factor of more

than 600. Projects have been proposed to import liquefied natural gas (LNG) into California from practically every major oil-producing area in the world. Import of LNG into California from Alaska and abroad will require LNG port, storage, and gasification facilities, all of which will be located in the coastal zone and involve significant environmental and safety risks. The exact magnitude of LNG imports is difficult to estimate at this time.

**Potential of New Natural Gas Supplies Is Substantial.** Substantially more gas may be available by the early 1980s than is presently being expected by the gas utilities. Several studies conclude that even without extensive new conservation measures, if regulatory and pricing policies were altered to encourage development of sources, sufficient gas could be available by the mid-1980s to meet nearly all of the presently projected national gas demand. It is conceivable that a modest resurgence of gas consumption by large industrial and utility users would then be possible.

**Less Natural Gas Available to Fuel Power Plants.** Power plants, classified as low-priority users of natural gas, substitute fuel oil for gas when gas supply is interrupted. In recent years electric utilities could count on natural gas for up to 90 per cent of their fuel needs, but in 1974 only about 15 per cent of fuel needs were met by gas. If present consumption trends continue, and if no new natural gas should become available, utilities might have to depend on fuel oil for as much as 90 per cent of their needs by 1976.

## ELECTRICITY SUPPLY AND DEMAND

**Electricity Demand Determines Need for Development of New Supply.** The need for electricity will determine the need for various means of supplying electricity, many of which will directly affect the coastal zone. In 1973, 59 per cent of California's electricity was generated by burning oil and gas (oil 30 per cent, gas 29 per cent); 31 per cent was produced by hydroelectric sources; and 10 per cent by other sources such as nuclear, coal, and geothermal. Most of California's fossil fuel and nuclear power plants are located in the coastal zone, and utilities are considering new or expanded power plants at coastal sites. Such power plants can have many environmental, safety, and land use impacts. (See section on power plant siting.)

**Electricity Demand Is Growing.** Electrical energy demand is growing both absolutely and as a share of the total energy market as a result of (1) its versatile applicability, (2) increasing supply pressures on oil and natural gas, and (3) development of new uses, products, and processes.

**Electrical Energy Use Varies Among Market Sectors.** The principal electrical energy market sectors in California are:

- Residential — 29 per cent,
- Commercial — 38 per cent,
- Industrial — 28 per cent,
- Other, including pumping of agricultural and municipal water — 5 per cent.

The commercial sector is both the largest and fastest growing.

**Residential Consumption.** More than half the electricity consumption in the residential sector is due to three types of uses: space conditioning (heating and cooling), water heating, and refrigeration, with space conditioning growing fastest. Demand in the residential sector as a whole has

increased for several reasons: (1) the number of new households has grown faster than population; (2) the use of air conditioners has increased; (3) until recently utilities actively promoted all-electric homes; and (4) many new and sometimes less efficient appliances have been introduced and have approached market saturation. Due to stabilization in the growth rate of new households and the approaching market saturation of many appliances, however, residential demand growth has been forecast to decline significantly, even without price rises and conservation measures.

**Commercial Consumption.** In the commercial sector, electricity is used primarily for air conditioning, food and products refrigeration, and lighting. Increased commercial electricity use has been forecast to continue, but the sector's sensitivity to electricity price increases and other market factors may help restrain growth.

**Industrial Consumption.** Industrial electricity demand growth has been due to (1) increased industrial output and floor space, (2) greater electricity use per unit of output, and (3) increased use of electricity instead of primary fuels in industrial processes. The rate of growth has been forecast to slow in the future because of conservation practices.

**Consumption Patterns Vary By Region.** Electrical energy usage patterns differ regionally within California. Southern California consumes two-thirds of statewide electrical energy produced and has a faster growth rate than northern California. Both northern and southern California, however, have recently been experiencing declining growth rates in population and overall electrical energy use. Because of variations in weather conditions, there are also regional differences in the months of maximum electrical energy usage. Pacific Gas and Electric system peak occurs in July, whereas the San Diego Gas and Electric system peak occurs in December. California's maximum monthly electrical energy usage is usually during August.

**Potential for Reduction in Electricity Demand Growth.** The growth in demand for electricity in California has averaged 7.7 per cent over the last 25 years. It has now begun to slow, but there is considerable potential for further demand growth reduction through vigorous energy conservation measures, the impact of rising electricity prices and price rate restructuring, and the development of alternative energy sources. Slowed population and economic growth rates in California will also contribute independently to a lower electricity demand growth. In the long-term, increased prices, intensive conservation efforts, new energy systems, and revised price structures could probably reduce California's estimated demand by as much as 30 to 40 per cent of the conventional projections for the year 2000. (See section on energy conservation.) Present demand forecasts do not yet adequately reflect these factors.

**State Energy Commission Will Improve Forecast Methodology.** The Warren-Alquist Act (AB 1575) provides for the State Energy Commission to make improved electricity demand forecasts to serve as the basis for electrical generation facility siting. The Energy Commission will develop a standard forecasting methodology to be employed by the utilities in providing input to an independent forecast to be developed by the Commission.

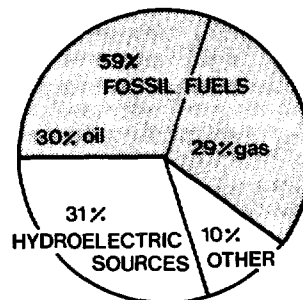
**Conventional Demand/Supply Projections Are Pessimistic About Alternative Energy Sources.** Many conventional demand/supply projections assume that there will be no significant contributions from alternative energy sources and

no major breakthroughs in energy technology that will have a significant impact on electricity supply in this century. Among electric utilities and State agencies such as the Resources Agency and the Public Utilities Commission, there is a consensus that over half of all new capacity in California required to meet electricity demand in the year 2000 will be obtained by nuclear fission power plants, one tenth from hydroelectric power, and only one tenth from geothermal power. No potential contribution is identified from solar, wind, or solid wastes. If these sources appear at all in conventional forecasts, they are typically allocated only token supply contributions or are dismissed as "futuristic." Stronger, more forceful research and development programs at the State and Federal levels, however, could expedite development of the full potential of alternative energy sources for use in California.

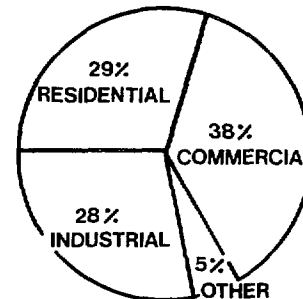
**Electric Utilities Plan on Basis of Available Technology.** Electric utilities take a cautious approach to including alternative sources of electricity generation in supply mix projections because: (1) electric utilities are held responsible for meeting whatever demand for electricity actually exists, and they therefore plan almost exclusively on the basis of available technology as the means to meet 5, 10, and even 20-year demand forecasts; (2) the lead time required for construction of any generating facility is significant: typical lead times are 6 years for a combined cycle fossil fuel plant, and up to 12 years for a nuclear plant.

**Electricity Supply Forecasts Form Basis For Other Supply Forecasts.** Although the electric utility supply forecasts represent only one possible supply scenario, they are used as a principal basis for planning by a broad range of public agencies dealing with such complex issues as petroleum and natural gas supply, port facilities, land use, and water resources.

**Serious Environmental Impacts Implied in Continued Dependence on Conventional Supply Mix Forecasts.** The consequences implied in conventional supply mix forecasts



**Electricity Supply in California (1973)**



**Electricity Use in California**

are serious: (1) increasingly severe environmental disruptions for fossil fuel extraction, processing, and delivery; (2) consumption for electrical generation purposes of non-renewable hydrocarbons that are more valuable for other uses; (3) increased problems of air pollution; (4) problems of nuclear fuel transport security, radioactive waste handling and disposal, and potential nuclear reactor hazards, which do not yet have definitive solutions; (5) and problems of cooling water supply and marine life impacts. Such energy planning as has been done in California has been based primarily on the conventional utility projection of electricity supply mix.

**Alternative Energy Sources Look Increasingly Desirable and Feasible.** Energy sources for electricity generation that previously were thought to be economically unattractive or technologically unattainable have recently become more desirable or more feasible because of (1) escalating price levels for competing conventional energy sources; (2) new concern for environmental protection, human health and safety, and conservation of nonrenewable hydrocarbon resources; (3) new levels of research commitment for alternative source development; and (4) new concern about political implications of dependence on international markets for energy supply.

**Alternative Energy Sources Could Yield Half of New Capacity Required.** It is possible that alternative sources of energy that may be environmentally less damaging or less hazardous than the sources shown in most conventional electricity supply projections may make a greater contribution to future electricity supply than is presently acknowledged.

A hypothetical alternative scenario for future electrical generation capacity in California suggests that alternative energy sources (solar, geothermal, wastes, wind, and pumped hydroelectric for peak hour demand) for electric power generation might be provided by the following sources by the year 2000:

Solar .....	16,900 Megawatts (Mw)
Geothermal .....	12,800 Mw
Wastes .....	3,200 Mw
Wind .....	3,000 Mw
TOTAL .....	35,900 Mw

This capacity would represent half of all new generating capacity required between 1973 and 2000 (based on the Rand Study Case "2" — i.e., base case plus price increases), in contrast with the conventional supply mix forecast of less than 15 per cent from these combined sources. This scenario assumes a strong policy commitment by government bodies and electric utilities to high levels of research and development of alternative energy technologies and to extensive marketing and public education. The future share of generation that will actually be provided by each of these technologies is uncertain, and depends on such things as comparative economics, environmental acceptability, and lead time required from earliest date of feasibility.

**Long-Term Demand Reduction Through Increased Prices and Conservation Measures.** In the long-term, increased prices, intensive conservation efforts, new energy systems, and revised price structures could probably reduce California's estimated demand by as much as 30 to 40 per cent of the conventional projections for the year 2000.

## ENERGY CONSERVATION

### Findings

**Impact of Energy Facilities on the Coast Can be Reduced by Energy Conservation Measures.** The need for energy-producing facilities can be reduced, and the impact on the coastal zone thereby lessened, by vigorous energy conservation measures. Substantial savings can be achieved by curtailing wasteful consumption of energy without harming the economy of the nation or the State. Some experts estimate that as much as 40 per cent of present total energy consumption is wasteful, and that conscientious application of a broad energy conservation program to all sectors of the energy market — homes, businesses, industry, and transportation — could halve our historical energy growth rate. The Ford Foundation Energy Policy Project, for example, concluded that the national energy growth rate could be reduced from the present level of nearly 5 per cent to 1.7 per cent annually without any significant adverse economic effects.

**Utility Rate Structures Encourage Consumption.** One of the most important and direct ways to encourage more efficient energy use is to change electric and gas utility rate structures to accurately reflect all of the internal and external costs of

producing and delivering additional service. Present rate structures often encourage consumption by charging reduced per-unit prices for large consumers. Present pricing structures also make no attempt to discourage demand during periods of peak load. Peak load generation typically results in use of the least efficient generating equipment. Consumption during peak periods, then, is costlier than during off-peak hours. The Wisconsin Public Service Commission in 1974 made a landmark rate decision requiring a major electric utility to implement (1) "flat" rates, except where the traditional "declining block" rate structure can be proved to encourage the most efficient allocation of energy, and (2) a system of peak-load pricing that would result in higher rates during summer months, when the system's peak loads occur. In California, the California Public Utilities Commission (CPUC) has rate-setting authority. The new State Energy Commission will not assume this function. The CPUC has recently undertaken a study of alternative rate structures to analyze possible new approaches for application in California.

**Forty Per Cent of Energy Used in Homes and Businesses Is Wasted.** The residential and commercial sectors of society account for about one-third of the nation's annual energy consumption and their consumption is increasing at

the rate of 5.4 per cent per year. They consume two-thirds of California's electricity. Overall, it is estimated that nearly 40 per cent of the energy these sectors consume is wasted. Waste occurs due to poor insulation and ventilation; inefficient heating and cooling systems; poorly maintained and designed appliances; and wasteful use of lighting, appliances, and heating and cooling.

#### Energy Consumption in Industry Can Be Cut up to 30 Per Cent.

The industrial sector accounts for about 41 per cent of total annual energy consumption in the U.S., and about 33 per cent in California. Although energy consumption per unit of industrial output has decreased over the decades, substantial energy waste still exists in energy-inefficient work schedules and industrial processes, poorly maintained equipment and machinery, use of outdated direct-heat apparatus with heat transfer efficiencies as low as 5 per cent, and failure to recover and reuse waste heat and waste materials by recycling. Savings of at least 10 per cent of the energy used in the industrial sector should be possible with only minimal efforts, while 30 per cent or more could be saved with concerted application of currently feasible technology.

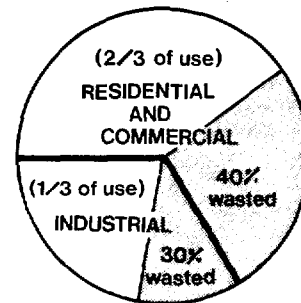
#### Energy Consumption in Transportation Can Be Cut by 15 to 25 Per Cent.

Transportation of passengers and freight accounts for about 25 per cent of nationwide energy use, and nearly 35 per cent in California. Transportation modes have become increasingly energy consumptive. As presently used, automobiles, which account for 90 per cent of all passenger movement, use more than twice as much energy per passenger mile as buses; in large part this is because on the average each car carries only 1.3 passengers. Automobile inefficiency is increased by high-speed driving, air conditioners, automatic transmissions, poor tires, and unnecessarily large engine size and car weight. Remote, scattered, or low-density developments not only increase dependence on automobiles but also tend to require greater travel distances, causing increased air pollution and fuel consumption. About one-third of all freight transport in the nation is by truck, although trucks use over 3½ times more energy per ton mile than railroads, and 5 times more than pipelines. Savings of 15 to 25 per cent are possible in the transportation sector using only short and mid-term conservation measures (e.g., consumer education, lower speed limits, rate and service improvements on public transit, and rail freight transport).

#### Energy Consumption in Electric Utilities Operations Can Be Reduced in Several Ways.

Energy consumption in electric utilities operations can be reduced through improvements in power generation technologies; reductions in transmission losses by use of improved equipment and by siting generation facilities near to load centers; and use of once-through seawater cooling systems rather than evaporative cooling or dry tower systems, though such cooling systems may have adverse effects on the marine environment. In electric utilities operations, the trade-offs for achievement of energy conservation are often stark: a utility may accept energy inefficiencies to avoid high capital costs of alternative equipment, to utilize a generation or cooling technology that meets its particular system needs (e.g., a gas peaking turbine or pumped hydropower project to meet peaking capacity needs), or for other economic considerations; similarly, a conservationist or land use planner may support equipment design or siting standards that sacrifice some energy efficiency in order to meet specific land use planning or environmental goals.

**State Energy Commission Is Mandated to Develop Energy Conservation Programs.** The State of California has already begun to move toward design of energy conservation measures for uniform implementation statewide. The State Energy Commission has a broad mandate to develop programs for reducing wasteful, unnecessary, inefficient, and uneconomic uses of energy through energy pricing strategies; improved lighting, insulation, climate control



**Energy Consumption and Wastage — By Sector**

systems, and other building design and construction standards; improved standards for appliance efficiencies; and advances in power generation and transmission technologies. The Energy Commission is mandated by law to prescribe such standards by July 1976, which shall then take effect statewide by July 1977.

**Some Legislative Energy Conservation Measures Will Soon Be Implemented.** Other energy conservation measures that have been initiated by the Legislature include:

- SB 277 (Health and Safety Code, Chapter 11), which requires development by the Department of Housing and Community Development of minimum insulation standards for residential structures. Such standards have now been adopted by the Legislature as regulations effective February 22, 1975, to be applicable statewide and enforced by local agencies;
- SB 144 (Health and Safety Code, Chapter 11.5), requiring similar development of insulation standards for new non-residential structures, to become effective near the end of 1975; and
- SB 1521 (Public Resources Code, Section 25950), to eliminate pilot lights in gas appliances.

The CPUC has recently played an active role in energy conservation efforts by ordering utilities to undertake voluntary conservation programs and to mandatorily curtail uses by specific customer groups.

#### Coastal Commission Can Recommend Energy Conservation Policies to Energy Commission.

Despite the broad mandate of the Energy Commission to develop energy conservation programs, and the strong interest in having such programs applied statewide, strong reasons remain for the Coastal Commission to develop policies for energy conservation. First, under the Energy Commission's enabling legislation, its regulations pertaining to lighting, insulation, climate control systems, and other building and design standards, including recommended energy budget codes, may not be developed and enforceable before mid-1977. Energy conservation policies recommended in the Coastal Plan will provide significant input into the Energy Commission's



energy conservation program. Second, development in the coastal zone will continue during the period prior to enforceability of the Energy Commission standards. Energy conservation standards that are already clearly identifiable can serve as guidelines for new construction, to begin working toward reduction of energy demand growth. Third, the Energy Commission's mandate does not include land use and development planning measures designed to reduce energy consumption.

**Energy Budget Codes Set Maximum Energy Consumption Levels.** Experts believe that substantial reduction of energy consumption could be achieved by designing and implementing "energy budget codes," which would require new buildings to meet maximum allowable levels of energy consumption according to building type, net building floor area, number of stories, height of individual stories, and local climate, among other possible criteria. Use of energy budgets would require architects, engineers, and builders to design with some focus on energy conservation, but would afford them maximum flexibility as to what conservation measures to employ. The Ohio Board of Building Standards has recently adopted an energy budget code. The California State Energy Commission is mandated by AB 1575 to recommend per unit energy requirement allotments based on square footage for various classes of buildings. No date is set within which the State Energy Commission must perform this function. Standards developed will not be mandatory.

## LIGHTING

**Lighting Consumes One-Fourth of U.S. Electricity.** Lighting represents 20-25 per cent of all electricity sold in the U.S. In office buildings, lighting represents an average of 40 per cent and in some cases up to 60 per cent of electricity used. Decorative lighting, advertising and display lights, exterior wall lighting, and other promotional uses are also large users of electricity.

**Lighting Levels Can Be Reduced Without Sacrificing Visual Acuity and Physiological Needs.** Nationally, average lighting intensity in commercial buildings has risen from 35 footcandles in 1940, to 85 in 1958, and to 124 at present. Many experiments confirm that lighting levels between 10 to 50 footcandles are sufficient for most visual acuity and physiological needs where levels of 60 to 150 footcandles are now being provided. Illumination levels can be significantly reduced in corridors, lobbies, passageways, and storage areas. Within work areas (e.g., classrooms or offices), use of selectively higher lighting levels for "task zones" can both reduce total lighting needs and heighten the effectiveness of the people working in the area. Lighting levels for tasks up to 100 footcandles can be achieved in most buildings designed for a maximum average requirement of 2.3 watts per net rentable square foot.

**Reduce Lighting Needs by Using Natural Light.** Lighting needs can be further reduced by using natural light wherever possible to replace electrical lighting. In major multistory office buildings or schools, about 25 per cent of the energy normally used in lighting might be saved if the lighting fixtures near windows could be manually switched off, or automatically operated by a photo cell.

**Fluorescent Lamps Are More Efficient than Incandescent Lamps.** Incandescent light bulbs are inefficient energy converters. Less than 10 to 14 per cent of the energy consumed results in useful lighting; the rest goes into heat. Fluorescent lamps are more than three times as efficient.

**Heat-of-Light Systems Lower Resultant Heat and Need Less Cooling.** Excessive and inefficient lighting also wastes energy indirectly by increasing the heat load, thereby increasing the need for cooling. Typically, every two watts of lighting requires one watt of cooling by air conditioning. "Heat-of-light" systems are available that reduce the amount of heat from lighting and thus the amount of air that must circulate in the air-conditioning system.

**High Pressure Sodium Lamps Are More Efficient in Street Lighting.** The high pressure sodium lamp (HPS) is a fairly recent development in street lighting and other outdoor illumination. For various lighting configurations, systems using mercury vapor lamps, which at present are most common, consume 2.3 to 2.9 times the energy required to produce an equivalent amount of light with a system using HPS lamps. The HPS lamp is initially costlier than the mercury vapor lamp; it also has a shorter life, and thus requires more investment in replacement lamps. Experts concur, however, that because of greater lamp efficiency, HPS systems are less costly over the system life cycle than mercury vapor lamps. Where existing street lighting in California uses series circuits, HPS lamps, which at present can operate only on a multiple circuit, are not compatible. In addition to using more efficient lamps, it may also be possible to reduce the illumination level of street lighting without adversely affecting public safety.

**Outdoor Illuminated Signs and Ornamental Lighting Consumption Can Be Reduced by Regulation.** Electrical consumption for promotional signs and lighting could be reduced through regulating the size, type of lighting, and extent of such uses. Regulation of signs for public safety and welfare reasons (including aesthetic values) has been upheld by court decisions. According to sign industry data, electric signs use less than 2/10 of 1 per cent of the total energy used in California (the percentage of total electricity used is slightly higher). New lighting standards for energy conservation will ultimately be developed and prescribed by the Energy Commission for mandatory application statewide. These standards are to be developed and applicable by mid-1977.

## HEATING AND COOLING

**Fifty Per Cent of Existing Heating/Cooling Demand Is Caused by Air Infiltration.** Of the total national consumption of energy, 18 per cent is for heating buildings. Only one out of every 10 buildings operates at 90 per cent or more of potential energy efficiency. Up to 50 per cent of the heating and cooling demand in existing buildings is a result of infiltration of outside air because of inadequate insulation, caulking, and weather-stripping. If these "leaks" were plugged in all existing buildings, 7.2 per cent of total nationwide energy consumption could be saved.

**Stringent Insulation Standards in New Construction Can Achieve Significant Energy Savings.** In new construction, more stringent insulation standards (applicable to walls, ceilings, and floors) and double glass windows, possibly

with special coating, could effect significant reductions of energy usage. Savings of up to 50 per cent of the energy required for heating and 20 per cent of the energy required for cooling in new residential construction and 10 per cent of both the heating and cooling energy in new commercial construction can be achieved.

**Energy Consumption Doubles with Use of Electric Space Heating.** Use of electric resistance space heating results in consumption of at least twice as much energy to heat a given space as direct use of a primary fuel (e.g., gas or oil). The conversion efficiency for a fossil or nuclear fuel thermal electric power plant is only about 35 per cent; inefficiencies in transmission and delivery systems still further reduce the overall conversion efficiency for electric space heating. If gas is used directly for space heating, overall conversion efficiency will range from 50 to 80 per cent, even considering inefficiencies due to improper furnace adjustment and start-up and shut-down operations.

**Air Conditioning Puts Severe Seasonal Strain on Electric Generating Resources.** Air conditioning's share of annual total national energy consumption has grown from an infinitesimal amount 20 years ago, to 1.6 per cent in 1960, to 2.5 per cent in 1968, to possibly as much as 4 per cent now. Because most of this energy is consumed during just a few months of the year, the strain air conditioning loads put on electric generating resources can be severe. One of every two homes in the country has at least one room air conditioner. One-half of the houses being built today are centrally air conditioned, compared to one-twentieth a decade ago.

**With Proper Controls, Central Heating/Air Conditioning Systems Can Be Flexible and Efficient.** Among various types and makes of conventional room air conditioning units, energy efficiency in actual "cooling capability" can vary by as much as 80 per cent. Large central heating and air conditioning systems generally use 10 to 15 per cent less energy on the average than smaller decentralized systems. If central systems are to operate with the same flexibility as individual systems, however, proper controls must be installed. In portions of the temperate coastal zone, proper design of structures and landscaping can obviate the need for air conditioning.

**Shading Windows from Direct Sunlight Can Substantially Reduce Heat Build-Up Inside Buildings.** The use of trees, shutters, sun screens, awnings, or roof overhangs to shade windows from direct sunlight can substantially reduce heat build-up in buildings, and thus air conditioning requirements. Special glazing (metal-coated and/or double wall glass) can cut both cooling and heating requirements by about half. It is much more efficient to screen glass on the exterior, rather than with blinds, drapes, etc., on the interior of a building.

**Heat Transmission Rates Vary with Building Surfaces.** Heat transmission rates are also affected by the proportion of exterior walls, the amount of surface area in windows (heat loss and gain from windows causes much greater energy use than the potential saving in natural lighting), and the color, orientation, shape, and angle or exposure of building surfaces.

**Operable Windows Aid Natural Ventilation.** Operable windows in lieu of fixed glass will allow natural ventilation to enter the building, eliminating some of the need for air conditioning and mechanical ventilation during much of the

year. Such windows must be well fitted and weather-stripped to reduce infiltration of outside air.

**Heating/Cooling Systems' Designs, Based on Outdoor Conditions, Can Be Redesigned for More Efficiency.** Heating and cooling systems are usually based on outdoor conditions not exceeded more than 2-2½ per cent of the time. Except for facilities for the elderly, for industrial processes, or for health care, such systems could be designed for the 5 per cent condition with only a slight increase in discomfort during a few hours per year. Excessive safety margins and failure to account for people and appliance heat-loads also result in oversized space conditioning equipment and inefficient operation.

**Reduce Heating/Cooling Requirements by Reusing Already-Circulated Air in Buildings.** Heating and cooling of vast amounts of outdoor air that circulate through buildings can also consume energy wastefully. By reusing already-circulated air, the amount of outdoor air required for ventilation can be substantially reduced, from 5-15 cfm (cubic feet per minute) per person to 3-4 cfm per person in most buildings. Air quality can be maintained by using odor-absorbing devices and better filtration. Initial costs are no greater, since savings in fans, heating and cooling equipment, and ductwork more than offset the added costs for better filters and odor absorption equipment, and there are significant savings in energy and operating costs. Heat exchangers, which allow the use of already air-conditioned exhaust air from a building to preheat or precool system intake air, are a means for reducing heating and cooling requirements in large buildings.

**Heat Exchangers Recapture the Energy of Waste Heat.** The present lack of capability of buildings to store heat and cold and to control temperatures of appropriate areas separately results in a loss of energy which otherwise could be used later to offset peak electrical demand loads. Conventional chimneys, fireplaces, combustion devices, kitchen, laboratory, and laundry exhaust hoods are all energy wasters. Heat exchangers can also be used to recapture energy otherwise given off as waste heat, such as from fireplaces, kitchen, laundry or major appliances, to be used later to offset peak demand loads.

## APPLIANCE EFFICIENCY

**Gas Pilot Lights Waste Energy Except in Water Heaters.** It is estimated that continually operated or lighted gas pilot lights consume more than 223 billion cubic feet of gas per year in the 30 million gas-heated homes in the U.S. Pilots on gas dryers and other appliances in commercial, governmental, and industrial facilities wastefully use additional volumes of gas. Pilots use about one-third of a typical gas range's overall consumption, and in some cases may account for as much as 50 per cent of the gas use, especially if pilot flames are set too high.

**Electric Ignition Devices Can Replace Pilots.** Safe electric or other "intermittent" ignition devices actuated only when the appliance is in operation are available today to replace pilots in most residential-type appliances and can be built into new gas appliances or retrofitted to existing appliances. Electric ignition devices add to the initial cost of a new appliance (about \$3 to \$30), but given current gas shortages and rising prices, they are likely to be substantially less expensive to the consumer than pilot lights when costs are calculated over the life of the appliance. Replacing pilots in

existing equipment, however, may cost \$80 to \$100, which may not be recouped through lower operating cost over the remaining life of the appliance. Unlike gas pilots in other fixtures, water heater pilots are efficient because the pilot flame contributes directly to heating the water.

**Intermittent Ignition Devices Will Soon Be Required by Law.** In May 1974, SB 1521 (Public Resources Code, Section 25950) was approved, prohibiting the sale or installation of new residential-type gas appliances (furnace, air conditioner, heater, refrigerator, stove, range, dishwasher, dryer, decorative fireplace log, or other similar device, but not including a water heater) equipped with a pilot light 24 months after an intermittent ignition device has been demonstrated or certified by the State Energy Commission, or January 1977, whichever is later. This long lead time was included in the legislation primarily to guarantee advance notice to appliance manufacturers, retailers, and contractors.

**Routine Maintenance of Gas Appliances Will Effect Energy Savings.** The efficiency of most gas appliances, including water and space heaters, can be reduced as much as 50 per cent by dirt build-up or improper adjustment. Routine maintenance of such appliances could effect substantial energy savings.

**Energy Savings Can Be Realized Through Improved Appliance Efficiencies.** Home and business appliances using both electricity and natural gas account for approximately eight per cent of total national energy consumption. Water heaters alone use four per cent of the national energy budget. Appliances vary greatly in the amount of energy required for identical tasks. Innovations in appliance technologies frequently result in more energy-intensive appliances. Frost-free refrigerators and freezers, for example, use nearly twice as much energy as manual defrost units; and color televisions use about 40 per cent more energy than black and white sets. More efficient appliances may initially cost more, but they enable consumers to save money in operating costs. Labeling of appliances as to energy efficiency would enable the public to make informed purchases, and would encourage energy efficient design by appliance manufacturers. The State Energy Commission is mandated to prescribe standards for minimum levels of operating efficiency for all appliances whose use requires a significant amount of energy on a statewide basis. One year after adoption of such standards, sale of non-complying appliances in California will be illegal.

## BUILDING MATERIALS

**Aluminum Production Requires Six Times More Electric Energy than Steel.** It takes approximately six times as much electric energy to produce a ton of aluminum as a ton of steel. Analysis of a high-rise building has demonstrated that its skin would require 5.75 million pounds of stainless steel, which takes .77 million kwh to produce, compared to only 4 million pounds of aluminum, which, however, takes 2.1s million kwh to produce.

**Wood is the Only Renewable Major Building Material.** Wood is significantly more favorable in energy required for production than steel or aluminum. The production of a ton of finished wood takes only 12 per cent of the energy required to produce a ton of steel and 2 per cent of that required to produce a ton of aluminum. Wood is also the only renewable

major building material. Concrete and masonry have higher heat storage capacity and longer life cycles than metals or wood.

## Policies

**71. Restructure Utility Rates to Encourage Energy Conservation.** To encourage energy conservation and peak-load demand reduction, the California Public Utilities Commission and the State Energy Resources Conservation and Development Commission (hereafter "Energy Commission") are urged to revise rate structures to more accurately allocate the increased costs of peak load production and construction of new or expanded production and transmission facilities.

**72. Recommendations for Statewide Energy Conservation Measures in New Developments.** Non-essential consumption of energy shall be reduced statewide, thereby reducing the adverse environmental impact of energy supply facilities on the coast. Pursuant to the Warren-Alquist Act (Public Resources Code, Section 25400 et seq.), the Energy Commission is required to prescribe energy conservation standards to be in effect statewide by July 1, 1977. Because of the close relationship between effective energy conservation and the possible need for new and expanded coastal energy facilities, the following energy conservation standards are recommended to the Energy Commission for consideration in carrying out its mandated activities.

The energy conservation requirements of the Warren-Alquist Act, if carried out in a timely and effective manner, will achieve the goals of this policy; but if for any reason an energy conservation program is not in effect statewide by July 1, 1977, then, because of the great importance of energy conservation to coastal protection, the coastal agency shall be empowered to begin an energy conservation program by requiring, after public hearings, that the energy conservation standards be included in local coastal plans. Until such time, the application of energy conservation measures to proposed developments in the coastal agency's jurisdiction shall be encouraged as a contribution to energy efficiency and resource conservation.

**a. Recommendation to Establish Energy Budgets for New Developments.** It is recommended that an energy budget code be formulated setting required energy budget performance levels for a range of building types, sizes, occupancies,

projected levels of use, and location. Major new developments should then be required to demonstrate compliance with the energy budget code by submission of an energy budget, signed by a California registered engineer or certified architect, stating the energy inputs and outputs of the proposed development in BTUs per cubic foot or in watts per square foot; the extreme mean heat loss/gain of all buildings in peak heating and cooling seasons; microclimate description of the building site; and outline specifications for microclimate modifiers such as planting, total building exterior cladding material, building insulation, building thermal inertia and energy storage capability, and for major energy using and controlling equipment such as lighting, heating, ventilating, and air conditioning. An energy budget should not be required for residential developments of less than four dwelling units, industrial projects of less than 5,000 square feet of floor area, or commercial or institutional structures of less than 2,700 square feet, provided a California registered engineer or certified architect states in writing that the proposed design would meet the required performance level for the project type. It is recommended that a State-financed program directed by the Department of Housing and Community Development be instituted to provide in-service training for building inspectors to administer the energy budget code through local building codes.

- b. Recommended Energy Conservation Specification Standards.** It is recommended that until an energy budget code is adopted, the following energy conservation specification standards apply to all new development. Following adoption of an energy budget code, developments meeting the required energy budget levels would be exempt from the specification standards.

**Recommended Standards for Lighting:**

- Lighting should not exceed 2.3 watts (2.5 volt-amperes) per square foot except in instances where higher levels are shown to be necessary for high visual acuity tasks and public health and safety.
- Only efficient lamps and luminaires, as defined in the proposed Standard 90-P of the American Society of Heating, Ventilating, Refrigeration, and Air Conditioning Engineers (ASHRAE), should be allowed.
- In large buildings, selective or light-sensitive switches should be provided to avoid electric

lighting in portions of the building receiving adequate natural light or not in use.

**Recommended Standards for Signs and Facade Lighting:**

- Electric lighting of new advertising or ornamental signs should be allowed only for on-site identification signs containing the name, address, and major product or service of the business, and these signs should be illuminated only during darkness and only when the business is open to the public.
- Building and facade lighting, exclusive of signs, should be no greater than 1,000 watts or 2 per cent of the total interior lighting load of the building, whichever is greater.

**Recommended Standards for Space and Water Heating:**

- Electric resistance heating (water or space) should be allowed only if natural gas is not available, electrical heating is needed for medical, health or public safety reasons, some other unusually high requirement for clean heat exists, or where a back-up system for solar heating and cooling systems can be provided feasibly only by electric resistance heating.

**Recommended Standards for Building Climate Control:**

- Mature planting, exterior architectural shading, or reflecting and/or insulating glass or screen should be provided to shade or protect windows receiving direct sunlight in warm climates.
- Properly weather-stripped operable sash and vents should be provided in all exterior rooms for which ventilation is required by the local building code.
- Variable thermostats should be required for areas with different air conditioning requirements.
- New conventional compressive refrigeration air conditioning should be permitted only if the life cycle costs of the conventional system are substantially less than the lowest-cost and most energy-efficient alternative systems available. (Alternatives may include cooling systems based on evaporative cooling, solar cooling, nocturnal radiation, absorption refrigeration, heat pumps, rock-bed regenerators, and coolness storage, among others. (See the section on Alternative Energy Sources.)

### **Recommended Standards for Pilot Lights and Gas Flames:**

- Gas pilot lights (except water heater gas pilots) should not be permitted unless the gas pilot device has a substantially lower life-cycle cost or is more energy-efficient than an electric ignition or other alternative system or is required for public health or safety reasons.
  - Open gas flames for advertising, promotional, or decorative purposes should not be allowed.
- c. Recommended Energy Conservation in Street Lighting System.** It is recommended that new street and highway and other public lighting luminaires should be of the high pressure sodium (HPS) type, or an approved alternative type equal in energy efficiency, unless environmental, aesthetic, public safety, or system compatibility reasons dictate the use of a different type of system. The Legislature should consider the feasibility of establishing a capital improvement fund, through a bond issue or other appropriations, to finance the conversion of existing State, county, and municipal incandescent or mercury vapor-type street and highway lighting to the HPS type or equivalent. Funds expended could be repaid from energy

cost savings resulting from the conversion. Other appropriate energy-conserving devices and design (e.g., reduction of lighting levels consistent with public safety, use of astronomical clocks that eliminate lighting during daylight) should also be incorporated in all new public lighting systems.

**73. Recommendations for Additional Energy Conservation Measures.** It is recommended that the Energy Commission and the Legislature, as part of a comprehensive statewide energy conservation program, implement certain other conservation measures statewide, as follows: (1) tax legislation to encourage the use of lighter automobiles with smaller engines and increased energy efficiencies; (2) legislation requiring that all appliances sold in California meet specified energy efficiency standards and that all appliances be clearly labeled with energy efficiency or energy consumption information; (3) implementation of a long-range phased program for improving the energy use standards of existing buildings in California, including replacing energy-inefficient equipment. Special loans and/or tax incentives should be considered to assist in upgrading insulation and incorporating low- or non-fuel-using technologies that involve higher capital costs.

## **ALTERNATIVE ENERGY SOURCES**

### **Findings**

#### **Non-Petroleum Energy Sources Could Provide 50% of Added Generating Capacity in California by Year 2000.**

There are advantages and disadvantages to development and use of all forms of energy. Oil and gas, however, on which California now relies for about 90 per cent of its total primary energy, have the potential to cause significant adverse environmental impacts at all points of the fuel sequence: extraction, transportation, processing, and consumption. There are several alternatives to continued heavy dependence on oil and gas that are environmentally superior both for the coastal zone and for California, and that help conserve hydrocarbons for more valuable uses such as petrochemicals. These sources cannot in the short term supplant a continuing fundamental dependence on oil, gas, and even nuclear fission, in California. But with a strong policy commitment by government bodies and electric utilities to high levels of research and development, and extensive marketing and public education, it is possible that non-petroleum alternative energy sources could provide as much as 50 per

cent of the additional electrical generating capacity needed in California by the year 2000, and in so doing substantially reduce a broad array of environmental impacts on the coast and throughout California. (See findings "Conventional Demand/Supply Projections Are Pessimistic About Alternative Energy Sources" and "Alternative Energy Sources Could Yield Half of New Capacity Required" above, in section on Electricity Supply and Demand.)

### **SOLAR ENERGY**

**Solar Energy Has High Potential and Fewest Environmental Problems.** Solar energy is unlimited in its supply and appears to pose the fewest environmental problems of any major energy source. It can make a significant and immediate contribution both on a small scale, for heating and cooling individual buildings, and on a large scale, for major electric power generation. The basic technology for solar energy applications exists; the principal remaining barriers to broad feasibility concern economics and engineering refinements to overcome the low energy intensity of sunlight, its daily

and seasonal variability with weather and time, and the need for associated energy storage systems. There is also concern over the large land areas and fresh water for cooling that could be required for large-scale solar energy power stations. California is particularly well suited for development of solar energy because of its high number of hours of sunshine. The South Coast Region lies in a particularly favorable location for mean daily solar radiation. As measured in units of Langley's (Ly), for comparison, the data for Seattle is 300 Ly, Phoenix 500 Ly, Los Angeles 463 Ly, and South Coast coastal locations about 450 Ly.

**Use of Solar Systems Can Save Fossil Fuels.** Implementation of solar energy systems can be directly correlated with potential savings in natural gas. In a large area of southern California, more than two-thirds of the natural gas consumed directly in space and water heating could be saved by the use of solar energy. On a month-to-month basis, the share of space and water heating provided by solar energy can be expected to range from 50 per cent to 80 per cent. Since solar energy can supply the major share of energy for space and water heating on a year-round basis, utilization of solar energy can directly reduce the growth in baseload demand for natural gas. A corresponding reduction in requirements for new gas supply would also be indicated, or, alternatively, more natural gas could be burned in the South Coast Region's electrical generating plants.

**Economic Barriers to Solar Energy Can Be Overcome.**

Solar energy systems for heating and cooling in new construction are now practical in both large commercial buildings and houses. Although the capital investment required for solar systems is higher than conventional systems (which increases marketing problems for home builders), any cost evaluation of heating systems should be done on a life-cycle basis. Leasing systems, now being studied, may overcome some of the marketing problems. The life-cycle costs of a solar heating and cooling system in the new General Services Administration building in Manchester, New Hampshire, for example, are estimated to be 25 per cent less than the costs of conventional electric resistance heating and electric compression cooling. The economic advantages of solar systems should improve as production techniques reduce the initial costs, and as the costs of conventional fuels increase. Economy and energy-efficiency can be further enhanced when:

- Both cooling and heating are accomplished through utilization of the solar energy collector;
- The solar energy system components and the building heating and cooling systems are compatible with each other and are integrated in a total systems concept; and
- The buildings and the conventional mechanical and electrical systems are initially designed and constructed to conserve energy.

**Solar Energy Can Heat Water and Heat/Cool Buildings.**

As many as 60,000 solar water heaters are said to be in use in south Florida today, nearly all having been installed in the 1930s and 1940s before the advent of all-electric living. They are also in common usage in several foreign countries including Japan, Australia, and Israel. With minor engineering developments and relatively simple architectural modifications, solar energy could now be used in some areas of this country for both space and water heating at prices competitive with oil and gas furnaces. Commercially installed solar heating and cooling in single buildings may be in

wide use in many parts of the nation by 1985 and will be common by 1993. It is possible that an intensive development effort could bring these dates five years closer. The National Science Foundation/NASA Solar Energy Panel predicted that ultimately solar energy could supply 35 per cent of the nearly 20 per cent of the U.S. energy consumption now consumed for heating and cooling, and that it will significantly reduce summer peak electricity demands. However, even if supported by energy storage systems, individual solar units may not be capable of supplying total energy needs for space conditioning and water heating. In addition to the solar units, builders may have to install some conventional supplemental equipment. Solar active (mechanical heat transfer) systems — that is, solar systems using flat-plate solar collectors with circulating fluid — can optimally provide up to 90 per cent of the total water and space heating needs of a house in the southern California coastal area, with gas assistance as the back-up fuel. Solar passive (direct heat transfer) systems, such as a roof-pond system, can optimally provide up to 100 per cent of the heating and cooling needs of a house.

**Heat Pumps Can Heat or Cool a Given Space.** A heat pump system can be operated by solar power. A heat pump is, in effect, a refrigeration machine that can work in a reverse cycle; thus it can either heat or cool a given space. Large electric heat pumps can heat as efficiently as properly maintained gas furnaces; they can cool two to three times more efficiently than most cooling systems.

**Nocturnal Cooling Is the Simplest System that Both Heats and Cools.** Roof-pond nocturnal cooling systems are technically feasible and practical for residential and low-load buildings in desert or valley climates such as in southern California. The operating cost would be only a fraction of the cost of electrical refrigeration. This is the simplest system that can accomplish both heating and cooling.

**Rock-Bed Regenerators Provide a Cooling System.** Rock-bed regenerator (RBR) cooling systems use evaporation of water in the discharge air to chill rocks in a switched-bed rock-filled recuperator, which then cools inflow air. RBRs have been used successfully in Australia. The power consumption is an eighth of that needed for mechanical refrigeration.

**Solar Energy Conversion in Existing Houses Is Difficult.** Conversion of existing houses to solar energy is more problematical. No more than about 35 per cent of existing houses can be retrofitted to solar energy because of shading by other buildings or trees, or because building orientations or roof angles are not suitable collectors. Retrofitting of older houses with solar systems would be difficult to justify on a life cycle cost basis because of the shorter remaining life of the buildings.

**Effective Delivery System Available Soon.** One of the major obstacles to near-term implementation of solar energy systems is the present lack of an effective delivery system (design, production, marketing, and installation skills). However, such a delivery system is now beginning to appear in California; several corporations have undertaken programs for producing and marketing solar units. With some governmental encouragement, the delivery system necessary for broad implementation of solar systems could be available within a few years.

**Institutional Barriers to Solar Energy Use.** Other barriers to wide use of solar systems are institutional. The building

and real estate industries are slow to adopt and promote any new device that raises capital costs even if long-term overall costs are lower; there are no published building design guidelines for solar energy utilization; and there are no known existing building code regulations for solar units. In addition, although some electric utilities have made low-level research commitments to development of individual solar units, there has until recently been little or no serious commitment from electric utilities, State and county energy planners, or legislators to this application of solar energy. The Los Angeles City Council has begun a program of solar energy investigation and development, and as an initial step will heat municipal swimming pools with solar energy.

**Solar Energy Use Needs Legislative Support.** New legislation is needed to encourage the use of solar energy systems. Florida has passed a measure requiring new home plumbing to be designed to facilitate future installation of solar water heating equipment. Arizona and Indiana have passed tax legislation encouraging installation of solar equipment. Essential to any solar energy program would be a public information program.

**Sun Rights Legislation Will Ensure Access to Solar Radiation.** "Sun rights" legislation is also needed to ensure user's access to solar radiation free and clear of potential obstructions on contiguous property. Appropriate regulations must consider the shadows, angles, and orientation of buildings varying with the time of day, the season, climatological conditions, and the slope of the building site. Setback regulations in zoning codes are precedents for sun rights laws.

**Large-Scale Electricity Generation Needs Further Development.** The full potential of solar energy can be realized only after large-scale generation of electricity from solar energy becomes technically and economically feasible. Steam-electric systems based on the initial conversion of solar energy to heat have yet to be built on any but the smallest scale, and the necessary technology for large-scale plants, though well understood theoretically, has not been adequately demonstrated on a commercial scale. The principal problem scientists and engineers face is making solar-generated power economically competitive with other electric power sources. The constraint of high initial costs may without government encouragement, delay the commercial testing of large-scale solar-thermal power generation until 1990, although unforeseen and unprecedented rises in fossil fuel prices since mid-1973 have suddenly made solar-thermal power significantly more competitive.

**High Solar Plant Potential in Southeast California.** Solar collecting equipment for large-scale solar-thermal plants can be centralized for commercial production of power only in areas with high annual sunlight-hour values. Much of southern, and particularly southeastern California, receives as much solar radiation and annual sunshine — up to 4,000 hours per year — as any other area in the U.S.

**Solar-Thermal Power Plants Need Large Amounts of Land.** The principal environmental concern about large-scale solar-thermal power plants is the commitment of many square miles of land to collecting surfaces. The NSF/NASA Solar Energy Panel estimated that at 20 per cent efficiency a 1,000 Mw solar generating plant — about the size of the nuclear power plant units being built today — will require about 15 square miles or 9,600 acres of land. It is difficult

to compare this with the amounts of land required by different methods of electrical energy generation, but the 2,000 Mw coal-burning plant in the Four Corners area, for example, will require the strip mining of 40 square miles of land for fuel during its operating lifetime. Improved technology resulting in better efficiency would significantly reduce land use for solar plants.

**Solar-Thermal Power Plants Create Heat Waste Disposal Problem.** The potential for waste heat disposal problems would still be present in large-scale solar-thermal power plants. Such plants would still require cooling water, and this may be a problem since the optimal locations for solar plants will be arid. There is also some concern that large-scale solar collecting surfaces may upset local thermal balances, but the consequences, if any, are thus far expected to be quite small.

**Solar Cells Offer Alternative to Solar-Thermal Power Generation.** A second approach to production of electricity from solar energy involves the use of solar cells. Solar cells convert sunlight directly into electricity without the need for intermediate thermodynamic cycles. Solar cells were used to power manned orbiting spacecraft. Presently, however, solar cells are too costly, too inefficient, and not sufficiently durable to have practical application for large-scale commercial electricity production. Some scientists believe, however, that solar cell technology is sufficiently far advanced that mass production of rooftop units for new housing could become competitive within three to five years, and that use of solar cells to power new houses may be common in 10 years.

**Potential for Ocean Thermal Gradient Electricity Generation Is Small.** A less-promising approach to production of energy from solar energy involves the use of the difference in temperature between the sun-warmed ocean surface and the cold ocean depths in a heat engine to produce low pressure steam to drive a turbine and produce electricity. Ocean waters off the California coast, however, offer insufficient temperature differences.

## WIND ENERGY

**Wind Is Potentially Important Energy Source.** Wind energy is pollution-free, involves no fuel costs, and is non-depletable. If wind were actively promoted, and its problems solved, it could become an important auxiliary energy source. Various sources indicate that by the year 2000 wind energy could provide from 1 to 20 per cent of total national electrical energy needs. Thus far, however, no California public agency or electric utility forecast for future California energy supply includes any contribution from wind energy.

**Some Potential for Individual Windmill Units.** Individual windmill generating units can make single buildings or small building clusters wholly or partially energy self-sufficient, but such units are no longer manufactured in quantity, and individual unit capital cost (including battery storage) is presently high.

**Problems of Wind Energy Must Be Solved.** Wind is a problematic source of electrical energy. It is erratic, low in average velocity and density, and variable in direction, and its energy is not easily stored on a large scale. Wind will make its most significant contributions to energy needs

only when systems have been developed that can efficiently and inexpensively convert wind to electricity or other energy forms on a very large scale. Scientists believe that these problems are not technologically difficult. The principal environmental concern is with the appearance and noise of individual and large-scale wind generation equipment. Some scientists have suggested installations far offshore to maximize wind potential and to mitigate environmental concerns. Additional wind research is required to establish the ultimate potential of California's coastal and inland wind resource.

## SOLID WASTES

**Solid Wastes Are a Potentially Important Energy Resource.** Solid wastes represent still another resource with substantial energy potential already exploited in other parts of the world, although recycling of suitable waste material may result in greater overall benefits to society from both an energy and a resource preservation point of view. Half of the 75 million tons of solid wastes produced annually in California is collectable, and that refuse could furnish 10 per cent of the fuel oil needed by utilities at prices competitive with other power generation fuels, or could furnish gas for direct use by residential and commercial customers. Despite the significant potential of solid waste conversion for reducing the demand for depletable fossil fuels and nuclear expansion in California, few efforts have been made to realize the potential. The State Solid Waste Management Board, established in 1972, may help overcome institutional problems that partially impede development of State and county programs for the recovery of energy — and materials — from solid waste. Detailed below are four principal methods of energy recovery from wastes.

**Incineration Already in Use in Two Major American Cities.** Incineration, or direct burning, of refuse can produce recoverable heat for production of steam, which in turn can be used in power plants (St. Louis), in industry, and in local heating and cooling systems (Nashville). Incineration systems can present air pollution problems.

**Pyrolysis Pilot Project Proposed for El Cajon.** Pyrolysis is a flexible method by which separated, shredded, treated wastes are heated in a kiln to cause their chemical decomposition into various low heat-value gaseous or liquid hydrocarbons. These can be utilized with other fuels in conventional fossil fuel plants. SRI expects commercial systems will be available in 1976-77. An EPA-funded pilot plant proposed for El Cajon would process about 200 tons of solid wastes per day, with each ton ultimately producing one

barrel of low heat-value oil. San Diego Gas & Electric would burn the oil either directly or mixed with No. 6 fuel oil to produce steam for electric power generation. A Baltimore pilot project newly in operation will convert 1,000 tons per day into gas for steam generation.

**Hydrogenation Most Efficient System for Obtaining Oil from Wastes.** Hydrogenation involves adding steam carbon monoxide and a catalyst to organic wastes in a pressurized container and applying heat to cause chemical reduction into a heavy paraffinic oil and other hydrocarbon forms. A system using dry waste solids can produce as much as two barrels of oil per ton of solids. Several pilot plants are in operation or are planned with commercial application expected by 1980.

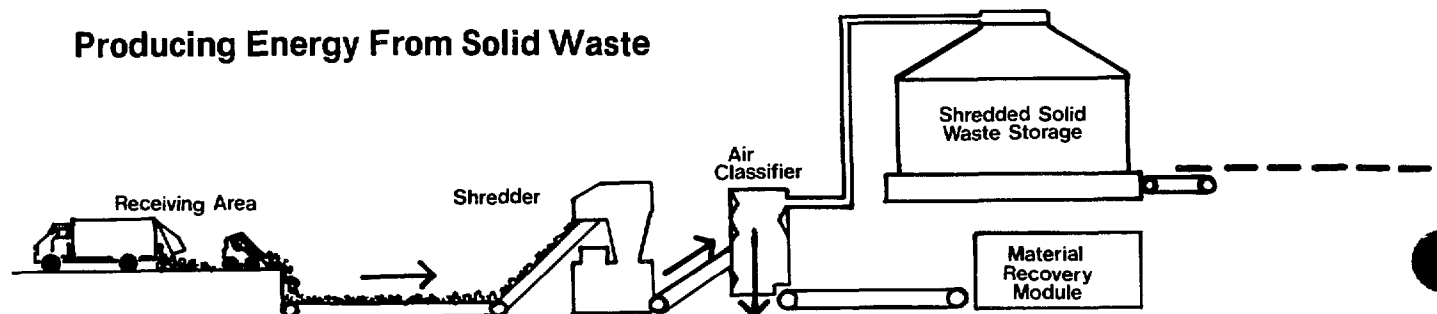
**Bacterial Conversion Can Produce Methane Gas from Solid and Liquid Wastes.** Bacterial conversion is a process using anaerobic bacteria (which flourish without free oxygen) to decompose organic wastes to produce a mixture that is 72 per cent methane — the principal component of gas. A ton of dry organic waste can produce 10-20,000 cubic feet of methane. Commercial recovery of methane is feasible at sanitary land fills. Sanitary engineering has long utilized anaerobic digestion, but use of this process to maximize methane recovery has received little or no attention. Methane recovery from the secondary treatment of liquid wastes can make an important incremental contribution to natural gas supplies.

## METHANOL

**Methanol Provides a Versatile Fuel for Immediate Use.** Methanol, or methyl alcohol, constitutes an alternative fuel form whose widespread use could immediately help to solve both energy supply and pollution problems. Methanol is a colorless, odorless liquid which can be made from practically any other fuel — natural gas, petroleum, coal, oil shale, wood, and farm and municipal wastes — giving methanol practically unlimited flexibility in utilizing various energy sources as the economy and conditions dictate, and offering a means of reducing the nation's waste disposal problems.

**Methanol Can Be Easily Implemented into Present Fuel Economy.** Methanol use would not require any major changes in current technology to accommodate its integration into the present economy. It can be easily stored in tanks in the same manner as conventional fuels and can be shipped or piped, as can conventional petroleum products. More importantly, up to 15 per cent methanol can be added to commercial gasoline in cars now in use without requiring engine modification. Some carburetor adjustment would be

## Producing Energy From Solid Waste





required. This methanol-gasoline mixture results in higher octane ratings (thus reducing the need for lead), improved economy, lower exhaust temperatures, lower emissions, and improved performance. Tests have shown that engine conversions to accommodate 100 per cent methanol, which cost about \$100 per vehicle, result in one-twentieth the amount of unburned fuel and one-tenth the amount of carbon monoxide released to the atmosphere compared to burning gasoline, and would eliminate the need for catalytic treatment of exhaust. Even greater economy and performance could be expected from engines designed specifically for the use of methanol.

#### Some Adjustments Needed for Storage and Distribution.

The use of methanol in automobiles will require larger fuel tanks, since specific fuel consumption of methanol is higher on a weight and volume basis than gasoline. However, specific energy consumption per mile will be lower because higher compression ratios and simpler pollution controls can be used. The storage of methanol mixed with gasoline may present some problems because methanol is much more soluble with water than is gasoline; where condensation will form in gasoline storage tanks (sometimes causing corrosion) methanol will absorb the water, keeping the tanks dry. Problems may arise in the storage of large quantities of methanol mixed with gasoline, unless the tanks are dried out prior to injection. Distribution systems for methanol fuel must also be more water-free than existing gasoline distribution systems. A further problem is the corrosive effect of methanol upon some kinds of metals used in fuel distribution and storage facilities (including auto fuel tanks).

#### Methanol Can Be Used in Electric Power Generation.

A potential use of methanol is for electric power generation, particularly in gas turbines. A recent test comparing use of methyl fuel with use of No. 5 fuel oil and natural gas in a full-scale boiler demonstrated that use of methyl fuel resulted in elimination of particulate and sulfur compound emissions, substantial reductions in nitrogen oxide emissions and carbon oxide concentrations; and negligible emissions of aldehydes, acids, and unburned hydrocarbons. Soot deposits in the furnace from previous oil firing were burned off with methyl fuel, thereby allowing higher heat transfer rates and higher efficiencies.

**Availability of Methanol Is the Major Problem.** The principal drawback to the immediate use of methanol is its availability. The technology for initial production and use on a large scale exists. A 1972 AEC report estimated the cost of producing methanol from lignite, coal, and natural gas to be slightly higher than the costs of producing gasoline from crude oil. Since 1972, however, the cost of crude oil, parti-

cularly from foreign sources, has increased dramatically, thereby making methanol production comparatively more economical.

## HYDROPOWER

**Hydropower's Role in Future Energy Mix Is Limited.** The percentage of California's electricity supply provided by hydropower has declined sharply from 59.7 per cent of the total electricity supply in 1950 to about 36 per cent in 1970 (9 per cent of the State's overall energy supply). Hydropower appears unlikely to meet any substantial part of an increase in the State's energy needs. There are undeveloped potential hydropower sites in California; however, their limited potential, combined with concern about the environmental impact of such facilities, land use conflicts, and high capital costs, may preclude significant future hydropower development within the State.

#### California Imports Significant Portion of Hydroelectric Power.

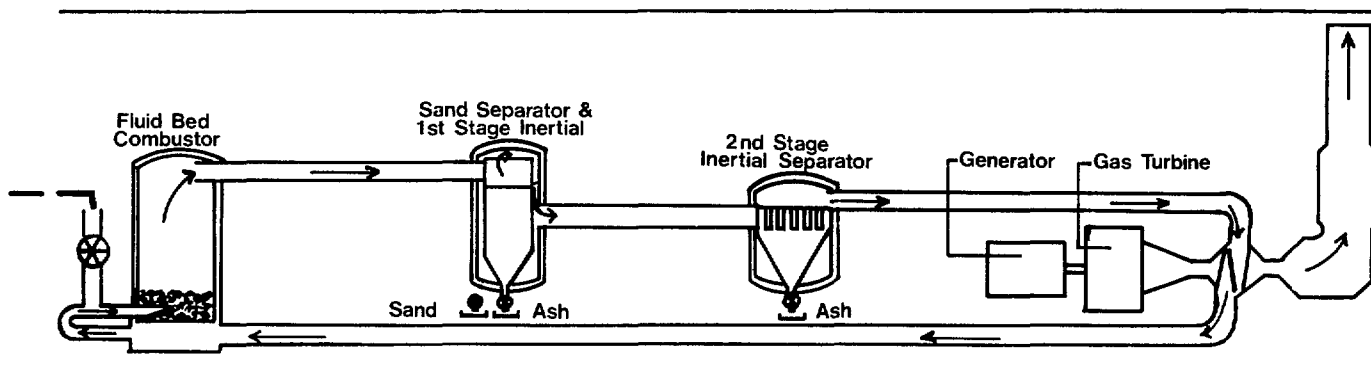
In 1970, 23 per cent of California's hydroelectric power was transmitted from facilities located along the lower Colorado River and in the Pacific Northwest. Because of the expected increase of energy demand within the latter area, however, it is possible that export of electrical energy to California in future years may significantly decline.

**Pumped Hydropower May Be Used to Store Energy.** A principal use of hydropower in the future may be in "pumped hydropower" projects for storing energy to meet peak demand. Such projects would permit more efficient use of base load power plants, and would help reduce the need for additional power plants otherwise necessary primarily to meet peak demand, although in many instances such projects may actually require more electrical energy for pumping than they actually produce. Present plans of electric utilities project 3,600 megawatts of pumped hydro capacity by 1991, and one source forecasts 10,500 Mw pumped hydro capacity by 2000. Pumped hydro projects can in some instances be built at existing hydroelectric sites, but would otherwise involve reservoir and dam construction, with attendant land use and environmental problems, and with loss of fresh water and increased water salinity due to evaporation.

## COAL

#### Importance of Coal as a Direct Fuel in California Is Minimal.

Although the U.S. has an overwhelming abundance of coal, California has no significant indigenous coal supplies. Coal has not traditionally been an important fuel in California; the high costs of transporting it, and the lack of large coal



deposits closer than 350-550 miles from the State's major cities, have made coal a less attractive primary energy alternative in a state relatively rich in oil and gas. Strict State air quality regulations have made coal a still less desirable fuel in California, though desulfurization and particulate control are available.

**California Imports Electricity Generated by Out-of-State Coal-Fired Plants.** In 1970 coal provided only 1 per cent of California's energy needs. By 1985 this figure is predicted to rise to 3 per cent. Most of this increase will be accounted for by increases in the amount of coal-fired electricity generated in Arizona, Nevada, or the Four Corners area and imported by high-voltage transmission into southern California. SRI has estimated that 5,000 to 15,000 Mw of electric generation capacity from out-of-State coal-burning power plants could be available to California users by 2000.

**Synthetic Natural Gas to be Produced from Coal and Imported to California.** When commercial production of synthetic natural gas (SNG) from coal is begun in the Rocky Mountain coal deposit areas, California will begin to receive some measure of SNG from coal by pipeline — primarily for residential and commercial use. If large-scale gasification plants scheduled for construction and operation near mine sites in the western states should come on line as scheduled, such SNG imports could begin as early as 1979-80. Though gas from these plants would amount to a very small percentage of California's gas requirement, SRI has forecast that SNG from coal may constitute as much as 16 per cent of California's natural gas use by 1990. The cost of developing such sources, as well as the amount of water required, however, has put some of the more optimistic figures in doubt.

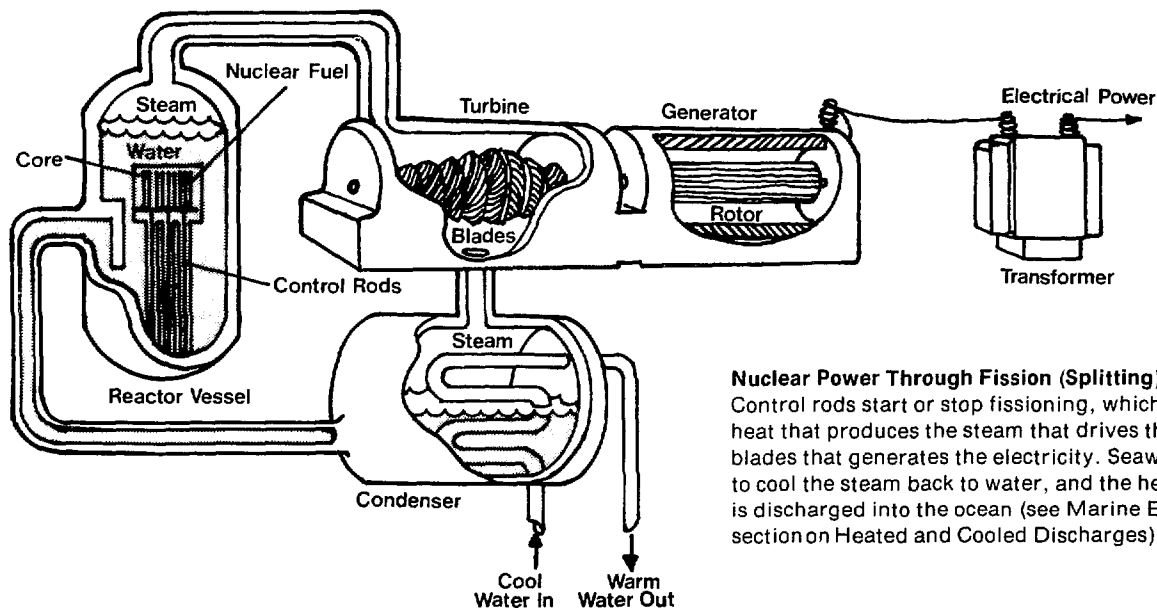
**Environmental Problems from Use of Coal.** The coal mining and coal conversion operations in the Rocky Mountains and Four Corners areas have severe environmental consequences in the immediate mining areas.

## NUCLEAR FISSION

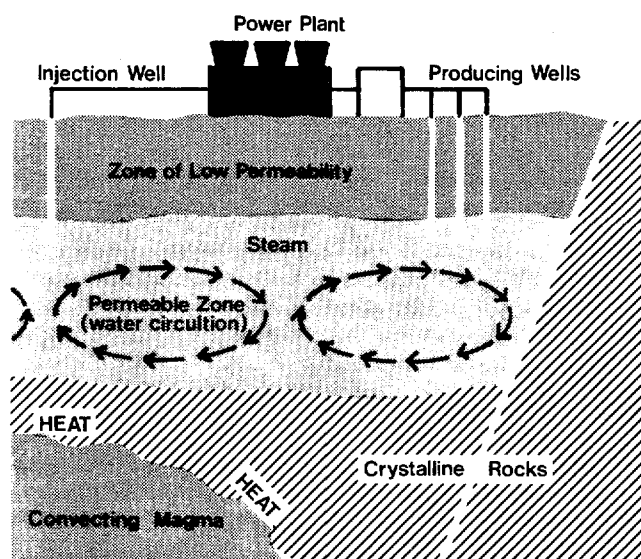
**Nuclear Fission Power Generation Expected to Grow; Public Safety Concerns.** The AEC predicted that nuclear energy will become the dominant source of electricity in the 1990s and will account for as much as 60 per cent of the nation's generating capacity in the year 2000. The proponents of nuclear power point out that it is smog-free, and that its use reduces air pollution that would otherwise result from fossil fuel power generation, and conserves fossil fuels. They also argue that nuclear energy is safe, the prospects of a serious accident extremely small, and express optimism over the resolution of radioactive waste disposal problems. Opponents question the reliability and high cost factors in nuclear reactors; there is a growing public concern, also, over such matters as the safety hazard associated with the potential for a serious accident that might permit escape of radioactive material; the possibility of acts of sabotage or terrorism using nuclear materials stolen prior to or during the transport of fuels or wastes; and the uncertainty as to how to dispose safely of nuclear waste materials that will remain highly toxic for many thousands of years.

**Nuclear Plants Require Cooling Systems.** Light-water reactors (LWRs), in which the U.S. has invested most heavily, are thermally less efficient than fossil fuel power plants, and therefore emit more waste heat. High-temperature gas-cooled reactors (HTGRs) are thermally as efficient as the most modern fossil fuel plants. Systems for dissipation of waste heat can have significant environmental and land and water use impacts.

**Breeder Reactors Also Have Problems.** France, England, and the Soviet Union have experimental liquid-metal fast breeder reactors (LMFBRs) in operation at this time. The Federal government is committed to the rapid development and widespread deployment of this technology. Most of the problems associated with converter reactors also affect



**Nuclear Power Through Fission (Splitting) of Atoms:** Control rods start or stop fissioning, which creates the heat that produces the steam that drives the turbine blades that generates the electricity. Seawater is used to cool the steam back to water, and the heated seawater is discharged into the ocean (see Marine Environment section on Heated and Cooled Discharges).



## Geothermal Energy

**Geothermal Resources.** In places where the earth's crust is shallow or heavily fissured, as along major earthquake faults or in areas of recent volcanic activity, hot magma may penetrate close enough to subsurface waters or brines to heat them. The resulting hot water or steam may find its way to the surface as geysers, fumaroles, or hot springs; or it may be tapped from underground reservoirs within permeable rock or in fissures using conventional oil and gas well-drilling and production techniques. At The Geysers (photo on page 109), a geothermal field under development by PG&E, dry steam is tapped and released directly through turbines to generate electricity. Most geothermal reservoirs, including those in California's Imperial Valley, contain hot, mineral-laden brine rather than steam, making their use for electricity production more problematical.

breeder reactor development. In fact, because breeder reactors require a fast neutron flux and a highly concentrated fuel, they actually present greater health and safety problems than conventional reactor technology.

### Accelerated Breeder Reactor Program May Be Unwarranted.

The breeder reactor program is being accelerated because of an apparent fear of an eventual shortage of uranium, but a California Institute of Technology study shows that even the most enthusiastic projected expansion of nuclear power generation through 2020 could be fueled from presently known domestic uranium supplies. Though the cost for these supplies would rise, the effect on the average delivered cost of electricity would be minor. Other recent analyses have similarly concluded that there is not sufficient justification for an accelerated breeder reactor development program. The most recent Federal budget for energy research and development reflects a slight decrease in emphasis on breeder reactor development as the principal energy resource of the future.

## GEOTHERMAL ENERGY

**Geothermal Power Is a Desirable Energy Source.** Geothermal energy has great potential in California. Despite environmental problems of waste water disposal, soil erosion, disruption of wildlife habitat, disposal of drilling muds, hydrogen sulfide and small Radon 222 air emissions, land subsidence, and noise, the geothermal fuel cycle (including mining, milling, actual use, waste processing, and disposal) is less polluting than that of fossil or uranium fuels. Geothermal energy represents a very long-term resource that may have the potential to supply up to 15 per cent of the additional electrical energy capacity required by 2000. California's only commercial geothermal energy is produced from a dry steam field called The Geysers in Sonoma County, under development by PG&E; geothermal energy has non-electric applications in California for heating water and buildings and for recreation (hot mineral baths, for example).

**Geothermal Potential Is Significant.** There are 35 potential geothermal resource areas covering more than 15 million acres within California. Geologic research and activity has largely been confined to the three most promising sites: The Geysers, with a present capacity in excess of 400 Mw; the Imperial Valley; and the Mono Lake-Long Valley area. A fairly conservative range of potential generating capacities (listed in megawatts) from geothermal sources is as follows:

(Year)	The Geysers	Imperial Valley	Other Areas
1980	1,300	0-700	0
1990	1,300-3,000	1,000-4,000	0-3,000
2000	1,300-5,000	1,000-8,000	0-3,000

## TIDAL ENERGY

**Tidal Energy Not Promising in California.** Although the total potential energy in the world's tides is enormous, and represents a nondepletable source of energy, present technology can only economically convert tidal energy to electricity where tidal ranges are very large and inlet mouths are small enough to make damming for a hydroelectric plant feasible. Such conditions are rare, and exist nowhere in the U.S. except in Maine and Alaska. The damming of an entire bay or estuary for a tidal hydroelectric generating plant has severe environmental and ecological effects. Unless there is a radical redesign of existing technology for the conversion of tidal energy, California should not expect tidal energy to make a contribution to meeting its energy requirements.

## NUCLEAR FUSION

**Nuclear Fusion Is Not a Commercial Reality in This Century.** Nuclear fusion differs from nuclear fission in that energy is released through fusing the nuclei of two atoms, rather than through splitting atoms. Nuclear fusion would use as basic fuel heavy hydrogen, which is limitlessly available in seawater. The various economic, environmental, and safety

advantages expected from nuclear fusion appear to make it a significantly more viable long-term energy alternative than fossil fuels or nuclear fission. Even with greatly increased research and development activity, however, most experts believe that various theoretical and technical problems still blocking the path to electricity from fusion are so enormous that fusion probably will not become a commercial reality or a significant factor in meeting California or national energy needs within this century.

## ENERGY STORAGE

**Energy Storage Increasingly Important in Energy Systems Planning.** Energy storage is becoming increasingly important in planning energy systems that minimize the environmental impact of meeting energy demand. Energy storage techniques can be applied to enable longer periods of operation for base load power plants and thereby reduce the requirement for additional generating facilities; to change energy from one form to another for more economical, convenient, or environmentally clean transmittal or application; and to make practically feasible such alternative energy sources as solar, wind, tidal, and thermal gradients, which produce energy inconsistently or at a very slow rate. Significant energy storage techniques include pumped hydro storage, fuel cells, storage batteries, flywheels, and conversion of energy in other forms into hydrogen.

## Policies

**74. Encourage Development of Alternative Energy Sources.** Development of alternative energy sources shall be encouraged for large-scale power-generating facilities and for new and existing small-scale developments.

- a. **Require Consideration of Alternative Energy Sources.** Every proposal for a major energy installation shall include detailed evaluation of alternative methods for providing the same amount of energy.
- b. **Provide Tax Incentives for Energy-Efficient and Energy Self-Sufficient Development.** It is recommended that the Legislature enact laws providing tax incentives (e.g., income tax credits, reduced property tax rates) for building owners or developers to install low- or non-fossil fuel energy systems, which might include solar-assisted water and space heating, solar-assisted cooling, nocturnal cooling, evaporative cooling, heat pumps, absorption refrigeration, photovoltaic electrical energy generation, total energy systems with waste heat recovery, anaerobic sewage generation of methane gas for energy use, windmill electric generators, fuel cells, energy storage systems, and other feasible alternative energy systems.

- c. **Work to Resolve Problems of Other Alternative Energy Sources.** The Energy Commission, the California Public Utilities Commission, the Legislature, and where appropriate such State agencies as the Division of Oil and Gas, the Geothermal Resources Board, the Solid Waste Management Control Board, and the Water Resources Control Board, are urged to undertake programs to determine the potential of alternative energy sources in California and to resolve technological, environmental, economic, institutional, and legal problems presently hindering their development. Such programs shall focus particularly on developing (1) the large geothermal resource present in California; (2) large-scale commercial and single-building solar and wind conversion technologies; (3) energy and materials recoverable from solid wastes (including animal wastes) and sewage; and (4) methanol as a more efficient, less polluting fuel form to substitute for other conventional hydrocarbon forms.

**75. Recommendation for Implementing Solar Heating and Cooling Systems.** The following measures are recommended to the Energy Commission for its consideration in developing state-wide programs for implementing alternative technologies. However, if for any reason the Energy Commission is unable to effectuate such programs by July 1, 1977, then, because of their importance to coastal protection, the coastal agency shall be empowered to require, after public hearings, that these alternative energy measures be included in local coastal plans. Until such time, where proposed developments are otherwise consistent with the Coastal Plan, the application of alternative energy measures to such developments in the coastal agency's jurisdiction shall be encouraged.

- a. **Recommendation to Determine When Delivery System Exists.** The Energy Commission (or the coastal agency, after July 1, 1977) should determine, after appropriate public hearings, whether an effective delivery system for solar-assisted heating or solar-assisted or nocturnal cooling exists in California — that is, whether the professional expertise in design, manufacture, installation, and maintenance of solar-assisted heating systems or solar-assisted or nocturnal cooling systems capable of meeting at least 50 per cent of the building's projected heating or cooling needs with a high degree of reliability, and comparable to conventional systems in costs over the life of the systems, exists in the State, and whether the necessary

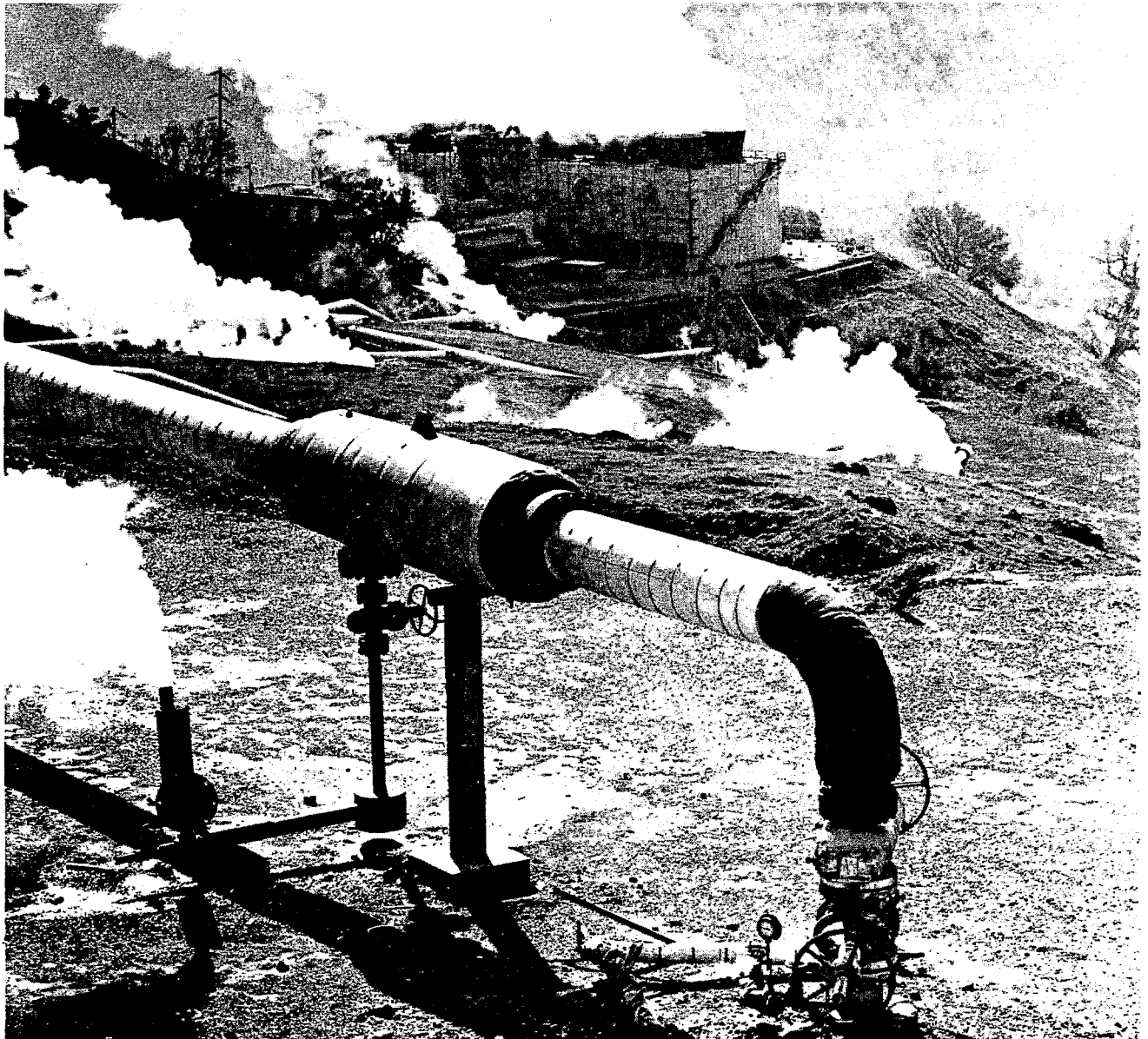
hardware is commercially available. Such a determination should take into account the varying climatic conditions throughout the State.

- b. Recommendation to Require Alternative Heating and Cooling Systems.** Once it has been determined that an effective delivery system exists, solar-assisted water and space heating systems and solar-assisted or nocturnal cooling systems (where buildings require cooling systems) should be required on all new or substantially remodeled residential, commercial, institutional, and industrial structures, and on heating systems for such facilities as swimming pools, except where, in individual cases, a solar system (1) is impractical because of site conditions or adjacent obstructions that severely limit solar

collection, (2) could not be incorporated in the project within a reasonable period of time, or (3) will not provide a lower cost than the proposed conventional system over the life of the system. Such solar systems should include adequate energy storage capability (determined based on climatic and peak load characteristics of various regions) to provide heat during periods of abnormally severe weather conditions and to prevent use of conventional systems for back-up during peak load periods.

- c. Recommendation to Require Capability to Incorporate Solar Collector System.** Until an effective delivery system exists, new structures should (1) have the structural and design capability to later incorporate, a solar collector

The Geysers geothermal field, Sonoma County



system, with clear and optimum exposure to the sun, capable of reducing by 50 per cent the gas or electricity used for water and space heating; and (2) install the solar-assisted water and space heating systems upon the subsequent determination that a solar-assisted system with a life-cycle cost lower than conventional systems is available. Consideration should be given to requiring performance bonds to ensure compliance.

**d. Recommendation for Testing and Certification; Retrofitting of Solar Heating Systems; "Sun Rights" Ordinances.** It is recommended that

the Legislature and the Energy Commission (1) set testing and certification standards for solar systems; (2) undertake a program that will lead to retrofitting with solar heating systems existing buildings and swimming or hydro pools that use gas and/or electricity, wherever technically and economically feasible; and (3) require that local government agencies adopt "sun rights" ordinances to ensure that owners of buildings or property will have the benefits of free and clear access to sun radiation on existing or potential collector systems at all times of the year.

## ENERGY FACILITY SITING AND DESIGN

### Findings

**Warren-Alquist Energy Act Creates New State Energy Commission.** On January 7, 1975, the California Energy Resources Conservation and Development Commission (hereafter referred to as the Energy Commission) came into existence. This new Commission, created through passage of the Warren-Alquist Energy Act (AB 1575; Public Resources Code, Section Section 25000 et seq.) in the 1974 Legislative session, has a broad mandate to:

- Assess trends and to forecast statewide demand for electricity and other forms of energy;
- Determine the need for new power plants and to evaluate and certify proposed designs and sites either on the coast or inland (power plants in the coastal permit zone still require separate Coastal Commission permit approval);
- Study and promote the development of new alternative energy resources and new generation and transmission techniques;
- Prescribe and carry out new and expanded energy conservation measures; and
- Make recommendations to the Governor and Legislature for State policies and actions for the orderly development of all potential sources of energy to meet the State's needs.

**Siting Authority of State Energy Commission Is Limited.** Despite its very broad mandate to act on energy issues, the State Energy Commission has authority to approve siting for only one of the five types of energy supply-related development that could affect the coastal zone: electric power plants and transmission facilities. Most of the new power plants presently being planned by electric utilities, however, are

explicitly exempted from the provisions of the Energy Act. More significantly, under its present mandate the State Energy Commission will not determine when or where exploration and development of State offshore oil reserves will occur, or have permit authority for siting onshore facilities associated with State and Federal offshore oil development, tanker terminals, refineries, or liquefied natural gas terminal and gasification facilities, all of which are projects of significance to coastal planning and management.

**Other Agencies Lack Sufficient Jurisdiction.** Other State agencies, such as the State Lands Commission, the Public Utilities Commission, the Water Resources Control Board, the Division of Oil and Gas, and the Air Resources Board, all regulate activities affecting energy development in California, but none has the jurisdiction over all such facilities that would permit a comprehensive, balanced approach to energy conservation and development throughout the State. The Coastal Commissions now have authority over power plant siting in the 1,000-yard coastal permit area.

**Coordination by One Statewide Energy Authority Needed.** Determinations of energy needs and development of an inventory of sites for all major energy facilities might best be coordinated by a single statewide energy authority, with the opportunity for intensive review and comment at all planning stages afforded to all concerned agencies, and with a separate, concurrent permit authority for coastal siting decisions reserved to the coastal agency.

**Coastal Agency Can Work Closely with Other Agencies on Siting Permits.** The goal of comprehensive energy planning will be best served by the coastal agency's working closely with the Energy Commission and other State and local agencies in developing its siting policies and evaluating permit applications.



## Policy

**76. Establish a Statewide Agency to Plan and Certify All Energy Facilities.** It is recommended that the Legislature extend the site planning and certification authority of the Energy Commission to include, in addition to electric power plants, all major oil, gas, or other energy source production, processing, and transmission facilities within the State. It is also recommended that the coastal agency have permit authority (concurrent with that of the Energy Commission if its authority is extended as proposed above) over the need, environmental, and land use aspects of any such facilities proposed in whole or in part within the coastal zone. Prior to exercising its permit authority over such coastal facilities, the coastal agency shall receive from the Energy Commission for its evaluation a formal finding as to the need for the facility and the availability of acceptable alternative sites. The coastal agency's permit authority over coastal energy facilities shall be exercised consistent with approved local coastal plans.

Preparation and approval of such local plans shall, to the extent possible, anticipate and fully consider the possible need for coastal energy

facilities to help meet statewide and national energy requirements. The State Lands Commission shall continue to have leasing authority over facilities proposed for location on State lands. All other concerned local, State, and Federal agencies shall have full opportunity to review and comment at designated stages of any application before the Energy Commission. To minimize conflicts between the Energy Commission and the coastal agency, the coastal agency shall participate fully in review and comment procedures for all initial stages of site planning, and shall explore the feasibility of holding joint public hearings with the Energy Commission on site selection and facilities siting proposals.

It is recommended that the Legislature consider mandating the Energy Commission to establish, in coordination with the coastal agency and all concerned California agencies, a prioritized list of pre-designated, approved inland and coastal sites for each of the various types of energy facilities, to further reduce the time necessary for decisions on nominated sites and facilities. Until a prioritized list of approved sites is established, applications for coastal energy facilities shall include designation and evaluation of at least two reasonable alternative inland or coastal sites reasonably capable of supplying the applicant's service or market area.

## POWER PLANTS

### Findings

**Several New Power Plant Sites Will Be Needed.** Additional fossil-fueled and nuclear power plants may be needed in the future even if energy conservation programs are successfully implemented and alternative energy sources become commercially available. Under reasonable assumptions regarding demand growth, and assuming 2,000-6,000 megawatts (Mw) per site with some expansion at existing sites, seven to 20 major new fossil- or nuclear-fueled power plant sites may be needed by the year 2000 for California. With a particularly vigorous and successful effort to develop alternative energy sources and implement conservation measures, it is possible that as few as three to nine new fossil or nuclear power plant sites may be needed statewide. With successful electricity conservation measures, the lower ends of these ranges may prove attainable.

**Alternative Energy Sources Will Also Require Power Generation Sites.** Development of alternative energy sources

such as solar, geothermal, and wind, will also require sites for power generation facilities. Wind development may require large-scale facilities sited on the coast, though there are inland sites with equally good wind generation potential. Solid waste processing plants could be sited in the coastal zone, but are not coastal-dependent. Geothermal and large-scale solar plants will be located inland. Large-scale wind generation units would present aesthetic and land use problems, though design specifications are uncertain at this time. Small-scale or building use of solar or wind energy in the coastal zone would occur as part of building construction, and present few significant adverse environmental impacts.

**Nuclear Power Plant Siting Concerns.** The major concerns involved in nuclear power plant siting on the coast are:

- Safety hazards resulting from the high potential for strong earthquake events in much of the coastal zone (see Development chapter section on Geologic Hazard Areas) or from the potential for serious accident (e.g., loss of coolant) that could permit escape of radioactive materials;



- Proximity of nuclear power plants to population centers on the coast and the adequacy of emergency evacuation planning;
- Effects on the productive nearshore marine environment of entrainment and thermal or chemical discharges from the cooling systems;
- The impact of plant and associated structures, such as switchyards and transmission lines, on scenic natural areas; and
- Alteration and permanent use of sizable quantities of land for the plant itself, cooling towers, switchyards, transmission lines, and transportation and storage facilities, and surrounding population exclusion areas.

**Fossil Fuel Plant Siting Concerns.** The major concerns involved in fossil fuel power plants on the coast are:

- Public health and safety hazards from air pollution and the transportation of volatile fuels,
- Effects on the marine environment, similar to those encountered with nuclear plants,
- Impacts on scenic and natural areas, and
- Land use considerations.

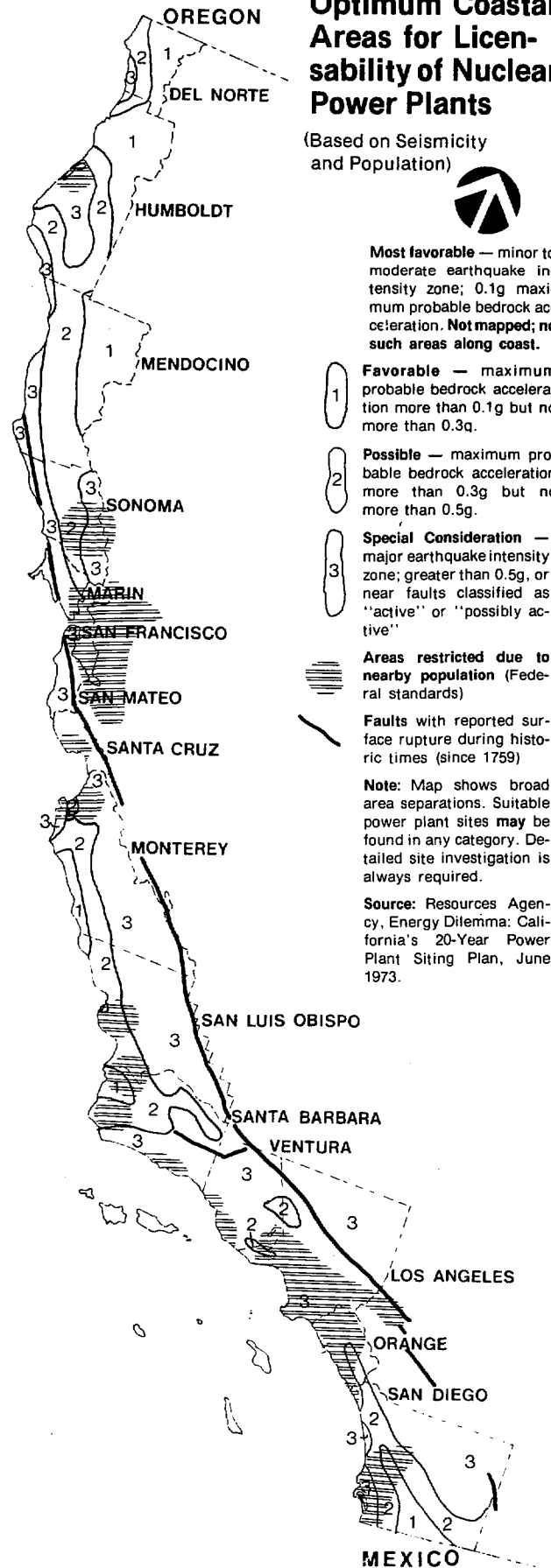
**Power Plants Traditionally Located Near the Coast.** Though a variety of factors influence siting decisions, power plants have traditionally been located near the coast in order to make use of the free, abundant, and nondepletable waters of the ocean and to be close to the major load centers of the State. Ninety per cent of California's thermal power generating capacity is sited along the coast or in the San Francisco Bay system.

**Few Coastal Sites Are Suitable for Nuclear Power Plants.** Very few coastal sites are suitable for nuclear power plants, compared to a much larger number of potential inland sites. The radiation hazard potential of nuclear power plants requires that the utmost care be exercised to site them away from areas of seismic risk and from population concentrations. Few coastal areas meet these criteria, while the areas of the State that offer the least seismic risk are located inland. Studies done by the Rand Corporation and the Environmental Quality Laboratory of the California Institute of Technology concluded that only about 50 miles of coastline may be suitable for nuclear power plants. Using less conservative assumptions about safety, a study conducted for the California Resources Agency concluded that 140 miles of coastline might be suitable, but no coastal areas were considered optimal from the standpoint of safety compared to other areas of the State. The California utilities are presently considering about 12 new coastal sites for power plants between now and the year 2000.

**Inland Areas Offer Siting Options.** There are many more potential nuclear power plant sites inland than on the coast that meet seismic safety and population concentration standards. The principal constraints on inland siting are the availability of adequate water for evaporative cooling towers and the need to dispose of "blow down" (water of high salinity concentrated by evaporation in the cooling tower). If sufficient cooling water is available, inland siting of nuclear power plants is both economically and technologically feasible; the electric utilities have proposed to build at some inland sites where sufficient freshwater supplies have already been allocated for cooling. Because of the importance of fresh water for agriculture and other uses, however, proposals

## Optimum Coastal Areas for Licensability of Nuclear Power Plants

(Based on Seismicity and Population)



to use additional fresh water for inland power plant cooling have been vigorously challenged. Much of the cooling water requirement inland could be met by reuse of municipal and agricultural waste water. There may be competition between uses of waste water for cooling and other beneficial purposes. New crop strains may be developed that could use what is now agricultural waste water. If the problem of nutrients, and other water quality problems, can be solved, the continued discharge of agricultural waste water into the Central Valley river system will reduce salt water penetration into the Delta. Widespread use of waste water for cooling would necessitate the construction of wastewater collection, treatment, and transportation facilities and adequate restrictions on the disposal of blow down in the waters of the State. The cost of such facilities could be defrayed by the electric utilities themselves. Energy conservation measures, and use of more efficient reactors such as the high-temperature gas-cooled reactor (HTGR — see finding under "Nuclear Fission" in section on Alternative Energy Sources) coupled with dry or dry/spray cooling towers, would minimize the pressures for developing additional freshwater sources.

**Power Plant Once-Through Cooling Systems Can Adversely Impact the Marine Environment.** The cooling systems of both fossil and nuclear power plants can have adverse environmental effects. Once-through cooling systems of the designs now used in all existing coastal power plants (cooling water is used once and then discharged into the ocean or other water body) have multiple impacts on the marine environment and have potential for ecological damage caused by increased ambient water temperatures, entrainment of marine life, and other effects as described in the Marine Environment chapter. Redesign may reduce those impacts.

**Use of Evaporative Cooling Towers Eliminates Many Impacts on the Marine Environment.** Evaporative cooling towers consume 25-40,000 acre-feet of water per year per 1,000 Mw, and release heat directly to the atmosphere. Evaporative cooling towers may cause localized atmospheric changes (such as fogging) and drift (fallout of particles carried in water droplets) which under some conditions could be adverse;

but these problems can be minimized or eliminated by modern engineering and strategic siting. Evaporative cooling towers using salt water are becoming more feasible as drift eliminators are improved, reducing the danger of contaminating the surrounding land area. Such towers would eliminate many of the concerns over impacts to the marine environment but would present the added problem of generating concentrated brine that requires disposal.

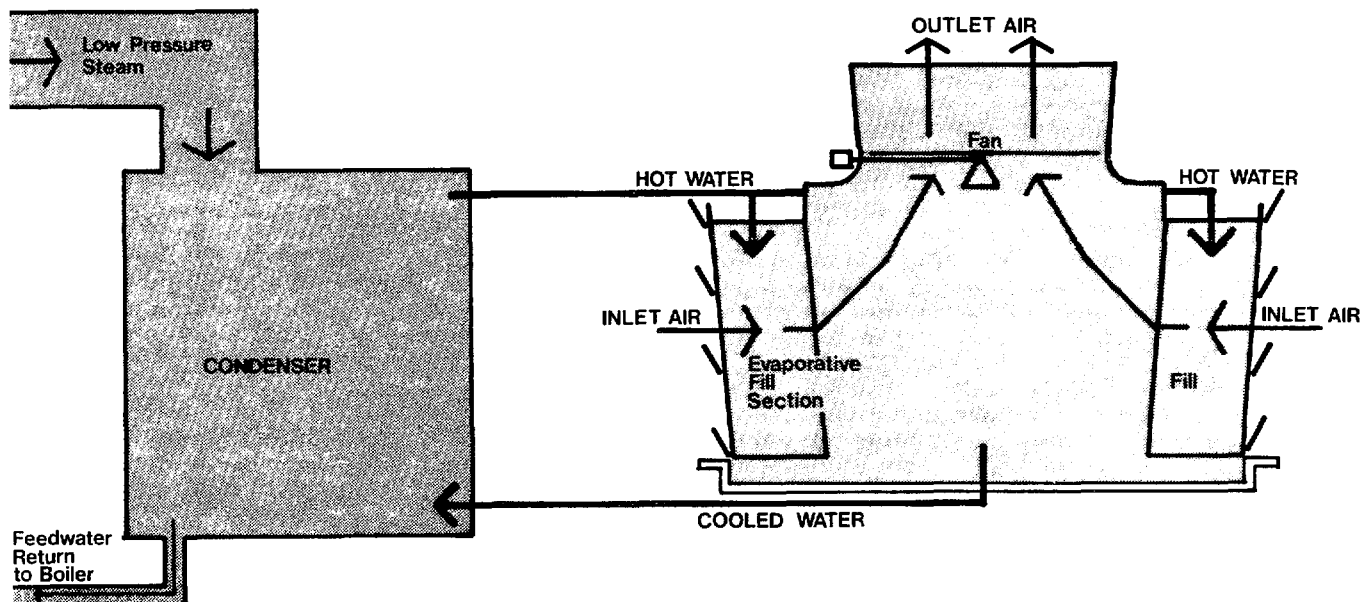
**Viability of Dry Cooling Towers Not Established.** Dry cooling towers, which operate like a car radiator, and dry/spray towers, which add an evaporative system in combination with dry towers, require little or no water but are larger and more expensive than evaporative towers. While dry cooling towers are technically feasible their commercial viability for use with large-scale power plants has not yet been established.

**Cooling Towers Are Visually Obtrusive.** All cooling towers are large structures, with resulting visual impacts, and they result in some efficiency penalties in the use of energy sources. While there is some loss in energy efficiency in the use of cooling towers (dry towers are less energy-efficient than evaporative towers), this energy cost may be necessary to reduce depletion of other resources.

**Reactor Types and Cooling Systems.** Because of their lower efficiency in converting heat energy to electricity, nuclear light water reactors (LWRs) give off more waste heat than fossil fuel plants or other types of nuclear plants, and therefore require more cooling. The commercial feasibility of the HTGR, which has a higher efficiency and therefore requires less cooling than the LWR, has now been demonstrated. HTGRs using dry/spray or dry cooling tower systems appear to be well adapted for use at inland sites where water availability for cooling is a significant problem.

**Underground Siting Is Feasible.** Underground siting is technologically feasible, but is more expensive than above-ground siting. The environmental benefits of underground sites are considerable because of reduced visual impact,

### Mechanical Draft and Wet Cooling Tower Power Plant Cooling System



possible safety advantages afforded by some types of rock formations, and the potential for multiple use of the land.

**Offshore Nuclear Plants Are Feasible But Potentially Hazardous.** It now appears technologically feasible to construct offshore nuclear plants on floating platforms or artificial islands. However, this is much more likely to occur on the East Coast, where the wide, shallow continental shelf permits mooring and breakwater construction at some distance from shore, than off the shore of California, where the shelf drops off abruptly into deep waters. Although offshore siting would significantly reduce land use conflicts and the environmental effects of cooling systems, serious questions remain regarding visual impacts if located close to shore, the potential hazard to navigation, and the likelihood that a major accident resulting in release of radioactive materials would cause immediate contamination of the biosphere. Such hazards have not yet been adequately reviewed. Although two plants are being planned for sites offshore of New Jersey, no offshore plant has yet been licensed by either the Atomic Energy Commission or its successor, the Nuclear Regulatory Commission. Siting concepts have also been developed for floating nuclear plants in manmade or dredged lagoons.

**Fossil Fuel Plants Adversely Impact Air Quality.** Fossil fuel plants in California are expected to be primarily oil-fired in the future because of the decreasing availability of natural gas. Oil-fired power plants represent large stationary sources of oxides of nitrogen and sulfur, and the problem of sulfur dioxide emissions will become particularly severe if low-sulfur fuels become unavailable. Though significant research and engineering efforts to reduce air pollutant emissions are continuing, fossil fuel plants at present do have a significant adverse impact on air quality, particularly in critical air areas where pollution levels are already exceeded, and in areas especially sensitive to air pollution, such as specialty agricultural and coastal recreation areas (see Coastal Land Environment chapter).

## Policies

**77. Coastal Agency Role in Siting Coastal Power Plants.** Pursuant to Policy 76, the coastal agency shall have permit authority over the need, land use, and environmental aspects of new or expanded power plants in the coastal zone, including those projects exempted by law from the Energy Commission permit requirement. Where the two agencies exercise concurrent permit authority, the coastal agency shall make its permit decision prior to the Energy Commission's final certification decision. In conducting its review, the coastal agency shall work closely with the Energy Commission to identify potential coastal concerns early in the application process, minimize the potential for conflict, and enable a final decision on applications within a reasonable time.

**78. Coastal Agency Role in Ongoing Site Identification Process.** The coastal agency shall be granted a substantial ongoing role in Energy Commission statewide policy formulation and site



Moss Landing power plant (oil storage tanks in foreground), Monterey County

identification processes, including the establishment of a prioritized list of predesignated, approved inland and coastal sites for power plants, as proposed in Policy 76. The role of the coastal agency in siting power plants shall not be interpreted as an effort to exclude all power generation facilities from the coastal zone. Site selection and facility approval shall proceed with the goal of protecting inland as well as coastal resources, and the need for sites and facilities shall be measured by the Energy Commission within the context of a comprehensive energy conservation and development program.

**79. Criteria for Siting and Design of Coastal Power Plants.** New and expanded power plants shall be permitted in the coastal zone when the following criteria and standards can be met.

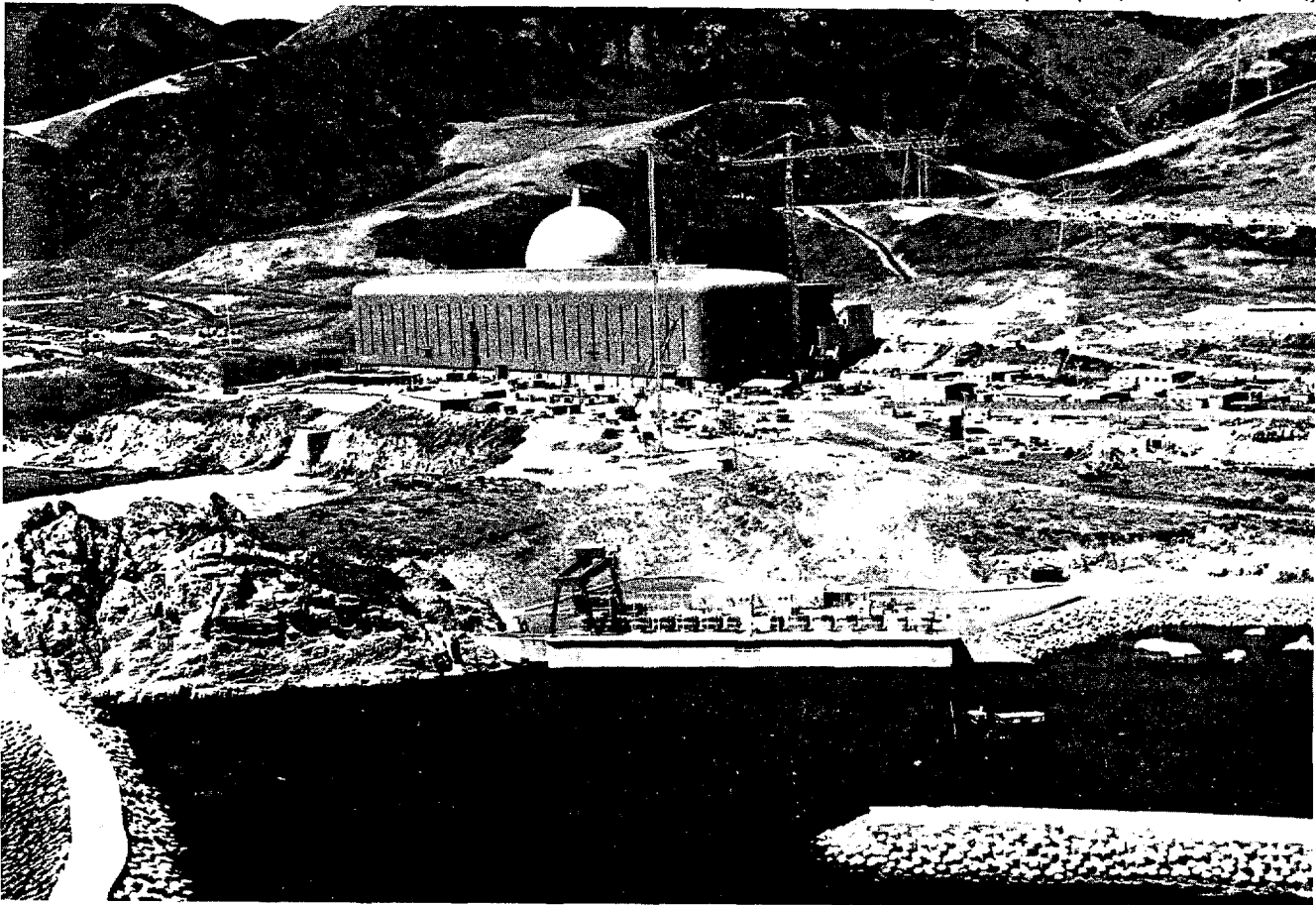
- a. **Energy Conservation and Peak Load Reduction Efforts.** The applicant must demonstrate that energy conservation efforts, including concerted efforts by the applicant within its service area, cannot reasonably reduce base-load and peaking requirements sufficiently to eliminate the need for the proposed facility.
- b. **Coastal Sites Vs. Alternative Inland Sites.** The applicant must show that using reasonable alternative inland sites or alternative technologies would have greater adverse environmental impacts than would be the case with a coastal site. Environmental impacts shall be those presently identifiable. In evaluating alternative sites and technologies, in addition to the factors included in the Warren-Alquist Act, consideration shall be given to use of evapora-

tive, dry, dry/spray, and salt water evaporative cooling towers, and the following potential water sources shall be considered in evaluating the impact of providing cooling water at inland sites: (1) surplus freshwater supplies already allocated to power generation but not presently being used; (2) agricultural or municipal waste water; (3) freshwater supplies that can eventually be replaced by waste water; and (4) other freshwater supplies, if it is determined that there is sufficient water available after the reasonable needs of other priority users are met so as not to deprive inland or coastal areas of fresh water needed for agricultural production of groundwater maintenance. To assist in evaluating alternative sites the utility or utilities proposing the coastal site shall submit a comprehensive evaluation of reasonable alternative coastal and inland sites and generating technologies, including the environmental and economic reasons for rejecting them in favor of the proposed site, sufficiently in advance of a desired decision that an adequate and independent analysis can be made. The primary responsibility for the identification of such alternative inland sites shall rest with the Energy Commission, and the identification

or certification of such a site by that Commission demonstrates that such suitable alternative inland sites are available.

- c. **Plant Expansions Favored Over New Coastal Sites.** In the case of a proposal for a new coastal site, the applicant must show that the need for new capacity cannot or should not be met by plant expansion at an existing inland or coastal site that has been identified as suitable for expansion. The primary responsibility for the identification of such sites suitable for expansion shall rest with the Energy Commission.
- d. **Conflict with Coastal-Dependent Uses at or near Site.** The applicant must demonstrate that the proposed power plant and the land use restrictions that may be required by the Energy Commission on the area surrounding a plant, for protection of public health and safety, will not conflict with other existing or planned coastal-dependent land uses at or near the site.
- e. **Nuclear Plants Must Be in Seismically Safe Areas.** In the case of a nuclear power plant, the applicant must show that the proposed site is in an area of minimum seismic hazard in

Diablo Canyon nuclear power plant, San Luis Obispo County



comparison to alternative sites reasonably capable of serving the applicant's service area and that the proposed plant is designed to safely withstand the effects of the most severe seismic activity thought possible in the site area.

- f. **Radiation Hazard Criteria.** In the case of a nuclear power plant, the applicant must show that the number of people and their distribution within the potential radiation hazard area meets and is limited to Federal Nuclear Regulatory Commission and State Energy Commission criteria and that the people can be readily evacuated in the event of an emergency.
- g. **Use Least Environmentally Damaging Technologies.** The applicant must show that the generation and cooling systems proposed are the least environmentally damaging technologies projected to be available at the time of scheduled construction. The cooling system technology employed shall meet the requirements of Policy 10. Improvements in the cooling systems of existing facilities at the site may be weighed by the coastal agency in determining compliance with this subsection.
- h. **Fossil Fuel Plants in Air Quality Maintenance Areas.** In addition to meeting the standards set forth in Policy 43, new or expanded fossil fuel-fired electric generating facilities shall not be built in areas of the coastal zone designated by the Air Resources Board as Air Quality Maintenance Areas or in areas where such coastal resources as health resorts or agricultural lands would be adversely affected, unless there would be a net decrease in generating system emission over the entire air basin of pollutants for which national or state ambient

air quality standards have been established. Reduction in emissions can be accomplished by modernization or retirement of existing facilities. Priority consideration shall be given to reducing emissions at existing facilities that affect the specific area to be affected by emissions from the proposed project. In addition, consideration shall be given to utilizing plant equipment and design capable of easy conversion to such clean fuels as methanol, when they become available, or there should be findings of fact that methanol is not and will not be practical for use at the particular plant.

- i. **Minimize Environmental and Scenic Impacts.** The applicant must design and locate the plant so as to minimize adverse visual impact on the shoreline and adverse environmental effects, including but not limited to effects on fish and wildlife and their habitats, and on scenic, agricultural, and other resources of the coastal zone. The plant shall not be located in a highly scenic area as defined in Policy 45.
- j. **Public Access Area Necessary.** The applicant must show that a substantial area will be established for permanent public use and enjoyment of the coast. This may include a substantial dedication to the public of land, which need not be adjacent to the plant site but shall be of the same quality and in the same general area.

**80. Remove Outmoded Power Plants from Beach Areas.** As alternative, less environmentally damaging technologies become widely available, so that some of the existing fossil fuel or nuclear generating facilities can be phased out and removed, priority shall be given to removal of those facilities that are in prime beach recreation areas.

## PETROLEUM DEVELOPMENT

### Findings

**California's Potentially Recoverable Petroleum Resources.** California has two general areas of petroleum production: onshore and State submerged lands offshore. In addition there are Federal submerged lands offshore beyond three miles. Estimates as to how much recoverable oil remains in these areas vary greatly, depending on assumptions as to:

- the size of known reservoirs, and of reservoirs thought

to exist because of favorable geological conditions but not yet verified;

- economic factors such as price of crude oil and cost of exploration and production;
- technological factors such as capability to recover petroleum at increased water depths, and improved secondary recovery methods;

- the percentage of the oil in California reservoirs ultimately recoverable (average recovery efficiency).

The figures below (in billions of barrels) give a representative range of estimates, each based on varying assumptions and methodologies, of California's remaining recoverable petroleum resource:

	Demonstrated Reserves	Undiscovered Recoverable Reserves	Estimated Total Recoverable Reserves
<b>Onshore</b>			
Calif. Resources Agency ('73)	5.1	6.8	11.9
U.S. Geological Survey ('75)	3.7	4.0 to 11.0	7.7 to 14.7
Natl. Petroleum Council ('73)	n.a.	5.1	(5.1 +)
<b>Offshore</b>			
Resources Agency	0.9	5.7 (to 1,200 ft.)	6.6
USGS	1.1	2.0 to 5.0 (to 636 ft.)	3.1 to 6.1
NPC	n.a.	12.4	(12.4 +)
Western Oil & Gas Assn. ('74)	n.a.	6.0 to 19.0 (no depth limit, So. Cal. only)	(6.0+ to 19.0+)
<b>TOTAL (range) 10.8+ to 33.7+</b>			

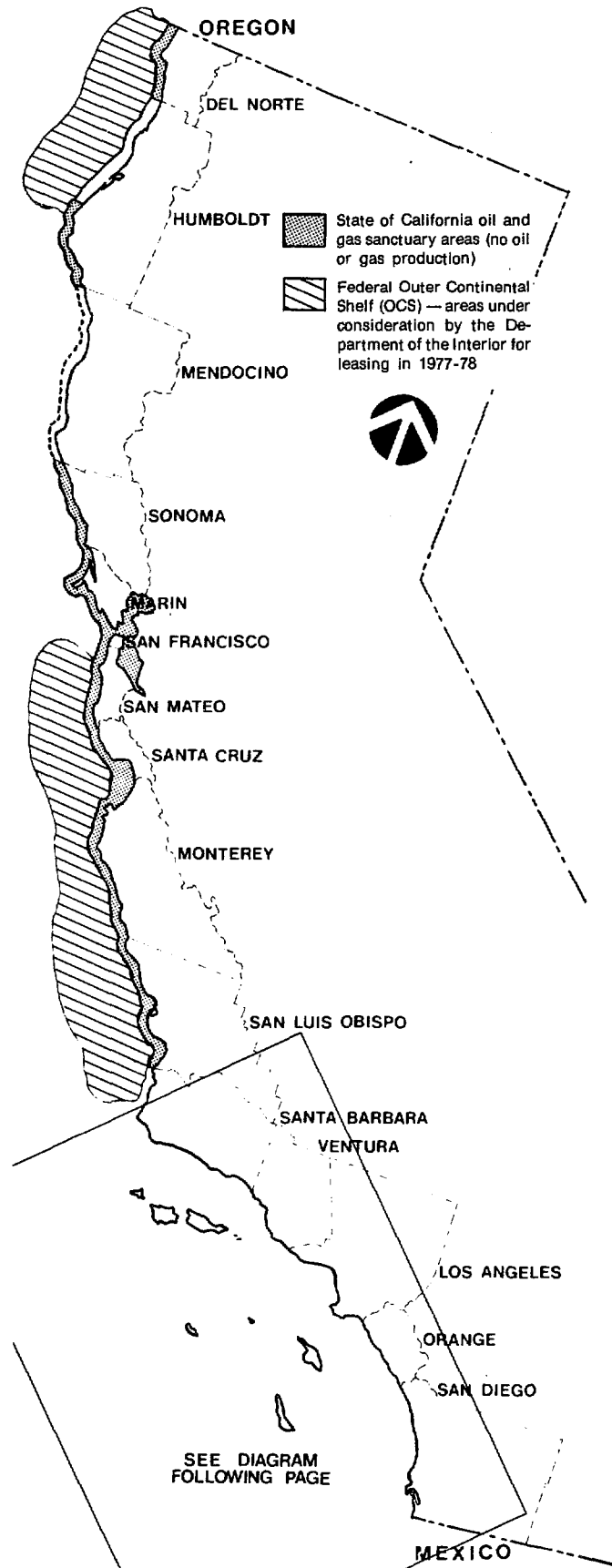
The degree of uncertainty in measuring the petroleum resource is evident. Estimates as to total recoverable reserves onshore and offshore range from about 11 billion barrels to about 35 billion barrels.

California's historical average recovery efficiency is only about 25 per cent of the total original oil-in-place. If increased oil prices and improved recovery technologies should allow an improved California recovery efficiency of up to 35 per cent, as some experts believe possible, amounts of oil substantially larger than those listed above will be possible both from demonstrated and yet undiscovered reservoirs.

**Offshore Areas Are Future Locations of Oil and Gas Production.** California's onshore petroleum resources are still very substantial, though the largest reservoirs have probably been discovered and substantially developed already, and most of the remaining undiscovered onshore resource may lie in smaller pools and at greater depths than the reservoirs that historically have accounted for much of California's oil production. Increased onshore production will depend on improved secondary and tertiary recovery techniques, and on rising oil prices that encourage increased exploration, deeper drilling, and secondary and tertiary recovery from discovered reservoirs. The offshore resources now offer the least expensive option for rapid production of large volumes of oil in California. Much of the California offshore resource is close to the shoreline, and therefore production facilities may be highly visible from the coast. Most of the oil off the shore of California is believed to lie beneath Federal submerged lands beyond the State's jurisdiction, as much as 65 per cent of it at water depths of 1,500 feet or more. The extent and cost of developing the Federal offshore resource cannot be completely known until after exploratory drilling has occurred.

**Current Offshore Production Comes from Both State and Federal Leased Areas.** Most of the present California offshore production comes from operations in the Santa Barbara Channel and offshore Wilmington and Huntington Beach reservoirs. There are substantial production operations on Federally leased tracts in the Dos Cuadros and Carpinteria fields. According to 1971 data, there are more than 1,800 actual producing wells on State-owned submerged lands

## Existing and Proposed Offshore Petroleum Leasing



SEE DIAGRAM FOLLOWING PAGE

between Point Conception and Huntington Beach. The State receives lease payments and royalties from any petroleum production on its submerged lands, which are managed by the State Lands Commission. The vast majority of the State's submerged lands have been made State petroleum resource sanctuaries in which no petroleum recovery activities are allowed. Laws creating additional petroleum sanctuaries have been proposed in the California Legislature and the U.S. Congress. Coastal cities (e.g., Long Beach) also hold contracts allowing them to receive a portion of net profits from offshore operations adjacent to their coastline; the State Lands Division maintains operating supervisory authority on the tracts.

#### Moratorium Placed on New Offshore Drilling in State Waters.

In 1969, following the blowout on a platform in Federal waters off Santa Barbara, the State Lands Commission placed a moratorium on new drilling offshore in State waters. In December 1973 the Commission voted to permit drilling of new wells from already-built platforms on existing leases, subject to approval on a lease-by-lease basis. In late 1974 the Commission granted approvals to several oil companies for such drilling, but in early 1975, the Commission, under the new administration, reversed these decisions pending further evaluation. In mid-1975 the Commission gave ARCO approval for 17 new wells from existing Platform Holly in the Santa Barbara Channel.

#### Federal Lease-Sale of Southern California OCS Areas Scheduled for Late 1975.

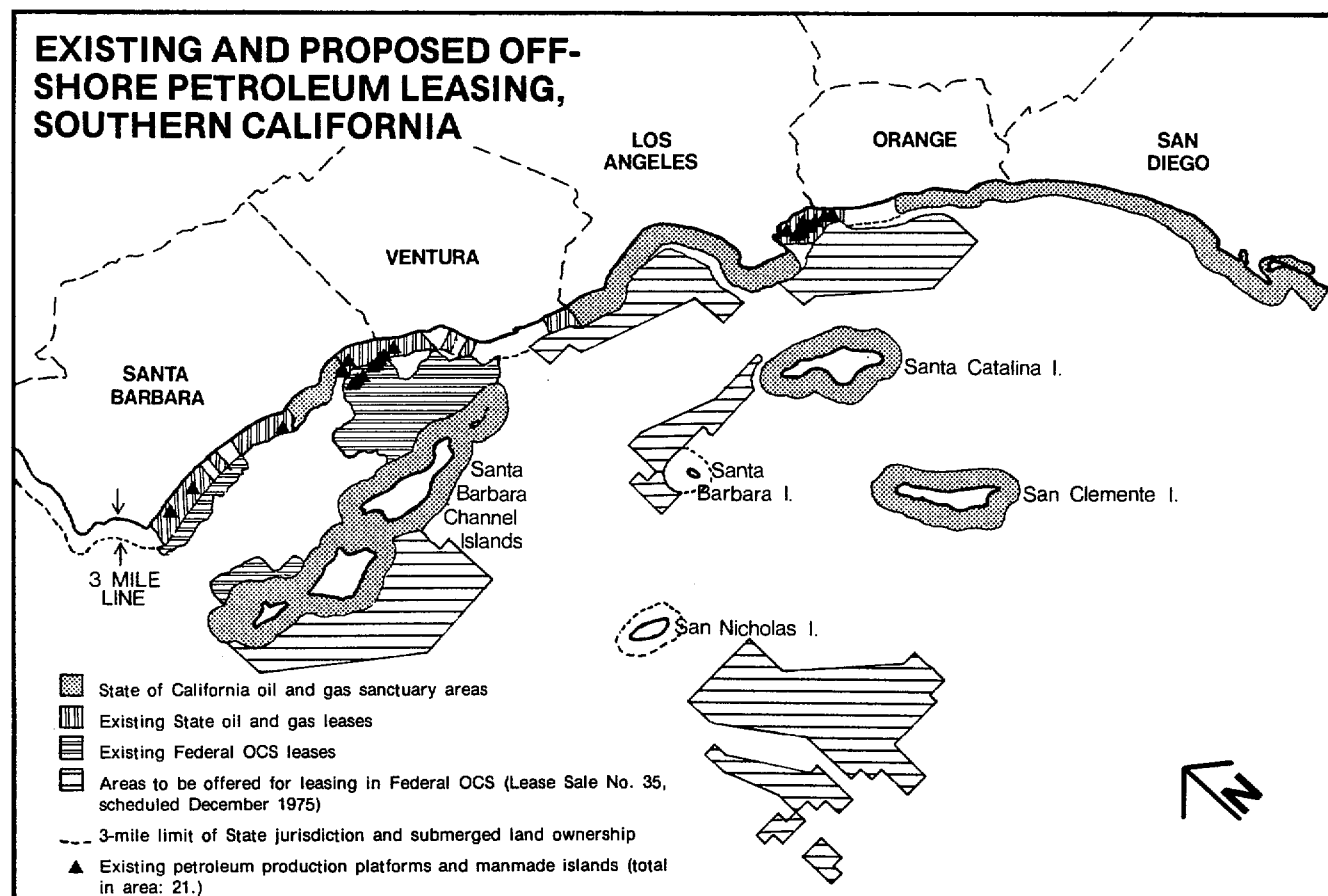
The Department of the Interior has called for lease proposals from oil companies for petroleum drilling in huge areas of the Outer Continental Shelf (OCS) off the shore of Los Angeles County but beyond the three-

mile State jurisdiction, for lease proposals for large areas off central and northern California at a later date, and for increased drilling on existing Federal leases in the Santa Barbara Channel. (If the Department of the Interior decided to proceed with its lease-sale of the southern California area, the sale was to occur in November 1975. The Governor and all concerned State agencies publicly requested that the lease sale be postponed until (1) California had completed its coastal planning effort, and (2) the Congress had taken final action on draft legislation effecting numerous essential reforms in the leasing procedures.)

#### New Proposals for Separating Exploration and Production Decisions.

Under present offshore leasing procedures, oil companies are granted the right to ultimately develop and produce offshore at the time a lease is granted, before any exploratory drilling has occurred, and when little is known about the characteristics of the possible offshore petroleum resource. Changes in these procedures, to separate the decision to allow exploratory drilling from the decision to allow development and production, would permit public agencies to make offshore production decisions and plan for offshore and onshore development on the basis of firmer knowledge as to the nature, extent, and location of the offshore resource. In addition to facilitating coastal planning and management, such procedural changes could, if properly designed,

- Reduce lead times for exploratory drilling;
- Reduce industry expenditures for bonus bidding, thereby freeing capital for other purposes;
- Allow for royalty schedules keyed to the characteristics





of a particular reservoir, thereby guaranteeing a fair return to government on the sale of a public resource; and

- Provide for appropriate compensation to any company not permitted to produce discovered oil and gas.

The changes discussed here are included in draft legislation before Congress to amend the Outer Continental Shelf Lands Act.

**California Has No Direct Control Over Federal Offshore Drilling.** Although these Federal activities may affect California's ocean water quality, marine life, and scenic values, could possibly deplete oil reservoirs extending under adjacent State submerged lands, and may directly lead to significant onshore developments of refineries, tanker terminals, storage tanks, and pipelines, California has no direct control over the Federal leasing plans at this time.

**Deficiencies in Federal Offshore Regulation and Supervision Are Being Remedied.** In the past, Federal regulations governing drilling and production procedures on Federal submerged lands, including requirements for depth of casing for blow out preventers and crew training and supervision, have been less stringent than California Division of Oil and Gas regulations governing operations on State submerged lands, where there have been no significant spills resulting from offshore oil and gas operations. Deficiencies in Federal regulations led directly to the well blowout in Federal waters off Santa Barbara in 1969. Federal regulations, procedures, and regulatory staff are now being greatly upgraded. It is expected that when revision of Federal regulations for the Pacific Coast area is completed, they will be in substantial conformance with those of the State.

**Petroleum Production Is Declining.** The leasing of lands, exploration, drilling, and production of petroleum is an expensive and risky process. Offshore exploration and production operations are generally much more expensive than onshore activities. Exploration for petroleum has generally decreased in California and nationwide over the past 20 years, and the success rate of finding and completing new petroleum fields has also steadily declined. Petroleum shortages, increased costs of extraction, and the need for technological research continually push the price of petroleum upward, which in turn should allow increased exploration and research toward technological advances. Over the first six months of 1974 exploratory and drilling activity increased. Production of petroleum in the Los Angeles basin peaked in 1969; the same is true for production in the coastal area of the basin. Exploratory drilling has been at historically low levels in both the onshore and offshore portions of the coastal area. Oil production and development drilling are both likely to continue to decline, although the increases in crude oil prices since 1973 may reduce the production decline rate below the approximately 10 per cent per year rate normally experienced by California oil wells. It is projected that the average rate of decline in California production shipped to Los Angeles/Long Beach area refineries will be four per cent per year to 1985.

**California Has a Low Recovery Rate.** The nationwide recovery efficiency of oil has steadily increased to approximately 31 per cent. California's 25 per cent recovery efficiency lags behind other major oil and gas producing regions because of:

- Generally high viscosity of much of California's oil, and the relatively low natural pressures in the underground reservoirs to help oil and gas recovery;

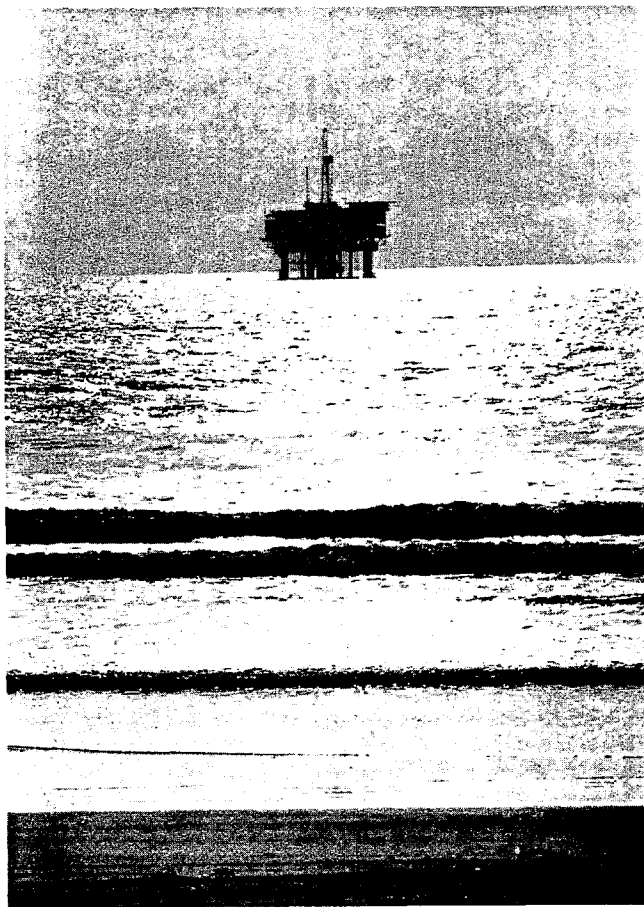
- Complex geologic formations holding the petroleum, with many reservoir problems; and
- To a lesser degree, lack of State regulation that might maximize ultimate recovery of oil and gas by regulating well completion and production practices.

**California Has Less Stringent Regulation over Petroleum Development.** Completion and production practices in many oil-producing states, including Alaska, Louisiana, Texas, and Wyoming, are regulated by a state agency (the Canadian province of Alberta also regulates petroleum development). California's laws do not provide for actual regulation of completion and production practices by the Division of Oil and Gas, and the California petroleum industry is allowed very wide discretion in production rates and such practices as simultaneous production from many pools, and optional ratios of gas/oil production, which in turn can lead to low recovery efficiencies. Some other states also have requirements for public disclosure of exploratory data within some period of time after filing with the state regulatory agency, to increase geologic investigations, stimulate exploration, promote a more competitive industry, and increase oil production; and the Department of the Interior has proposed regulations for OCS lease purchasers that would require public disclosure of geological and geophysical data following the purchase, to be made public within six months. California has no such disclosure requirement.

**Secondary and Tertiary Production Methods May Improve Petroleum Recovery.** Secondary and tertiary production methods offer the promise of increased efficiency in recovering oil and gas. California has benefited from secondary recovery innovations and their applications. About 15 per cent of California's present oil production comes from secondary recovery operations. In some reservoirs, very little primary production is possible, but secondary recovery may increase production after primary recovery by 10-50 per cent of the original oil in place, and tertiary recovery may offer the potential for a total recovery of 30-70 per cent. Substantial improvements in recovery efficiency will require improved technology, greater capital investments, higher well maintenance costs, and a higher price for refined products. With a greatly increased effort at secondary and tertiary methods average recovery efficiency for California may ultimately go as high as 35-40 per cent of original oil in place. Increased primary, secondary, and tertiary production from existing wells will entail substantially fewer new developments and land use conflicts than exploration and drilling for virgin reservoirs, onshore or offshore.

**Offshore Oil Structures Are Visually Prominent.** Offshore petroleum operations are usually conducted from manmade platforms above the water's surface. Exploratory drilling and some production drilling are primarily accomplished from mobile platforms, whereas most production of oil and gas is controlled from fixed platforms. There has been objection by some segments of the public to their use, based primarily on aesthetic grounds and concern for navigational safety. Because of their size and the elevation of coastal lands, these platforms can be seen from the coast even when located at great distances (12-20 miles) from the shoreline; they are particularly prominent when located near the coast. The existing designs apparently have large margin for improvement. Some members of the public note with approval the beneficial effects of platforms on sport fishing. The deepest platform production in the world presently is in 420 feet. The Exxon Company plans to construct and operate a fixed





Offshore oil platform, Huntington Beach

platform in 850 feet of water in the Santa Barbara Channel. At present there are 12 platforms off the shore of California. According to two environmental impact statements by the Department of the Interior on southern California and Santa Barbara Channel offshore petroleum activities, from 24 to 91 additional platforms may be required to exploit the California offshore resource.

#### Platforms and Islands Have Potential for Multiple Public Uses.

Artificial islands or platforms for offshore oil drilling facilities can provide public uses other than that of extracting oil. This would require some engineering adjustments within sound principles of industrial and marine safety on the platforms. Facilities for other uses that might be appropriate for some installations are scientific research and education labs; general public viewing areas for the observation of drilling operations; government installations (Coast Guard, weather service); facilities for aquaculture operations; and self-sustaining platform power equipment.

#### Submerged Systems Reduce Costs and Aesthetic Impacts But Increase Environmental Risks.

As of mid-1974 approximately 40 individual wells in shallow water on State lands in the Santa Barbara Channel area had been completed entirely underwater rather than from permanent platforms, by using subsea completion systems. Such systems still require support facilities on permanent platforms or onshore, but permit reduction in the number of platforms required for the development of the offshore resource. More sophisticated submerged production systems, which would permit clustering of numerous wells completed subsea around a single subsea center that would in turn pump the oil and

gas to facilities on platforms or onshore, would still further reduce the need for platforms. This would reduce both the aesthetic impacts of offshore development and the great expense of constructing platforms in deep waters. Actual experience with subsea completions and submerged production systems in deep water is still extremely limited. The difficulties involved in servicing or repairing such systems, or re-entering and plugging a well in the event of a blowout, mean increased environmental risk. Such facilities need to be tested extensively by industry under operational conditions, with full observation afforded to appropriate government agencies, before they are utilized in deep water offshore activities, and new regulations for such systems need to be developed.

**Offshore Drilling Is More Hazardous than Onshore.** Oil and gas leaks in offshore drilling or production are statistically rare, and steadily improving offshore drilling technology and operating procedures should still further reduce the incidence of occurrence. However, the programmatic Environmental Impact Statement prepared by the Bureau of Land Management for the nationwide accelerated Federal offshore leasing program noted that major spills associated with OCS development are statistically inevitable. The California offshore environment is relatively mild compared to the environment in offshore drilling areas elsewhere in the world, such as the North Sea and the Gulf of Alaska, and this somewhat reduces the environmental risks. Nevertheless, even in California offshore drilling generally involves greater environmental hazards than onshore drilling and involves some particular hazards:

- People are at a logistical disadvantage in working in the offshore environment, whether on the surface or underwater. Response time to crisis is slower than onshore, and the ability to maintain equipment and receive supplies is constrained.
- Offshore facilities are subjected to more danger, including storms, vessel collisions, seawater corrosion, low water temperature problems, water currents, seismic activity, and tsunami (seismic sea waves). Platforms can be designed and constructed to withstand known Pacific Coast phenomena.
- Leaks of oil and gas are more difficult to plug and oil is more quickly dispersed over a broad area.
- Most of the California offshore resource lies beneath submerged lands that are seismically highly unstable.
- Much of the offshore resource lies beneath submerged lands in water depths greater than current production technology can overcome.
- Submerged pipeline laying and maintenance may be complicated by seismic instability, extreme water depths, and the highly uneven bathymetry of the California outer continental shelf.

#### Basic Spill Cleanup Methods Help Minimize Environmental Damage.

If an oil spill should occur, the substances must be contained and recovered quickly to minimize environmental damage. Present containment methods utilize floating booms or pneumatic curtains which confine the oil. Recovery methods include use of absorbing materials (e.g., straw), suction devices, adhesive materials to remove the oil from seawater, and skimming mechanisms that remove oil from water. Oil may also be dispersed into the water column by the addition of chemicals, collected with gelling substances, forced to the sea floor by combining with sinking agents, or burned with combustion fluids. Use of sinking and burning

agents are generally forbidden by the State Department of Fish and Game.

**Spill Containment and Cleanup Methods Are Still Inadequate.**

Since 1969 larger amounts of money have been spent on improving oil spill prevention and containment programs and for cleanup equipment. Although the technology for containment and recovery of offshore oil spills has improved since the Santa Barbara spill, no system is likely to be completely effective. Using presently available equipment, oil containment and recovery can be reasonably effective in calm waters; but moderate to stormy conditions (winds of 20 or more knots and wave heights over five feet) will seriously hinder deployment of equipment, and will spread the spill regardless of containment attempts. Such conditions will also act to disperse and degrade the spill. Most oil spill contingency plans, including the National Oil Spill Contingency Plan implemented under the guidance of the Coast Guard, and the State of California Oil Spill Contingency Plan, have been tested under simulated conditions but have not yet been proven under actual crisis situation. (For further findings on oil spills and spill liability, as well as Coastal Plan policy, see Marine Environment chapter.)

**Oil Field Brines Can Be Disposed of by Reinjection into Oil Producing Zones.** Inadequately treated oil field brines released at sea are highly polluting. In many instances, these brines can practically be disposed of by reinjecting them under pressure into oil producing zones. In addition to protecting water quality and decreasing odors associated with oil production, this practice can frequently help increase oil recovery from already-developed reservoirs. The Water

Resources Control Board presently issues discharge requirements and the Division of Oil and Gas regulates any reinjection of brines.

**Offshore Production Will Encourage Onshore Development.**

Offshore petroleum production may encourage greater industrialization in certain areas of the coastal zone, will increase water and land transportation, and will necessitate construction of onshore and offshore oil and gas pipelines and separation, treatment, and storage facilities. Production off the shore of California could reduce the need for additional tanker terminal capacity along the coast to service oil imports, but may result in pressure for additional terminals for barges and tankers transporting petroleum from offshore wells.

**Impacts of Offshore Production Can Be Minimized by Consolidating Facilities.** With many companies involved in offshore petroleum development along broad areas of the coast, there is great potential for unnecessary duplication of offshore platforms, pipelines, and oil transport terminals, and onshore pipelines, separation and treatment facility sites, and storage tank areas. This could result in industrial sprawl that could change the fundamental character of lengthy sections of the coastline. Unitization (i.e., development of a single reservoir spanning several leases as a single unit by a single operator) results in increased production and fewer facilities offshore. Consolidation or sharing of transfer terminals and onshore facilities can concentrate necessary support activities within a few selected areas. Both unitization and consolidation are now practiced by the oil industry for economic reasons, but they also can offer environmental, aesthetic, and land use advantages.

Near Rincon Point, Ventura County



## Policies

**81. Basic Policy for Offshore Petroleum Development.** New offshore oil and gas development shall be permitted if:

- The Federal Government (for Federal Outer Continental Shelf lands) or the State Energy Commission, State Lands Commission, coastal agency, and other appropriate State agencies (for offshore State lands) have clearly identified development of the offshore petroleum resource as: (1) an integral and high-priority part of a comprehensive, balanced national energy conservation and development program that gives consideration to full-scale energy conservation programs, alternative energy source development, and short- and long-term resource availability; or (2) a necessary energy source for California and Petroleum Administration for Defense District V (PAD V, consisting of California, Arizona, Nevada, Oregon, Washington, Alaska, and Hawaii), considering energy conservation and alternative energy sources development measures and also considering the anticipated inflow to California and PAD V of oil and other forms of energy from all other sources (e.g., onshore oil production, Alaska North Slope oil and gas production, production in other regions of Alaska, and foreign oil and gas imports) and California's projected capacities to refine and store the anticipated inflow of oil from these sources; and
- The coastal agency has determined that the possible impacts on coastal marine, air, and onshore resources resulting from offshore petroleum development are acceptable under the policies set forth in the Coastal Plan.

**82. Recommendation to Separate Permit Review of Petroleum Exploration Phase and Development/Production Phase.** In order that, prior to a decision whether to grant private companies the right to develop and produce publicly owned offshore and onshore petroleum resources in the coastal zone, as much data as possible can be acquired about the resources, their value, and the offshore and onshore environmental impacts of production, it is recommended that the present system for leasing State lands for oil and gas production be changed to separate permit review of the exploration phase from the development/production phase, as follows:

- a. **Exploratory Phase.** Exploratory drilling on a lease shall proceed only after (1) the State Lands Commission has prepared an environ-

mental impact report (EIR) on the exploratory phase activities; (2) the coastal agency has issued a permit for the exploratory phase activities; and (3) the State Lands Commission has approved an exploration program.

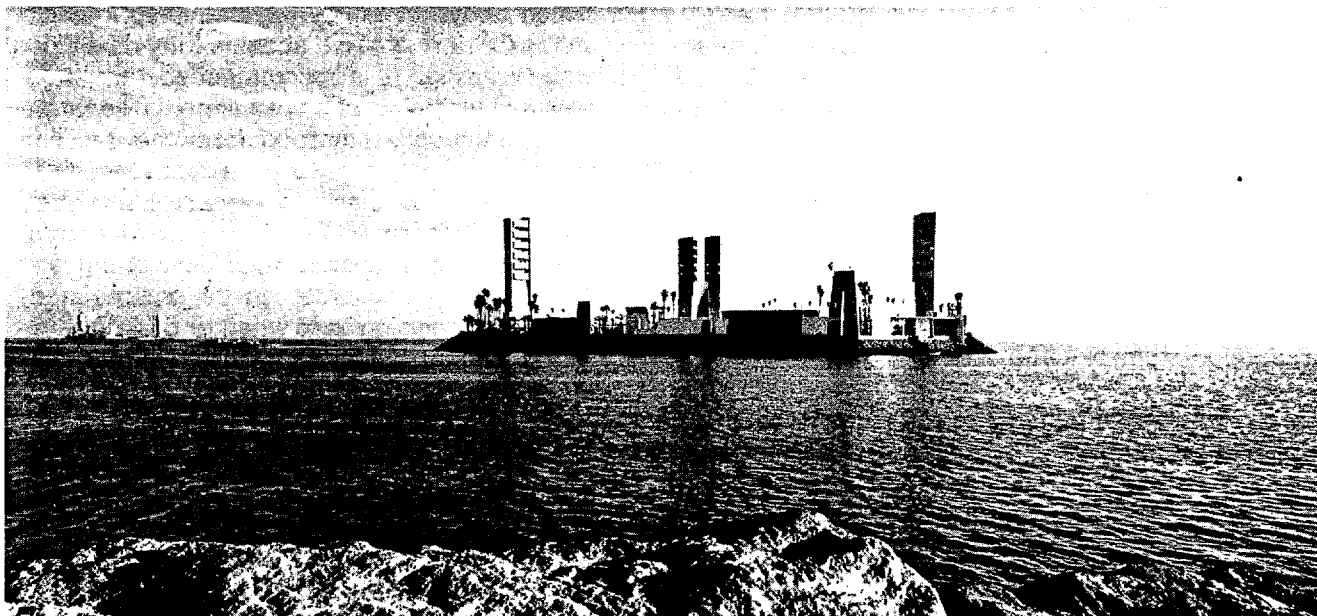
- b. **Development and Production Phase.** Development and production shall proceed only after (1) the State Lands Commission has prepared an EIR on all aspects of the development and production phase; (2) the Energy Commission has made a formal finding of need for the oil and gas resources discovered during exploration; (3) the coastal agency has reviewed the Energy Commission's finding of need, evaluated the environmental and land use planning aspects of the development and production phase, and has issued a permit; (4) the Energy Commission, if it is given statewide authority for siting offshore and onshore oil and gas production activities and facilities (as recommended in Policy 76), has issued its certification; and (5) the State Lands Commission has approved a development and production program. The EIR on the development and production phase shall include one-, five-, and 10-year plans for development, production, and all related offshore and onshore development, including platforms, submerged production systems, pipelines, separation, treatment, and storage facilities, refineries, harbor facilities, and tanker terminals anticipated. It shall also describe the economic, environmental, and aesthetic impact on the immediate area and the entire coastal zone of offshore and onshore facilities and operations, including all transportation and distribution facilities, and all measures to mitigate any environmental hazards of onshore and offshore activities, including alternatives to the anticipated facilities, programs for containment and recovery of potential oil spills, and improvements in marine traffic lanes, navigational equipment, and traffic control. To the extent such information is not provided in the EIR, the coastal agency shall require that it be submitted during the coastal permit review. Following submission of an application for development and production that includes complete and adequate information about the resource and all proposed activities and facilities, a decision shall be rendered within a defined period of time, to be set by the Legislature. It is recommended that the Legislature also give full consideration to possible alterations in other aspects of leasing that may be complementary to the proposed separation of the exploration and pro-

duction decisions, including alternative forms of bidding that could reduce the size of cash bonus bids; government sponsorship of or participation in exploration; and appropriate compensation for any company denied the right to produce discovered petroleum reserves.

- c. **If the Leasing System Is Not Changed.** If the present leasing system is not changed as recommended above, the EIR preparation and permit review process proposed above for the development and production phase shall be applied for all phases prior to granting permission for exploration.

**83. Criteria for Siting and Design of Petroleum Facilities.** On publicly or privately owned lands in the coastal zone, offshore and onshore drilling and production and related facilities shall be permitted where, in addition to the standards set forth in Policy 11, all of the following criteria are met. Compliance shall be required by the coastal agency as a condition of any required coastal permit, by the State Lands Commission as a condition of a lease on State-owned lands, and by the Division of Oil and Gas.

- a. **Use Best Well Sites.** Proposed well sites shall be the least environmentally hazardous and aesthetically disruptive sites feasible.
- b. **Assure Geologic Safety.** The geologic characteristics of proposed well sites shall be adequately evaluated and determined to be consistent with safe drilling and production.
- c. **Consolidate Drilling, Production, and Processing Sites.** Petroleum-related facilities and operations shall be consolidated (i.e., drilling, production, separation facilities, and support sites shall be unitized — developed and operated as a unit by a single company or group of companies for the benefit of all interested companies — or shall be shared) to the maximum extent feasible and legally permissible, unless such consolidation will have adverse environmental consequences and will not significantly reduce the number of producing wells, support facilities, or sites required to produce the reservoir economically and with minimal environmental impacts. Unitization negotiations shall be entered into by all operators covering one producing structure, and unitization of a new offshore field shall be carried out before commercial production is initiated. The unitization or consolidation requirements shall apply to (1) all types of offshore platforms; (2) submerged production systems; (3) onshore drilling and
- production facilities; (4) pipelines; (5) separation, treatment, and storage facilities; (6) transfer terminals related to petroleum production; (7) rights-of-way for transporting produced oil and gas; (8) equipment lay-down areas; and (9) port facilities to supply and service offshore platforms.
- d. **Use Submerged Systems Where Feasible and Environmentally Safe.** Subsea completion of wells and submerged production systems shall be used where environmentally safe, as demonstrated through adequate testing of equipment by industry, observed by the appropriate government agencies, and where technically and economically feasible. Where oil platforms or islands would have a substantial adverse environmental effect, including degradation of aesthetic values, no offshore drilling shall be permitted unless and until subsea completions or submerged production systems are demonstrated to be environmentally safe.
- e. **Platforms Preferred Over Islands; Minimize Impact of Platforms.** Where subsea drilling, completion, or production is found to be infeasible or environmentally unsafe, thereby making platforms or islands necessary to development of the resource, or where platforms are necessary to service subsea systems, the following criteria shall apply:
- Platforms shall be preferred over islands wherever safety considerations permit.
  - The number of offshore platforms shall be minimized by using each platform to drill as many wells, and/or to service as many subsea completion and production systems, as is technically and economically feasible.
  - The design of the platforms or islands shall be consistent with the general design criteria of the Coastal Plan and shall be subject to review and approval by the immediately landward local governments as well as by the coastal agency and State Lands Commission.
  - The waters surrounding new platforms or islands shall be open to sport fishing, diving, and boating, consistent with boating safety rules and practices.
  - If an island is determined to be needed, multi-purpose public interest uses, including small-boat landing piers and amenity public recreation areas, scientific and educational facilities (e.g., marine biology, oceanography and meteorology research stations), Coast Guard or U.S. Weather Service station, or aquaculture operations, shall be incorporated



Offshore oil island, Long Beach

into the project to the extent technically and economically feasible and consistent with public safety and other policies of the Coastal Plan.

- All water that contacts working surfaces of oil islands (including rain runoff) shall be contained and not allowed to drain in an untreated state into the ocean. Treatment shall be adequate to remove essentially all petroleum or unnatural amounts of chemical residues from the estimated maximum amounts of runoff water.
- Platforms or islands shall not be sited where a hazard to vessel traffic might result from the facility or related operations. Platforms shall not be permitted until a navigational safety system for coastal waters is in effect, in accordance with Policy 119.

**f. Minimize Impact of Petroleum Facilities**

**Onshore.** Drilling, production, and support facilities onshore, including separation and treatment plants, pipelines, transfer terminals, storage facilities, and equipment lay-down areas, shall be designed and located to minimize their adverse environmental impacts consistent with recovery of the resource. Where such onshore development would result in substantial impacts on the resources of the coastal zone, it shall be permitted only where there is a need for the project (as specified in Policy 81), where feasible alternatives would have a greater adverse environmental impact, and technology that would substantially reduce such impacts will not be available in the immediate future (e.g., new technology for carrying out subsea

production, oil and gas separation, storage, and natural gas liquefaction that might reduce the need for large onshore facilities).

**g. Prevent Subsidence; Reinject Oil Field Brines.**

Liquid and gas extraction projects that could cause or contribute to subsidence hazard (where there is a potential for significant present or future damage to property or environment) shall be prohibited; such existing operations shall be stopped, unless it is determined that there is no reasonable alternative. In such cases, the best available techniques for minimizing or preventing land subsidence shall be utilized. Lease or unit operators constructing new facilities shall reinject all oil field brines into oil producing zones unless injection into other subsurface zones will reduce environmental risks. Exceptions to reinjection will be granted only after approval by the appropriate agencies (including the Regional Water Quality Control Board) of detailed plans adequately providing for the elimination of petroleum odors and all potential fresh water or ocean water quality problems. Monitoring programs to record land surface and nearshore ocean floor movements shall be continued in all areas of subsidence problems and shall be initiated in locations of new large-scale fluid extraction on land or nearshore before operations begin. Such monitoring shall continue during and after liquid and gas extraction operations until surface conditions have stabilized. Costs of monitoring and mitigation programs shall be borne by liquid and gas extraction operations, overseen by an appropriate State agency.

**84. Recommendations for Increasing Oil Recovery Efficiency.** It is recommended that the Legislature (1) enact legislation to require the California Division of Oil and Gas and the State Lands Commission to regulate petroleum completion and production for individual wells, including setting maximum efficient rates of production, as analogous government agencies do in other major oil-producing states; and (2) adopt a resolution calling for the Federal Energy Administration to encourage primary, secondary, and tertiary production from existing wells.

**85. Recommendation for Disclosing Exploration and Production Data.** To improve the information base for State energy planning and to encourage exploratory activities, thereby encouraging possible petroleum discovery and production both onshore (where petroleum activities are environmentally preferable) and offshore, it is recommended that the Legislature require all original exploratory and production data from surveys or drilling of wells (including all logs, complete well histories, cores, drilling cutting, water samples, chemical analyses, pressure and temperature measurements, etc., but excluding proprietary interpretive information) on publicly or privately owned California lands to be submitted within 60 days after finishing to the Division of Oil and Gas, with appropriate assurances of strict confidentiality, and to be made public information one year after submittal, except that where such public disclosure would result in severe inequity to a well operator, year-to-year extensions of confidentiality may be granted by the Division of Oil and Gas. The Energy Commission and the State Lands Commission shall be allowed access to all such data on a confidential basis for the purposes of energy resource development planning.

**86. Recommendations for Avoiding Adverse Impacts of Federal OCS Petroleum Development.** It is recommended that the Governor, the Legislature, the California congressional delegation, and all concerned State agencies seek agreement from the Department of Interior and other Federal authorities that Federal Outer Continental Shelf (OCS) leases will be approved by the Department of Interior only if the following conditions are met:

- a. **Demonstration of Need.** Need for Federal OCS development off California shall be clearly determined as required in Policy 81.
- b. **Develop and Disclose Long-Term Plans.** One-, five-, and ten-year plans for petroleum production and all related development as described above in Policy 82, and their impacts on the California coast, shall be fully developed and disclosed. It is recommended that the present leasing system be changed to separate pre-production exploration from the decision to develop and produce on a lease, in order that data about the OCS resource, its value, and the offshore and onshore environmental and planning implications of developing and producing the resource can be accumulated prior to a decision as to whether private companies should be given the right to produce.
- c. **Provide for Public Review.** Opportunities for effective review of proposed OCS exploration and development plans shall be provided for the general public, interested units of State, regional, and local government, and other segments of the communities most immediately affected by OCS development activities.
- d. **Prevent Drainage of State Petroleum Sanctuaries.** The leases in question shall be sufficiently separated from the State petroleum sanctuaries to prevent drainage of oil and gas reservoirs that may lie partially on State submerged lands.
- e. **Establish Stringent Safety Standards.** Petroleum production under Federal jurisdiction off the California coast shall be made subject to safety standards at least as stringent as those for production on State-regulated offshore areas, including those contained in the California Division of Oil and Gas regulations and the manual of procedures of the State Lands Division and standards set forth in Coastal Plan policies. (See especially Policies 11, 83, and 119.)
- f. **Evaluate Unitization or Consolidation Possibilities.** The possibility of unitization or consolidation of all operations and facilities both offshore and onshore shall be fully evaluated and required where feasible, as described in Policy 83(c) for California operations.
- g. **Consider Use of Subsea Systems.** The possibility of use of submerged drilling, completion, and production systems that have been adequately tested to meet rigid environmental safety standards shall be fully evaluated as a partial alternative to platforms and required where technically and economically feasible, except where use of platforms would not cause any significant adverse aesthetic or other environmental impact.
- h. **Some OCS Revenues Should Go to States.** It is recommended that the Federal government provide funds to California and to other coastal

states prior to leasing, with the funds to be reimbursed either through a fee related to production volumes, or by making available a portion of its revenues from OCS lease sales or production royalties, or by granting funds from some other source, to assist the State and local governments in (1) planning for and overcoming or mitigating any adverse impact of this production (e.g., planning for transportation terminals, additional refineries, pipelines, separation, treatment, and storage facilities, and other support facilities in a way that minimizes environmental impacts); and (2) purchasing land for recreation or providing other amenities along the coast to help offset the impact of OCS development.

**i. Designate Sanctuaries in Certain Areas.**

Sites and tracts shall be designated as Federal petroleum resource sanctuaries (1) if they are unusually subject to the risk of oil spills due to geological seismic disturbance; or (2) if they offer unusual coastal aesthetic assets or the local economy is particularly dependent upon the protection of coastal aesthetic assets. Portions of the Santa Barbara Channel, Monterey Bay, Santa Monica Bay, and San Pedro Bay would appear to be candidates for sanctuary status.

**j. Compatibility with Coastal Plan Policies.**

Federal OCS development and related activities shall be compatible with all other policies set forth in the Coastal Plan.

## REFINERIES

### Findings

**Existing Refineries Are Near Cities and the Coast.** The 37 existing California oil refineries have a total capacity of 1.9 million barrels per day (b/d), which is expected to expand to 2.3 million (b/d) on completion of construction projects in 1976. Of these refineries, 15 are in the Los Angeles area (1,060,000 b/d), 6 in the San Francisco Bay area (585,000 b/d), 11 in Bakersfield (181,000 b/d), and the remaining 5 at scattered sites (74,000 b/d). These sites were chosen by the oil companies primarily to accommodate the large market areas (major cities), but also, in part, to be close to supplies of crude oil (both inland and waterborne). Most of the Los Angeles and San Francisco plants refine crude produced in-State as well as foreign crude brought in by tanker. No single State agency oversees the siting of refineries to maximize the efficient and safe location of facilities and minimize the environmental impacts.

**Three Refinery Expansions Are Proposed in the Coastal Zone.**

There are 11 projects for additional refinery capacity proposed in California. Only two of these are at sites in the coastal zone. The one major coastal zone site expansion — El Segundo — was approved by the Coastal Commission in June 1974. Another coastal project is a new 100,000 b/d refinery proposed near Carlsbad, set back one to two miles from the coast and designed primarily to provide low sulfur fuel oil to San Diego Gas and Electric's Encina power plant. A third project, a new 60,000 b/d refinery proposed in 1974 near Ventura, has apparently been postponed or dropped altogether.

**Refineries Emit Air Pollutants.** Petroleum refining produces emissions of particulates, sulfur oxides, nitrogen oxides, olefins (reactive hydrocarbons), aldehydes, ammonia,

hydrogen sulfide, and carbon monoxide. The type of emissions and emission levels from any particular refining operation will depend on the type of process units the refinery employs, among many other variables. Refinery air pollution emissions have been decreased in modern refineries by improved combustion technology, better operating procedures, and more conscientious control efforts, but they have not been eliminated.

**Existing Refineries Normally Do Not Exceed Ambient or Stationary Source Standards For Most Types of Pollutants.**

In administering the Federal Clean Air Act, the Environmental Protection Agency, State agencies (Air Resources Board) and local Air Pollution Control Districts (APCDs) control the allowable levels of some pollutants from single stationary sources (such as refineries) and also set standards for ambient air quality. In California, existing refineries generally do not exceed ambient or stationary source standards for emissions of sulfur oxides, nitrogen oxides, particulates, and carbon monoxides during normal operations. Under the Clean Air Act, major new stationary sources are to be prohibited if they would interfere with the attainment or maintenance of ambient air quality standards. It is possible that a new refinery might be capable of meeting the stationary source emission standards, but not be permitted because it would interfere with attainment of national ambient air standards or with other more rigorous air quality goals. (See also the Coastal Land Environment section on Air Quality regarding current air quality degradation standards.)

**Hydrocarbon Emissions Are of Special Concern.** Of particular concern are refinery hydrocarbon emissions. Reactive hydrocarbons combine with oxidants and sunlight in a photochemical reaction to produce photochemical oxidants. The Federal ambient hydrocarbon standards are a guideline to help achieve the ambient photochemical oxidant standard.



At least one major study, however, disputed by the oil industry, questions the technological ability of any refinery to meet the Federal standards for hydrocarbon emissions, and cites the need for further study of this critical issue. A 1975 informational report of the Air Resources Board staff concludes that hydrocarbon emissions from storage tanks represent 40-80 per cent of refinery hydrocarbon emissions, and that the floating roofs used on new tanks can very substantially reduce, but not eliminate, hydrocarbon emissions. Two recent studies by the National Academy of Sciences and the University of Southern California School of Medicine suggest a relationship between hydrocarbons emitted by certain refinery processes and a higher incidence of lung cancer mortality in populations exposed to the hydrocarbon in question. These studies are still incomplete, and the conclusions are admittedly extremely tentative. Refineries can, however, contribute to the deterioration of the overall quality of an air basin, which in turn can cause eye and lung irritation and aggravate respiratory and cardiac ailments. There are presently no comprehensive State or local regulations governing the residential use of land within specific distances from refineries.

**Refinery Pollution Impacts Elsewhere.** Refineries can also have adverse effects on agricultural activities and flora generally, and on property. (See Coastal Land Environment section on Air Quality.)

**Refinery Emissions May Be Offset by Reduced Emissions From Its Products.** While even the most modern refineries will produce some emissions, the production of "cleaner" petroleum products can result in a net reduction of air pollutant emissions in an area. This can occur when these "cleaner" products replace more highly polluting products presently in use. Maximum restorative benefit to an area that already has air quality problems can be achieved by siting the refinery outside of the problem air area, while utilizing the cleaner products within the area.

**California Lacks Adequate Desulfurization Refining Capacity.** One of the beneficial products that refineries can contribute is low sulfur fuel oil. Low sulfur fuels or natural gas must be burned in fossil fuel-powered electricity-generating power plants in order to meet air pollution emission standards. The demand for low sulfur fuels has increased greatly in the past two years with the decrease in availability of natural gas for use in power plants and industry. California presently lacks sufficient desulfurization refining capacity to meet this demand. California has therefore had to rely on importing large volumes of low sulfur crude oil and residual fuel oil, both of which are expensive and hard to obtain on the world market.

**Additional Desulfurization Capacity Offers Advantages.** If desulfurization capacity is constructed in California, refinery costs will be significantly increased. The import requirements for hard-to-get low sulfur crude oil, however, will decrease, and although the total volume of crude oil needed in California will not be reduced, the ability to utilize high sulfur fuel oil will provide greater supply flexibility and reduce crude costs. New desulfurization refining capacity is now under construction at the Standard Oil of California's Richmond and El Segundo refineries (175,000 b/d at each site); and the new Macario refinery proposed near Carlsbad would also have direct residual fuel oil desulfurization capability. California could benefit from additional refinery desulfurization capability.

**Refinery Siting Is a Complex Problem.** The degree to which states can allow air quality to be "degraded," even if it would still meet Federal ambient air quality standards, is presently the subject of intensive review by the California Air Resources Board. Further refinery capacity may be forced to move outside Air Quality Maintenance Areas if it interferes with attainment of air quality goals; but, on the other hand, refineries may not be permitted to significantly deteriorate the air quality of areas that do not violate air quality standards. Air quality regulations and their implementation are extremely controversial, and are presently in a state of flux.

**Physical Siting Criteria For Refineries.** Although small refineries can be built on tracts no larger than 200-300 acres in size, major new refineries typically require as much as 500-1,500 acres of land, including a surrounding landscaped buffer area. They require water supplies for cooling, and treatment facilities adequate to handle large waste volumes. They are large-scale, visually intrusive industrial developments. Even the most modern refineries may occasionally emit noise and odors, and they represent significant single sources of air pollutants.

**Remote Siting of Refineries Is Feasible With an Increase in Product Costs.** Primarily because refined products must be kept segregated during shipping and storage operations, the transportation of refined products is more costly than transportation of crude oil; therefore, proximity of refinery sites to market areas is a greater industry priority in siting decisions than proximity to tanker terminals. For example, Standard Oil of California would be willing to pipe crude oil a distance of 277 miles from its proposed (now postponed) Estero Bay superport to its Richmond refinery. Thus, refineries are not "coastal-dependent." Added transportation costs resulting from remote siting would presumably be passed on to consumers as product price increases. Other factors that must be addressed in remote siting considerations are the availability of properly zoned land, pipeline easements, water supply for cooling, and net energy and materials requirements. Siting of refineries away from market areas (in California, away from air quality maintenance areas) is feasible, and would help restore air quality in such areas; but it would raise the cost of refined products by as much as one to three cents per gallon.

**Refineries Have Impacts on Nearby Developments.** Refineries can encourage the nearby construction of petroleum-associated industries (petrochemical, plastics), which can lead to rapid industrial growth and increased population. In the short term, refineries enlarge the tax base of the host community; in the longer term, they very substantially increase municipal services requirements and may ultimately lead to a decline in residential and commercial property values. Many of these potential impacts can be mitigated by rigorous planning and new technology; but they cannot be eliminated.

**Safety Considerations in Refinery Siting.** Refineries have a large potential for fire and explosion. State and Federal regulations and the considerable efforts of refinery owners can minimize this potential. Optimal safety considerations require siting refineries away from seismic areas and separating them from surrounding populations by a buffer area.

**Water Quality and Solid Waste Disposal Affect Refinery Siting.** The EPA has identified a wide range of water pollutants which are emitted by oil refineries in either their process



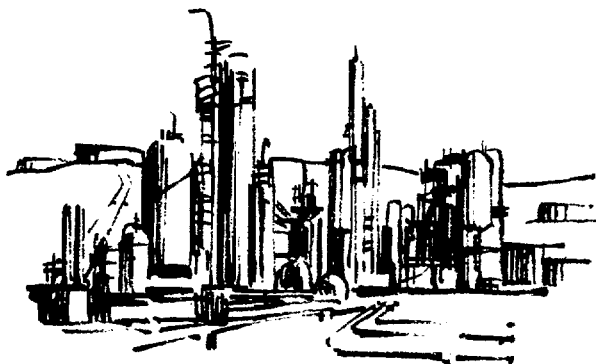
or cooling water streams. At presently used levels of treatment, additional oil refinery capacity discharging wastes to the marine environment would degrade the waters of the coastal zone to a degree not consistent with the objectives of the Coastal Act. Modern water treatment technologies can reduce these emissions, and once-through cooling systems, sometimes used to dilute pollutants to meet discharge standards, can be eliminated. Removal of pollutants from the air and water discharges from refinery systems will result in accumulations of solid or semi-solid waste products, for which proper disposal must be provided.

## Policies

**87. Coastal Agency Role in Refinery Siting.** The coastal agency shall have jurisdiction over the need, land use, and environmental aspects of new or expanded refineries proposed in the coastal zone, in accordance with Policy 76. For the purposes of Policy 88(a) below, the Energy Commission shall determine the availability of preferred alternative coastal sites. The coastal agency shall participate with the Energy Commission and all other concerned State, local, and Federal agencies in statewide refinery siting policy development, as proposed in Policy 76.

**88. Criteria for Siting and Design of Coastal Refineries.** New refineries or expansions of existing refineries shall be permitted in the coastal zone when the following criteria and standards can be met.

a. **Need and Best Location for Facilities.** The applicant shall demonstrate, and the Energy



Commission shall have found, that there is a public need for such facilities, determined in coordination with determinations of need for offshore petroleum production in Policy 81 and tanker terminals in Policy 89. The coastal agency, in consultation with the Energy Commission and other concerned State and local agencies, shall consider the need, land use, and environmental aspects of the proposed project and determine that there is no identified, reasonable alternative inland or coastal location where siting would result in less environmental degradation.

b. **Design and Site Facilities to Minimize Adverse Impacts.** The applicant shall demonstrate that the project is designed and sited to minimize any adverse environmental effects, including provision of a sufficient buffer zone to minimize impacts on surrounding property. In no event shall a new oil refinery be permitted in a highly scenic area (as defined in Policy 45), on any of the Channel Islands, or in or near environmentally sensitive areas.

c. **No Degradation of Air Quality.** In addition to meeting all applicable standards set forth in Policy 43, new or expanded refineries shall be permitted in Air Quality Maintenance Areas and in areas where such coastal resources as health resorts or agricultural lands would be adversely affected only if the negative impacts of the project upon air quality are more than fully offset by reductions in gaseous emissions in the area by the users of the fuels or, in the case of an expansion at an existing site, total site emission levels, and site levels for each emission type for which national or State ambient air quality standards have been established (i.e., hydrocarbons, sulfur dioxide, oxides of nitrogen, carbon monoxide, and particulates), do not increase.

d. **Site and Design Refineries to Protect Public Safety.** Refineries shall be sited and designed to minimize exposure of surrounding property and population to the consequences of possible large fires and explosions, and shall be sited away from areas of substantial seismic risk.

e. **Encourage Construction of Desulfurization and Methanol Capacity.** Applicants for additional refinery capacity in California (but not necessarily in the coastal zone) shall maximize the addition of desulfurization capacity designed to produce low-sulfur fuels, unless the Energy Commission determines some greater public need outweighs the advantages of such a requirement. Consideration shall be also given

to providing for the production and storage of methanol and synthetic fuels.

- f. **Minimize Use of Once-Through Cooling.** New or expanded refineries shall minimize the need for once-through cooling by using air-cooling to the maximum extent feasible and by using treated waste waters from in-plant processes for cooling tower makeup. Construction of new

cooling facilities to replace once-through facilities and new water treatment plants designed to reduce the discharge of pollutants into the marine environment shall be permitted when consistent with other Coastal Plan policies. (Once-through systems in new or expanded refineries are permitted only according to the standards set by Policy 10.)

## TANKER TERMINALS

### Findings

**Petroleum Imports and Tanker Size Have Grown.** As California has increased its importation of crude oil and refined products over the past 20 years, tanker size and numbers have increased to handle the expanded import volume. The search for improved efficiencies and economies in transporting large volumes of crude oil has led to the development of supertankers (tankers over 100,000 dead-weight tons) and Very Large Crude Carriers (VLCCs, i.e., tankers larger than 200,000 dwt). Supertankers now use some of the State's tanker facilities, but the deep drafts of Very Large Crude Carriers cannot be accommodated in California tanker terminals. The need for more tankers and any new tanker facilities will be based on future import levels to meet the State's refinery needs and utility company imports.

**Several Variables Affect Tanker Import Levels.** Variables that will affect tanker import levels are:

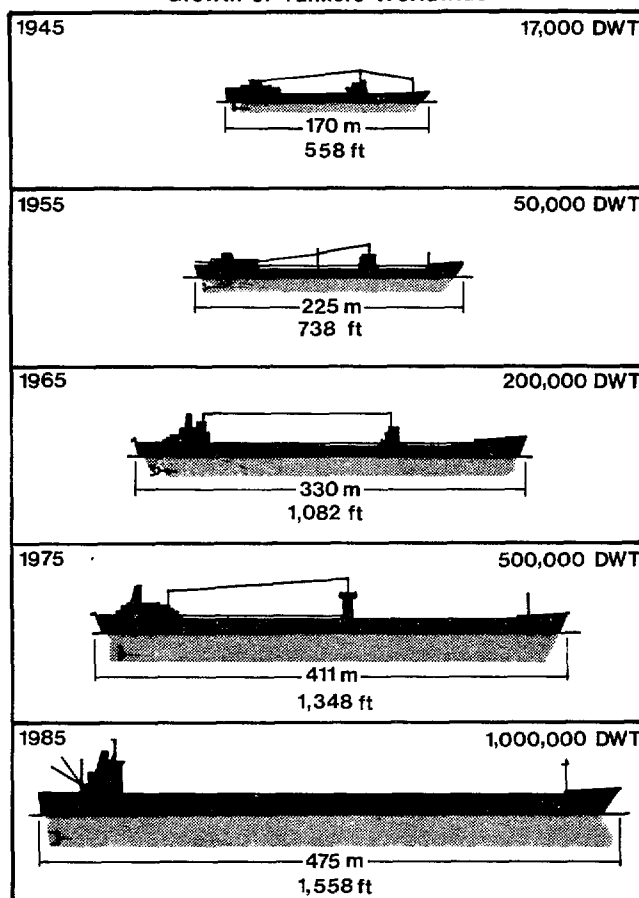
- General economic conditions in California and the West;
- California's in-State petroleum production;
- Possible reduced petroleum demand through energy conservation and increased prices;
- Possible reduced petroleum demand through development of alternative energy sources;
- Energy export and import levels to and from other states (i.e., oil and gas to the Midwest, electricity from Four Corners, natural gas from Alaska, etc.); and
- Federal energy policies affecting Outer Continental Shelf (OCS) production, production at the Elk Hills (California) and "Pet 4" (Alaska) Naval Petroleum Reserves, import levels, interstate shipment of oil, and siting of tanker terminals.

All of these factors will combine to determine the need for importation of petroleum by tankers.

**California Is a Regional Petroleum Supplier.** At present California plays a regional role in receiving and supplying oil and petroleum products to other states in the Petroleum Administration for Defense District Five (PAD V, consisting of California, Arizona, Nevada, Oregon, Washington, Alaska,

and Hawaii). In recent years, California's role in supplying these states has declined, as the Pacific Northwest and Hawaii have developed their own terminal and refinery capacities. Some experts have forecast that by 1985 exports from California to other PAD V states will cease entirely, and that California's "regional role" will be, in effect to supply its own very large demand. It is more likely, however, that California will continue to account for some relatively

Growth of Tankers Worldwide



small amounts of petroleum exported to other states in the region, and planning for tanker terminals should reflect this fact.

**California's National Role in Supplying Energy Is Not Defined.**

In recent months, at least two major oil companies have begun to consider plans to ship Alaskan oil to California terminals for subsequent pipeline transshipment to the Midwest. Despite oil industry assertions that planning for tanker terminals in California should accept this State's national role in supplying energy, such a possible role has not yet been clearly defined by any Federal agency as a part of any comprehensive national program for energy conservation and development.

**Most Alaskan Oil to Come in Tankers of 165,000 DWT or Less.**

It appears that California's increased petroleum import needs may be met by Alaskan crude oil when the Alyeska pipeline begins operation in late 1977 or 1978. Because export of Alaskan crude oil to Japan is prohibited by the Alaskan Pipeline Act unless mandated by presidential proclamation, the Alaskan North Slope crude is expected to be transported by ship to the Pacific Northwest and California. Most oil companies report that the vast majority of the 1.2 to 2.0 million barrels per day volume of Alaskan oil expected to come to the West Coast will be transported in tankers under about 165,000 dwt.

**Foreign Low-Sulfur Crude Oil May Continue to Come in Tankers under 150,000 DWT.** Low-sulfur crude oil will probably continue to be imported from foreign sources, but this oil can be transported to California in conventional draft tankers of about 150,000 dwt or less, rather than VLCCs, with only minimal increase in consumer prices. Increases in California's direct desulfurization refining capacity will reduce the amount of low-sulfur crude oil imported.

**Existing California Tanker Terminals Are Below 150,000 DWT Capacity.** No existing California tanker terminal can accommodate conventional tankers larger than 138,000 dwt (Port of Long Beach), although, with only minor dredging and expansion of onshore pipelines and storage tank facilities, this limit could be increased to about 150,000 dwt for ships of conventional draft. With some modifications to existing facilities the Port of Long Beach could berth three tankers of up to 200,000 dwt of the wide beam configuration now being proposed. The Port of Los Angeles facilities can accommodate loaded tankers of about 90,000 dwt. And El Segundo offshore buoy systems can serve tankers of about 130,000 dwt. San Francisco Bay facilities at Richmond allow berthing of light-loaded tankers of 130,000 dwt. Although under unusual conditions a fully loaded 104,000 dwt tanker was able to cross the sand bar outside the Golden Gate, the bar normally prohibits the entry of any fully loaded tankers larger than 85,000 dwt.

**Tanker Terminals Can Be Sited Away from Refineries and Market Areas.** Tanker terminals have usually been sited in close proximity to refineries and power plants, which in turn have been located near product markets (metropolitan areas). Extensive pipeline systems are capable of reducing the need for this traditional clustering, however, allowing tanker terminals to be sited away from refineries, power plants, and product markets. For example, Standard Oil of California's proposed (now indefinitely postponed) Estero Bay terminal would have required about 280 miles of crude oil pipeline.

**Tanker Facilities Pose Potential Environmental Impacts.** Harbor or nearshore tanker facilities may require dredging

and filling for both the berthing area and land storage tanks, with potential for significant adverse environmental effects on marine life and tidal action (as discussed in the Marine Environment chapter).

**Tanker Terminals Encourage Related Development.** Tanker terminals and related onshore facilities do not themselves require large amounts of land except for tank farms, but they can encourage related development that need not be situated near the coast. The presence of major refining capacity frequently leads in turn to the development of associated secondary industries (e.g., petrochemical, plastics) in the same immediate area. Tanker terminals that encourage refinery construction nearby onshore could, therefore, promote the use of valuable coastal land for purposes accomplished just as well at inland sites, could contribute indirectly to increases in air pollution in coastal areas, and could also induce growth of related commercial and residential areas. Tanker terminal siting strategies can be effectively coordinated with broad regional or State planning for growth.

**Several Deepwater Terminals Have Been Proposed For California.** Oil companies and utilities must by economic necessity look beyond the immediate future when investing millions of dollars for future tanker terminals. To reduce transportation costs, one oil company proposes to use VLCCs ranging from 200,000 to 400,000 dwt (water drafts of 60-90 feet) to ship crude oil to California from the Middle East and Indonesia, and to build a California terminal facility that could accommodate tankers of these dimensions. However, unless foreign imports into California from the Middle East and Indonesia, or from places similarly distant, are very high, the frequency of use of a California deepwater terminal might be insufficient to justify the cost of terminal construction and the commitment of coastal resources to such a project. If such imports totaled 170,000 b/d, for example (as some experts have estimated), all brought in supertankers of about 200,000 dwt, a supertanker terminal facility would be in use only about one-sixth of the time.

**Oil Companies and Utilities Have Proposed New or Expanded Tanker Facilities.** To meet their projected needs for increased volumes of oil from outside California, oil companies and utilities have proposed new or expanded tanker facilities at Estero Bay (up to 400,000 dwt, Standard Oil of California; now indefinitely postponed), Moss Landing and Morro Bay (up to 130,000 dwt, Pacific Gas & Electric), and Long Beach or Los Angeles Harbor (less than 200,000 dwt, Standard Oil of Ohio), with further proposals likely to follow. Standard Oil of Ohio has proposed to ship Alaskan crude oil to the Los Angeles area in 165,000 dwt tankers for subsequent transshipment to the Midwest through a yet-to-be-approved-or-constructed pipeline. ARCO is considering a similar plan, probably using tankers of up to 150,000 dwt. Presumably such transshipment proposals would be economically feasible only if there were a surplus of crude oil available in California.

**No State Agency Coordinates Tanker Terminal Siting.** At present no single State agency oversees and coordinates the siting of tanker terminals to maximize efficient siting and minimize environmental risks and impacts.

**Multi-Company Sharing of Facilities Reduces the Need for More Facilities.** Most existing tanker terminals are owned and operated by single companies, or by port jurisdictions that lease specific berths to single companies. Multi-company sharing of tanker facilities would reduce the need for new or expanded tanker terminals. Terminal efficiency (i.e., maximum volume with minimum waiting time and high use

of facilities) increases with the number of berths available to any ship. Thus, with multi-company use, more volume could be handled by existing facilities, reducing the need for new or expanded facilities for deep draft vessels. Such "common carrier" practices are being analyzed by the anti-trust division of the Justice Department.

**Existing Tanker Terminals Are Under-Utilized.** Existing tanker facilities are under-utilized, largely because many of them are operated by single companies which do not fill berth capacity. If terminal facilities were utilized to their maximum extent, it appears that California's petroleum needs could be accommodated in existing facilities for some time, given the following conditions:

- California receives and refines the vast majority of Alaskan crude oil production;
- California's demand for petroleum does not exceed projected levels and California does not become a major exporter of crude oil to states outside of the region;
- Tanker size does not exceed about 150,000 dwt of conventional draft (or slightly larger, wide-beam vessels of comparable draft), with some existing facilities expanding to accommodate such tankers where only minor dredging is required; and
- Minor expansion of onshore pipelines and storage facilities occurs.

A representative of the U.S. Army Corps of Engineers stated in late 1974: "We agree that existing tanker facilities can accommodate Alaskan import volumes not only until at least 1985, but possibly to the year 2000. However, this alternative, where feasible, may not be the most economical. The need for deepwater terminals is a relative need and not an absolute need. The consequences of deferring offshore deepwater terminals could mean the loss of economic advantages and greater environmental hazard due to increased traffic at inshore harbors."

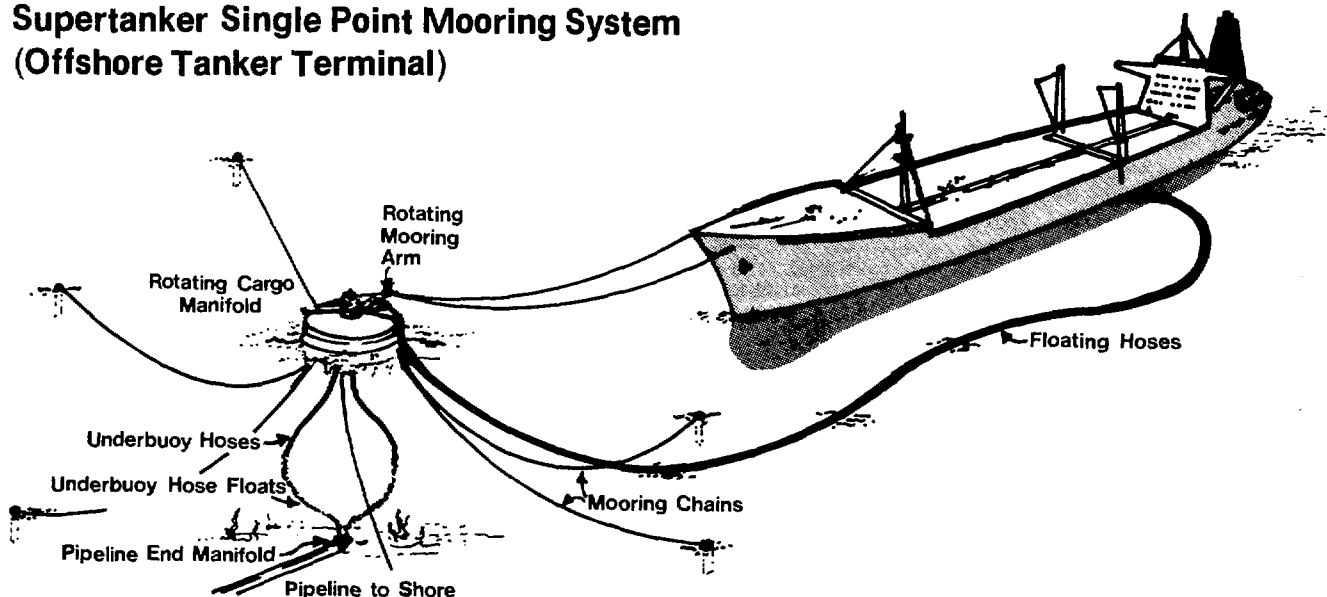
#### Siting Considerations for Offshore Tanker Terminals.

California may eventually require expanded tanker terminal capacity to accommodate increased crude oil imports. The

environmental siting considerations for new or expanded facilities offshore are as follows:

- **Offshore versus Nearshore Areas.** New offshore areas with naturally deep water would entail only minimal dredging for pipelines, could locate the tankers away from areas of critical biological concern in nearshore areas, and could be sited away from busy vessel traffic lanes so as to minimize the risks of oil spills. Offshore facilities, however, would be subject to greater wind and wave action and spills that occur would be more difficult to contain. New or expanded tanker facilities in nearshore areas would most likely involve more environmentally damaging dredging and filling, and pose greater risks of oil spills that could affect vulnerable marine life. Harbors, however, are sheltered from wind and waves and can provide better spill containment capability.
- **Physical Constraints to Siting.** Tanker terminals must be sited with careful attention to meteorological (wind, fog, storms), hydrographic (waves, tides, tsunami), and oceanographic (bathymetric and distance to shore) factors that will dictate the optimal sites available to serve onshore areas.
- **Offshore Offloading.** VLCCs can be unloaded into smaller "shuttle" tankers while remaining in deepwater areas offshore. This practice has already been used off California, but involves increased congestion of smaller tankers near onshore facilities and appears to present greater risks of operational oil spills. When done under benign weather conditions, this practice can be carried out with little additional risk; however, the lack of experience with this practice precludes any complete risk analysis based on operational experience.
- **Monobuoys versus Conventional Buoy System.** Tanker facilities used throughout the world include piers, floating barges, platforms, island, and offshore conventional buoy (multi-point) mooring systems and monobuoys (single point mooring systems). Offshore sites in California employ pier berths or conventional buoy systems (usually five to seven buoys) which have thus far proven satisfactory for tankers up to 130,000 dwt. Recent proposals have advocated using monobuoys. Monobuoys allow a tanker to freely

### Supertanker Single Point Mooring System (Offshore Tanker Terminal)



swing around the berthing facility and appear to involve fewer environmental hazards than conventional buoy systems, which hold tankers rigid, and thus fully exposed to wind, wave, and current action. Maintenance of hose lines is particularly important in any offshore system that is exposed to wind and wave action.

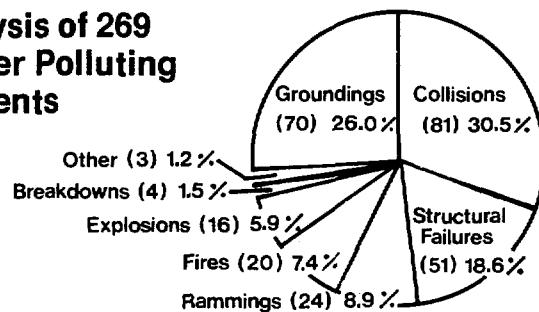
**Supertankers Offer Several Economic Advantages.** Supertankers reduce the transportation costs of crude oil roughly in proportion to the size of the ship and distance traveled. While the transportation costs to shippers may be substantially reduced through use of larger vessels (e.g., tankers of between 70,000 dwt, which carry about 450,000 barrels of crude oil, and 200,000 dwt, which carry about 1.5 million barrels of crude oil), particularly over very great distances such as between the Middle East and California, the price difference accruing to consumers is relatively much less significant (e.g., less than one cent per gallon of gasoline from Alaskan oil, and about two and a half cents per gallon of gasoline from Middle Eastern crude, with no guarantee that industry's cost savings will be passed on to consumers). Some of the savings from use of larger vessels results from reduced tanker fuel consumption per unit of oil transported.

**Oil Spill Severity Is Related to Tanker Size.** A major study for the Army Corps of Engineers concludes that "although larger tankers are, per unit of oil transported, lesser sources of pollution through casualties, it is also undoubtedly true that the potential for an incident of higher severity exists." Regarding terminal operations involving supertankers, the same report concludes that "although the frequency of terminal spills may decrease with the use of larger vessels, the severity will likely increase in proportion and the total net discharge will not be significantly changed." Definitive comparisons of tanker size to operational safety may be premature, however, until more data becomes available. Other factors directly related to frequency and size of oil spill are vessel age, design, single or double hull construction, and degree of compartmentalization; prevailing weather conditions, and regulations governing operations in severe weather; and degree of a crew's operational experience in particular waters in harbors, among other human factors. (See findings in Petroleum Development and Oil and Toxic Spills sections for conclusions regarding oil spill containment, cleanup, spill liability, and damage potential.)

**Tanker Design Criteria Need Upgrading.** Tanker design, equipment, and operational procedures have steadily improved over the past 20 years, allowing larger volumes of petroleum to be shipped, and reducing the risks of oil spills. Such improvement is due in substantial part to the work of classification societies, international conventions, and the U.S. Coast Guard, which set minimum standards for structural strength, machinery design, maximum load, and equipment requirements, and which promulgate regulations that address pollution control, vessel safety, and vessel design and operation, and navigation. Such regulation notwithstanding, oil spills have consistently occurred that might have been prevented or mitigated had the vessels had the safest tanker design features now available.

**Several Improved Design Features and Operational Procedures Are Now Available.** Such features are still not fully implemented in all new tankers, primarily because industry questions whether they are "cost effective." They include: design features that aid "load-on-top" procedures, which allow oil and water to be effectively separated and reduce the flushing of oil into the ocean; segregated ballast con-

## Analysis of 269 Tanker Polluting Incidents



figurations that provide separate oil tanks and water ballast tanks; twin propellers and twin rudders for added maneuverability and operational backup; and auxiliary power systems (e.g., boiler or diesels) to propel the vessel if the primary system fails. Development by the U.S. Coast Guard of minimum performance standards for maneuverability and stopping capability would further encourage safe tanker design. Coast Guard studies indicate that double bottoms reduce the overall risk of spills. Standard Oil of California is building tankers with double bottoms for use in the coastal trade. Improvements in navigational safety systems are feasible using radar and other monitoring techniques to determine vessel positions and warn vessels against potential collisions.

## Policies

**89. Basic Policy for Tanker Terminal Planning.** Planning for tanker terminal facilities in California shall be sensitive to State and national energy needs. As soon as possible, the Federal government, the State Energy Commission, and other concerned State agencies shall clearly define (1) the nation's energy needs and supply and distribution policies; and (2) California's role in a comprehensive national energy conservation and development program. Until such time, planning shall proceed, as before, on the basis of the petroleum needs of the Petroleum Administration for Defense District V (PAD V, consisting of California, Arizona, Nevada, Oregon, Washington, Alaska, and Hawaii). Federal, State, and private industry energy planners shall give serious consideration to providing for crude oil needs in other regions of the United States by encouraging oil companies to exchange volumes of crude rather than by shipping Alaskan crude by transcontinental pipeline through California (e.g., exchange Alaskan crude volumes needed in the Midwest for Middle Eastern oil otherwise destined for California markets, so that Alaskan oil could remain in PAD V, and Middle Eastern oil could be shipped over shorter routes to East Coast and Gulf ports to service the Midwest through existing pipelines.) If national policy determines that petroleum must

be moved through California to the Midwest or East, tanker terminals and associated development shall be approved if they can be designed, built, and operated in accordance with all applicable Coastal Plan policies.

**90. Coastal Agency Role in Tanker Terminal Siting.**

As proposed in Policy 76, the coastal agency shall (1) have jurisdiction over the need, land use, and environmental aspects of new or expanded tanker terminals in the coastal resource management area, (2) determine the availability of preferred alternative coastal sites, and (3) participate with the Energy Commission and all other concerned local, State, and Federal agencies in statewide tanker terminal development.

**91. Maximize Use of Existing Tanker Facilities.**

Existing tanker facilities shall be utilized at maximum feasible berth occupancy, and multi-company use of existing facilities shall be encouraged, except where such policies would result in increased tanker operations and associated onshore development incompatible with land use and environmental goals for the area.

**92. Criteria For New or Enlarged Tanker Terminals.**

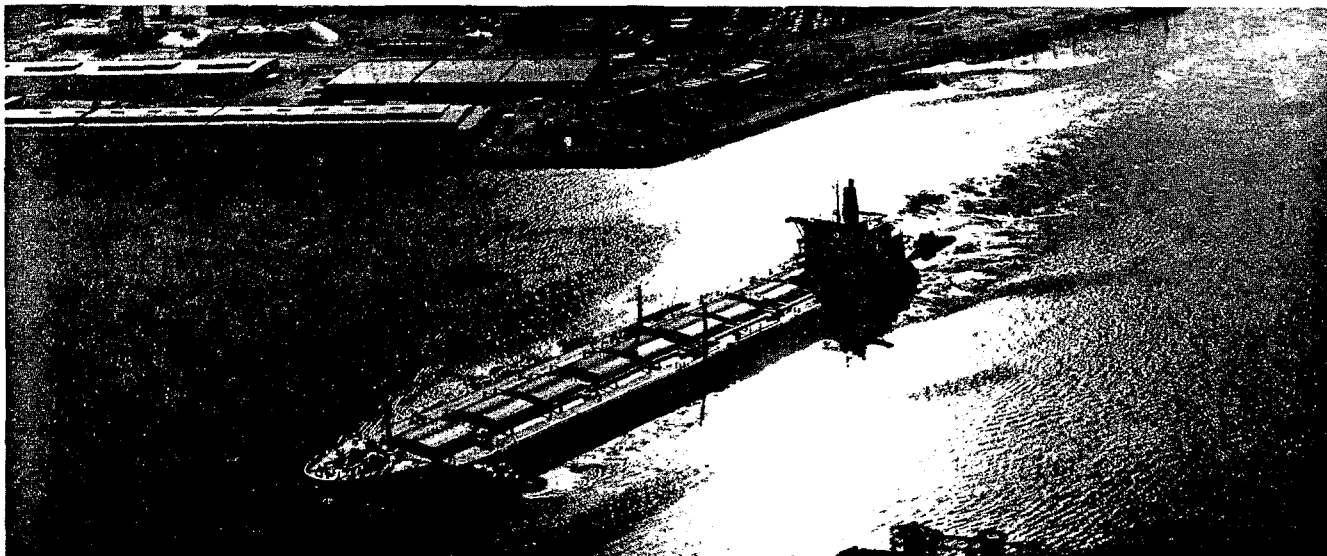
New tanker terminals or expansions in an existing port area shall be permitted when (1) there is a need for new capacity that cannot be met with less risk or adverse environmental impacts through more effective use of existing terminal sites and facilities; (2) the facility is intended to accommodate tankers no larger than about 150,000 dwt of conventional design, or larger capacity, wide-beam tankers of comparable draft;

(3) the proposed project will minimize the total volume of oil spilled in normal operations and accidents; (4) the location, design, and construction of the new capacity minimize the risks of other adverse effects to the environment, including the risk of collision from movement of other vessels; (5) the terminal will have ready access to the finest state-of-the-art containment and recovery equipment for oil spills; (6) the terminal will be operated as a multi-company use facility; (7) where operationally required, the terminal will have onshore deballasting facilities to receive any fouled ballast water from tankers; and (8) the onshore expansion of pipelines and of storage and pumping facilities associated with the new capacity is compatible with other Coastal Plan policies (particularly Policy 43) and with local land use and environmental goals. In addition to the foregoing criteria, new tanker terminals outside of existing port areas, or terminals to accommodate vessels larger than about 150,000 dwt of conventional design or tankers of comparable draft, shall be sited in deepwater areas (greater than 80 feet) sufficiently far offshore and so situated as to avoid risks to environmentally sensitive areas and shall use monobuoy offloading systems unless an alternative type of system can be shown preferable for a specific site.

**93. Recommendations for Improving and Enforcing Tanker Technology and Operating Procedures.**

It is recommended that the Legislature petition Congress and the U.S. Coast Guard to (1) strictly enforce load-on-top design and operation on all petroleum tankers entering U.S. waters; (2) require that all tankers carrying crude oil and

Oil tanker Marcona Voyager arriving at Long Beach Harbor



refined products to U.S. ports have segregated ballast tanks; double bottoms; twin propellers and rudders, unless it can be demonstrated that such design features do not add significantly to operational safety or that a substitutable design feature provides better maneuverability and operational back-up; auxiliary power equipment (e.g., double boilers) for propelling the vessel in case of engine breakdown; and state-of-the-art navigational aids maintained in functional condition; (3) set per-

formance standards ultimately requiring optimum maneuverability and operational back-up for all tankers; and (4) strictly enforce such requirements by increasing the number of vessels the Coast Guard actually visits for inspection and by maintaining radar or other monitoring control over vessels operating in and immediately around California ports and oil terminals. Outside port and terminal areas, the navigational safety system proposed in Policy 119 shall be established.

## LNG FACILITIES

### Findings

**Importation of LNG Requires Ship Terminals and Onshore Facilities.** Natural gas is considered to be the cleanest-burning fossil fuel and the most efficient for heating purposes. The most significant potential sources of natural gas for California are in Alaska and Indonesia and other foreign nations. To be transported economically by ship, natural gas must first be liquefied by cooling it to -259° F. to reduce its volume by a factor of 600. After shipment to areas near existing markets or pipelines, liquefied natural gas (LNG) is stored in large tanks and vaporized in a plant as it is needed. With present technology, terminal and associated facilities for LNG must unavoidably be situated immediately on the coast.

**Gas Companies Have Proposed Three Coastal Sites.** Western LNG Terminal Company (subsidiary of Pacific Lighting Company) is already seeking Federal Power Commission (FPC) approval for LNG terminals and facilities at Oxnard (Ormond Beach) to handle LNG from Indonesia, in Los Angeles Harbor to handle LNG from southern Alaska, and at Point Conception for LNG produced as gas on the Alaskan North Slope and piped to southern Alaska for liquefaction. Final FPC action on these three proposals is not expected prior to early 1976. PG&E has stated that the feasibility of locating such facilities in the San Francisco Bay Area is also currently being studied.

**FPC Is Considering Canadian Pipeline Alternative.** The Point Conception proposal is part of an alternative to a pipeline proposed through Canada that would serve California along with the western and midwestern U.S. and eastern Canada. A decision by the FPC is pending on the choice of the alternatives, but reportedly will not be forthcoming before late 1975 at the very earliest.

**LNG Is a Hazardous Substance.** LNG is difficult to handle because the extremely low temperature at which natural gas is liquefied causes unique stresses on normal containment materials and requires special alloys to avoid such stresses; and in the event of an escape of LNG, there is very rapid formation of a vapor plume, which the low temperature

causes to hang close to the ground until its temperature increases to make the gas lighter than the air. Unconfined, the vapor mixed with air is not explosive, but in a mixture of 5-15 per cent vapor and air it is highly flammable. Within enclosed spaces, if thus mixed with air in the presence of an ignition source, it can explode. The primary danger present in a large-scale LNG spill is a very intense fire at the spill site; a more remote hazard is that the vapor plume could drift into enclosed spaces adjacent to a spill site and explode or catch fire.

**LNG Spill on Water Presents Fire or Explosion Hazard.** The greatest danger of serious fire or explosion would occur following a major spill of LNG on water; the consequences would be most serious in an active harbor area. The heat of the seawater and large spill surface area promote very rapid vaporization. The FPC staff has stated that if in a "worst case accident" an entire shipload of LNG (about 130,000 cubic meters) were released instantaneously without being ignited, it would evaporate in about 37 minutes, forming a very large, cold, dense vapor cloud. Scientists disagree as to how far downwind a vapor cloud might drift and remain flammable if not immediately ignited and if there are conditions of very light wind and stable air; for a 100,000 cubic meter spill, studies have variously predicted limits of flammability from as little as 3 miles to as much as 125 miles and for a 5000 cubic meter spill, from as little as one mile to as much as 22 miles. Experts believe it very unlikely that a vapor cloud of any size could form and drift very far without encountering an ignition source and causing a fire that would burn back to the site of the spill. One likely such ignition source would be the collision itself. The chances of an accident causing any spill can be reduced by special safety features for LNG carriers and by the Coast Guard's use of strict traffic control procedures during passage of loaded carriers into a harbor.

**Safety Measures Needed to Reduce Risk of LNG Spill on Water.** Because of the potentially disastrous effects of a large-scale LNG spill on water, particularly near a developed area, the Coast Guard prescribes and implements measures to ensure safe passage of LNG carriers into berthing facilities. Safety measures are determined according to conditions

at each particular site. Measures presently required by the Coast Guard for bringing LNG carriers into New York and Boston Harbors, for example, include: near-harbor escort of the LNG carrier by a Coast Guard vessel; controlling or halting other marine traffic in the area during loaded LNG carrier operation, depending on the circumstances; use of tug boats; special arrival notifications; and restrictions on proceeding under specified visibility conditions.

**LNG Spill on Land Also Dangerous.** The most significant potential for serious fire at LNG facilities on land would occur following complete or partial failure of a storage tank. This potential can be minimized by use of the highest quality structural and insulating materials, proven tank operating and rigid maintenance procedures, use of proven technology for tank venting, and construction of a containment around each tank sufficient in capacity to hold the entire tank volume in the event of complete failure. When a containment is filled with spilled LNG, a relatively small amount of LNG surface is exposed, and rapidly frozen ground acts as an insulator against a continued flow of ground heat; therefore vaporization occurs much more slowly than in the case of a spill on water.

**High Containment Dikes Will Confine Flammable Plume.** Under conditions of light wind and stable air, flammable vapor mixtures resulting from the failure of an LNG storage tank may initially extend downwind as far as a mile. LNG proponents, however, believe that in most instances, after the initial period of "flash" vaporization, the flammable zone will be as little as 200-400 feet downwind, and that if the containment is a high dike around each tank, as planned for facilities near populated areas, the flammable plume will be confined within the facility's property limits even under worst-case conditions.

**Danger Greatest at the Site.** If the vapor is ignited, the flame will burn back to the LNG pool, where the resulting fire could create intense radiant heat capable of igniting combustible materials within 500 feet, and endangering exposed personnel within 2,000 feet (with high dikes, these distances can be substantially decreased). Automatic and individually activated remote control devices around the plant site that release appropriate materials can help control LNG vapors and extinguish LNG fires.

**Accident Probability Is Low But Not Eliminated.** Statistically the probability of a very large accident involving LNG is very low. Except for its very low (cryogenic) temperatures and propensity to form a flammable vapor cloud that can drift downwind off the site of an accident, the problems and risks connected with LNG handling and storage are thought to be similar to those associated with handling and storage of such accepted hydrocarbons as gasoline and liquid propane. Improved LNG technology can now address the normal safety problems; however, the potential for serious accident caused by human errors, or by such events as earthquake, tsunami, disaster at a neighboring facility, a major act of war, sabotage, or airplane crash can be partially designed against, but not entirely eliminated.

**LNG Spill Harms Plants and Animals.** Plants and animals subjected to a dense cold vapor cloud of LNG would probably be killed. Birds might be able to evade the vapor cloud. The effects on marine populations of an LNG spill on water are not well known. The thermal shock caused by chilling of the surface water would presumably cause some measure of mortality, but probably would not have significant long term effects on marine populations.

**Methods of LNG Regasification Involve Problems.** Regasification at a receiving facility is typically carried out in one of two ways: using gas-fired vaporizers; or using seawater at ambient temperature as a heat source for vaporization.

- **Gas-Fired Vaporizers Pose Air Pollution Problem.** The disadvantages of gas-fired vaporizers for baseload use are that one to two per cent of the plant's output would be used to fire the vaporizers and that there would be continuous air pollution emissions.
- **Use of Seawater Adversely Affects Marine Life.** Use of seawater in LNG vaporization presents problems of entrainment of sealife as water is drawn into the system and discharge of cooled seawater at below ambient temperatures after its use in the system. (See Marine findings regarding the effects of entrainment and thermal discharges.)

Chemical biocides periodically added to the seawater for defouling of the water pipes also have the potential to adversely affect marine life if they are not neutralized. These effects would be subject to regulation by the Regional Water Quality Control Boards on a case-by-case basis to prevent adverse effects on beneficial uses of receiving waters.

**Physical Criteria for LNG Facility Siting.** Selection of a site best-suited physically to accommodate LNG port and plant facilities involves at least the following considerations:

- **Control of Nearby Development.** Facilities will require sites that minimize the exposure of population and property to the possible effects of a major accident. Land use controls, including purchase of surrounding lands, must be sufficient to prevent new development within the hazard zone around the LNG plant in the future.
- **Avoidance of Seismic Hazard Areas.** Facilities require sites away from areas of significant seismic hazard, and wherever sited, must be designed to withstand fully the maximum credible seismic risk at the site.
- **Deep-Draft Port Facilities.** Port facilities require navigable waters deep enough to accommodate LNG carriers (40 feet or greater draft) and sufficiently sheltered for year-round operation. Significant dredging might be required.
- **Sufficient Acreage for Land Facilities.** Land facilities require sufficient acreage for: storage tanks up to 125-150 feet high and 240-270 feet in diameter; space between tanks to permit dikes, runoff, and catch-basin facilities; additional space to reduce the potential for radiant heat from a fire at one tank igniting another tank; space for vaporization facilities capable of regasifying peak loads at rates of as much as five billion cubic feet or more per day; and space for a buffer area. Total acreage for land facilities may be as much as 100-200 acres.
- **Location Near Market Areas.** Land and port facilities need not be all in one contiguous parcel and the land facilities need not be immediately adjacent to the port; however, piping gas in its liquefied form outside of the facility is extremely expensive and increases exposure of life and property along the pipeline corridor to some risk. There are also economic advantages in siting LNG facilities near major market areas, although piping the regasified natural gas relatively long distances is clearly feasible.
- **Gas Transmission Systems.** Facilities must have adequate gas transmission systems.

**Potential Siting Alternatives: Rural, Industrial, Harbor, and Residential.** Very generally stated, a site selected in a rural area will pose the greatest impact upon the natural environment, but in the event of a major accident would expose



a minimum number of people to danger. Siting in a rural area could open the area to further port and industrial development, which in turn could encourage the growth of new residential communities. Industrial locations in developed harbors would tend to have a minimum impact on the natural environment, but would pose greater risk to human safety in the event of an accident. Harbors — particularly those with large industrial areas — will have heavier ship traffic, superior traffic control systems, calmer waters, and less exposed berths. Location near a residential area will have a moderate impact on the natural environment, could present social and economic impacts on the community, and would expose the population to the risks, however slight, of a major accident.

**Several Agencies Will Regulate Environmental and Safety Features of LNG Facilities.** The Federal Power Commission must approve projects for LNG imports from other states or foreign nations. It is the lead agency for such projects, and is responsible for preparation of environmental impact statements under the National Environmental Policy Act (NEPA). It is not yet clear whether FPC jurisdiction will preempt the right of State and local agencies to regulate the site location aspects of LNG facilities. Safety aspects will also be regulated by the Coast Guard (shipping-related), the Office of Pipeline Safety (land facilities), the Occupational Safety and Health Agency and the State Division of Industrial Safety (employee safety), the Federal Aviation Agency (aircraft safety), and the applicable local fire, harbor, and building and safety departments. Other environmental aspects will also be the concern of the designated lead agency under the California Environmental Quality Act (CEQA), the Army Corps of Engineers (marine facilities), the Regional Water Quality Control Board (RWQCB) and the local Air Pollution Control District (APCD). The NEPA and CEQA environmental impact review, and the RWQCB review, will also include review by other interested agencies as applicable.

## Policies

**94. Coastal Agency Role in LNG Facility Siting.** The coastal agency shall have jurisdiction over the need, land use, and environmental aspects of new or expanded liquefied natural gas (LNG) facilities in the coastal zone, in accordance with Policy 76. The coastal agency shall determine the availability of preferred alternative coastal sites, with the participation of the Energy Commission and all other concerned State, local, and Federal agencies, including the Federal Power Commission.

**95. Criteria for Siting and Design of LNG Facilities.** It may be desirable to locate some LNG facilities in the coastal zone. Any proposed LNG facility shall meet the following criteria:

- a. **Limit Number of Terminals Until Safety is Assured.** Only one LNG marine terminal shall be permitted in the California coastal zone until (1) engineering and operational practices can eliminate any undue risk, or (2) guaranteed supplies of LNG and distribution system depen-

dence on LNG are substantial enough that an interruption of service from a single LNG facility would cause substantial public harm.

- b. **Human Health and Safety Paramount Consideration.** Until the risks inherent in LNG terminal operations can be sufficiently identified and overcome and such terminals are found to be consistent with the health and safety of nearby human populations, terminals shall be built only at sites remote from human population concentrations. Because of the public safety concerns and the goal of protecting against unnecessary development in a remote, pristine area, other development in the vicinity of such an LNG terminal site shall be prohibited. At such time as LNG marine terminal operations are found consistent with public safety, terminal sites in developed or industrialized port areas may be approved.
  - c. **Restrict Dredging and Filling.** Where permitted, new LNG port facilities shall not involve dredging or filling of wetland areas unless there is no less environmentally damaging alternative. Any such dredging and filling shall conform to Policies 15-18 of the Marine Environment chapter.
  - d. **Minimize Adverse Environmental Effects.** Where permitted, LNG facilities shall be located and designed to minimize adverse environmental effects. The applicant for an LNG marine terminal and onshore facilities shall submit a comprehensive evaluation of alternative coastal sites, including the environmental, economic, and operational reasons for rejecting them in favor of the proposed site, sufficiently in advance of a desired decision that an adequate and independent analysis can be made; such material shall be included in any environmental impact report required. Special consideration shall be given to Marine Environment Policy 10 regarding heated and cooled discharges.
- 96. Require Safety Measures During Marine Operations.** All possible measures shall be taken to maximize the safe passage of LNG carriers into berthing facilities. Such measures shall include, where appropriate, application of measures presently used for LNG carriers in New York and Boston harbors: control or halting of other marine traffic by the U.S. Coast Guard during operation of loaded LNG carriers or during inclement weather conditions; near-harbor escort of LNG carriers by a Coast Guard vessel; use of tug boats in harbor areas; and safely designed berthing facilities sufficiently removed from other traffic flows and of sufficient size to permit maneuvering.

Outside port and terminal areas, the navigational safety system proposed in Policy 119 shall be established.

**97. Require Safety Measures at Onshore Facilities.**

Any proposed LNG project in the coastal zone shall employ the following measures, unless safer feasible design, engineering, or operational measures are developed:

- **Storage Tanks.** Use the highest state-of-the-art engineering design and technology, proven alloys, double-wall tank construction (now standard in the industry), engineering design and operation that preclude sudden formation of a large quantity of vapor not adequately ventable by the pressure relief valve system, and sufficient spacing between tanks to minimize the possibility of an accident at one tank affecting another tank.
- **Containment Around Tanks and Pipelines.** Provide sufficient containment around each tank to hold the entire contents of the tank with a minimum surface area pool; near populated or developed areas, provide containment that includes a dike designed for maximum feasible reduction of vapor-plume travel, protection against severe weather or radiant heat from adjacent tanks in the event of a major fire, and protection against airplane crash or sabotage attempt; around exposed LNG pipelines, provide dikes or other containment structures capable of containing the maximum credible spill that might occur in a major rupture before

shutdown of the entire pipeline system could be effected.

- **Protection Against Rupture.** To guard against storage tank or pipeline rupture, provide adequate and continuous monitoring, alarm, and process shutdown measures.
- **Standby Power.** Provide independent standby power system to maintain essential operational and emergency systems during a power failure.
- **Earthquake and Fire Protection.** Locate and design all LNG-related facilities to withstand the maximum credible seismic event for the area; provide all LNG-related facilities with the best available fire protection and fire-fighting technology, including adequate fire response plans, equipment, and personnel to control any major fire.

**98. Establish Liability for Accident Damage.** It is recommended that the Legislature establish strict liability for damage occurring as a result of LNG shipping or plant operations, except acts of war, and consider creation of a safety indemnity fund, financed by levy of a fee on LNG imports, to ensure that all damages and costs resulting from an LNG accident are quickly compensated. It is further recommended that sufficient research and development pertaining to LNG safety issues be pursued by the Legislature, the Public Utilities Commission, and the Energy Commission to deal adequately with safety issues posed by LNG importation projects in California.

# TRANSPORTATION

## TRANSPORTATION PLANNING AND THE COAST

### Findings

**State Transportation Planning.** Planning for all modes of transportation in California is conducted by the Department of Transportation (in the Business and Transportation Agency) and by statutorily designated regional transportation planning agencies (RTPAs). A statewide California Transportation Plan, prepared by the State Department of Transportation, is being considered by the State Transportation Board and is to be submitted to the State Legislature by January 1, 1976.

**Emphasis on Vehicular Transportation.** Current State transportation planning still heavily emphasizes vehicular transportation facilities and, to some extent, airports. Port, railroad, and public transit planning are still not given the emphasis necessary for truly comprehensive transportation planning.

**Inter-Agency Coordination Needed.** The relationship between local and regional transportation and planning agencies is a source of conflict in some areas, creating a need for interagency coordination. Additionally, local municipalities with State or Federal assistance, or through their own capital improvement programs, carry out their own street and highway improvement programs. In coastal areas, such improvements (by creating developments that increase traffic and parking) can often adversely affect coastal accessibility to resources of regional or statewide significance as well as the mobility in and among coastal communities.

**Factors Influencing Inter-Regional Policy Decisions.** The level of urbanization, type of terrain, the traffic mix, and the influence of corridor traffic between major metropolitan areas (e.g., San Diego-Los Angeles) are crucial factors in making inter-regional policy decisions.

**Traffic and Parking Congestion Problems in Coastal Zone.** A pressing transportation problem in the coastal zone is traffic and parking congestion. Congestion is actually a cluster of problems appearing in many forms:

- Weekend, holiday, special events, and summer recreational traffic and congestion along urban and intercity coastal routes;

- Workday rush-hour congestion in metropolitan regions;
- Parking and local traffic congestion in coastal communities;
- Decreased roadway capacity and safety resulting from conflicts between different types of traffic; and
- Increased air and visual pollution caused by slow-moving traffic.

In addressing these problems, coastal transportation policy and planning must deal with the characteristics and limitations of automobile traffic in a high-use recreational area (including special recreational peak travel periods, longer average trips, and recreational trips where the experience of driving along the coast is an important part of the trip) as well as the effects of commuter traffic.

**Coastal Access Improvements Must Be Strategically Planned.** Transportation systems are needed to improve public access to coastal resources. But certain kinds of improvements to the transportation system may change the character of existing natural resource areas and may lead to the expansion of urban centers or the creation of new ones. Coastal access improvements of all types — roads, transit services, bike-ways, and footpaths — must be strategically planned to serve the following goals:

- Provision of public access to the oceanfront;
- Service to residential, recreational and commercial areas; and
- The protection of manmade and natural resources of the coastal zone.

**Emergency Transportation Needs Are a Special Problem.** The coastal zone has experienced blockages of roads and railroads because of slides and severe flooding. In 1964 the coastal area of Mendocino County was isolated for several days. Adequate airport facilities are important for search-and-rescue and forest fire-fighting operations. The Coast Guard provides boats and helicopters for emergencies along the coastline and harbor police and fire departments serve the port areas. Bus systems are an important means of evacuation. Communication among the operators of all emergency transportation systems is essential. Existing facilities are considered adequate for expected situations.

## Policies

**99. Consider Coastal Concerns in Transportation Plans.** The coastal agency shall participate directly in ongoing local, regional, and State transportation planning to ensure that all transportation concerns (e.g., weekend travel) and resource protection goals (e.g., air quality, energy conservation) of the Coastal Plan are considered in regional and State transportation plans. Principal concerns are as follows:

- a. **Give Special Attention to Weekend, Holiday, and Special Events Travel.** It is recommended that State laws now requiring local, regional, and State agencies to prepare transportation plans be modified to require the addition of a weekend, holiday, and special events travel component to the plans as they affect access to and within the coastal zone. This component shall be prepared by a technical study group composed of representatives of the coastal agency, the State Department of Transportation, regional transportation planning agencies, and local jurisdictions. The study group shall determine the compatibility of Coastal Plan policies with existing transportation plans and make recommendations for modification of transportation plans and the Coastal Plan, where necessary to ensure consistency.
- b. **Encourage Energy-Conserving and Non-Air-Polluting Transportation Forms.** Transportation plans shall include provisions for bicycle lanes and paths and for public buses, trains, and other energy-conserving and non-air-polluting

transportation modes to the maximum extent possible. It is recommended that the Legislature require the Circulation Element of local General Plans to include a section on bike paths and lanes.

- c. **Consider Emergency Transportation Needs.** Transportation plans shall include consideration of emergency transportation needs.

**100. Review Transportation Plans Affecting Coastal Resources or Access.** The coastal agency shall review and approve or disapprove those aspects of State, regional, and local transportation plans within the coastal zone that affect coastal resources or coastal access (e.g., roads and transit systems to and along the coast, ports, airports).

- a. **Coastal Agency Authority Over Projects Included in Approved Plans.** Where a State, regional, or local transportation plan has been approved by the coastal agency, the agency's authority over specific projects (within the coastal agency's jurisdiction) shall consist of requiring conformity to coastal policies through mitigating measures and shall not extend to denying projects where they otherwise conform to the approved plan.
- b. **Authority Over Projects Not Part of Approved Plans.** Until such transportation plans are prepared and approved, the coastal agency shall be empowered to review and approve or disapprove proposals for transportation construction and development that directly affect coastal resources and coastal access within the coastal zone and all transportation proposals within its area of jurisdiction.

# LAND TRANSPORTATION

## HIGHWAY 1 AND COASTAL ROADS

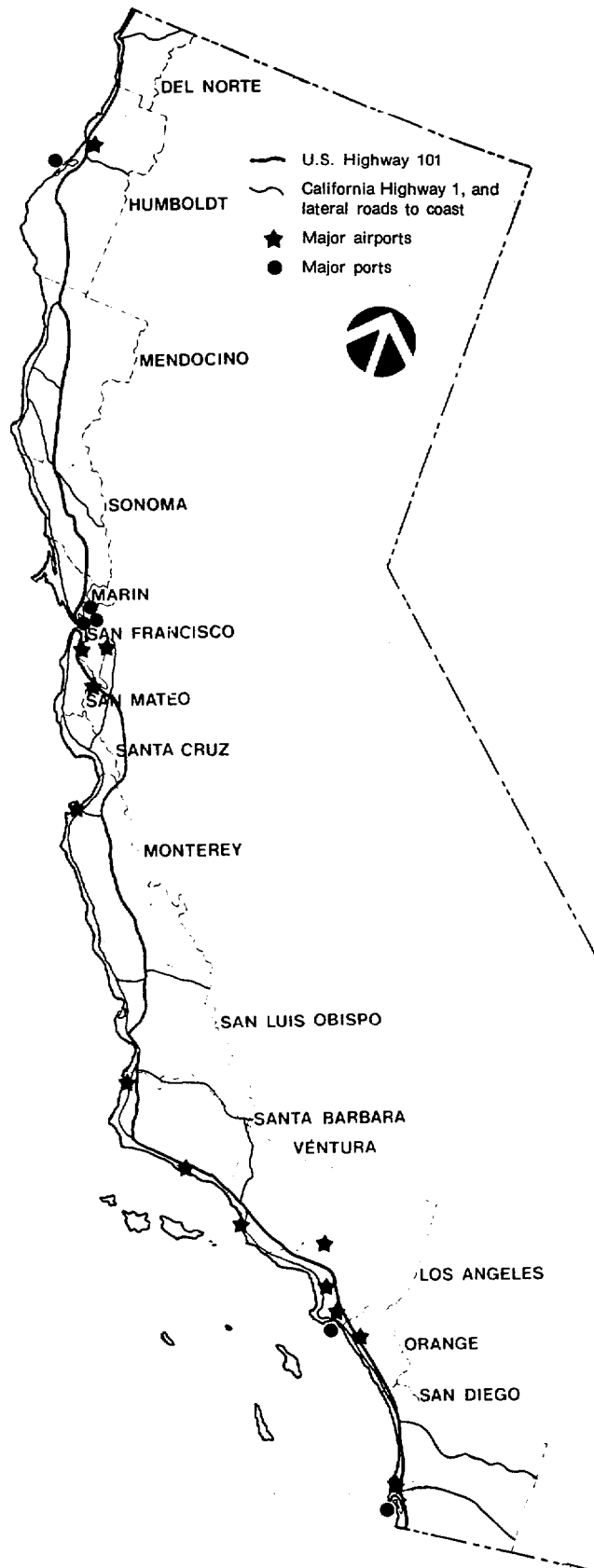
### Findings

**Multiple Types and Modes of Traffic on Coast.** Along the urbanized coastline are many different types of traffic (commuter, recreational, local) and a variety of traffic modes (cars, buses, trucks, motorcycles, bicycles) that all use the same road facilities. This combination of types and modes causes conflicts that greatly increase traffic congestion.

**Roadway Capacity and Traffic Flow.** Increased road capacity can initially work to reduce congestion on coastal roads, increase traffic flow, and improve the level of service. In many cases, however, expanded road capacity is absorbed by traffic generated by additional developments, so the resulting overall level of service is often not greatly improved and in some cases is diminished.

**Adverse Impacts of Roads on Coastal Resources.** The automobile is the principal means of transporting people to

## Coastal Transportation



the coast, but roads can have adverse environmental impacts on the coast. Poor construction methods can cause soil erosion, resulting in mud- and landslides, water pollution, flooding, and fire hazards, can reduce tidal flushing in coastal wetlands and lagoons, and can destroy natural ecosystems. Valuable coastal land and beach areas can be taken for road construction. Auto-generated air pollution can be a significant problem in coastal valley areas. High noise levels create an unpleasant experience for people and can also be harmful to wildlife. Some of the natural beauty of coastal areas can thus be destroyed by the construction of roads.

### Roads Induce Growth, Impede Access in Some Coastal Areas.

Development is most likely to follow highway construction when a new or improved road is provided in a desirable area of the coast near a growing metropolitan region. Where road improvements spur development by placing the coast within commuting distance of urban employment centers, such development can impede coastal access for all users in two ways: by decreasing the amount of potential recreational land available while increasing demand for recreational use in the immediate area; and by increasing traffic loads on coastal roads, causing traffic and parking congestion problems. On the other hand, new or improved roads are not as likely to spur additional development in congested already-developed areas, or distant rural areas, or where growth is effectively managed through direct land use controls.

**Coastal Scenic Roads Need Protection.** The State Scenic Highway Program was established in 1963 to protect viewshed corridors along State scenic roads. In 1965, the California Legislature passed the California Parkway Act to complement the Scenic Highway Program but it was never funded. The Parkways serve as "ribbon parks" giving access to a number of recreational areas along with preserving particularly unique scenery. These ribbon parks are desirable in some areas of the coast but the scale of the parks does not lend itself to all coastal areas. Therefore, a lesser-scale or in-between type of parkway is necessary, and could be encouraged by amending existing legislation or drafting new programs for parkways serving all the various parts of the coast.

## Policies

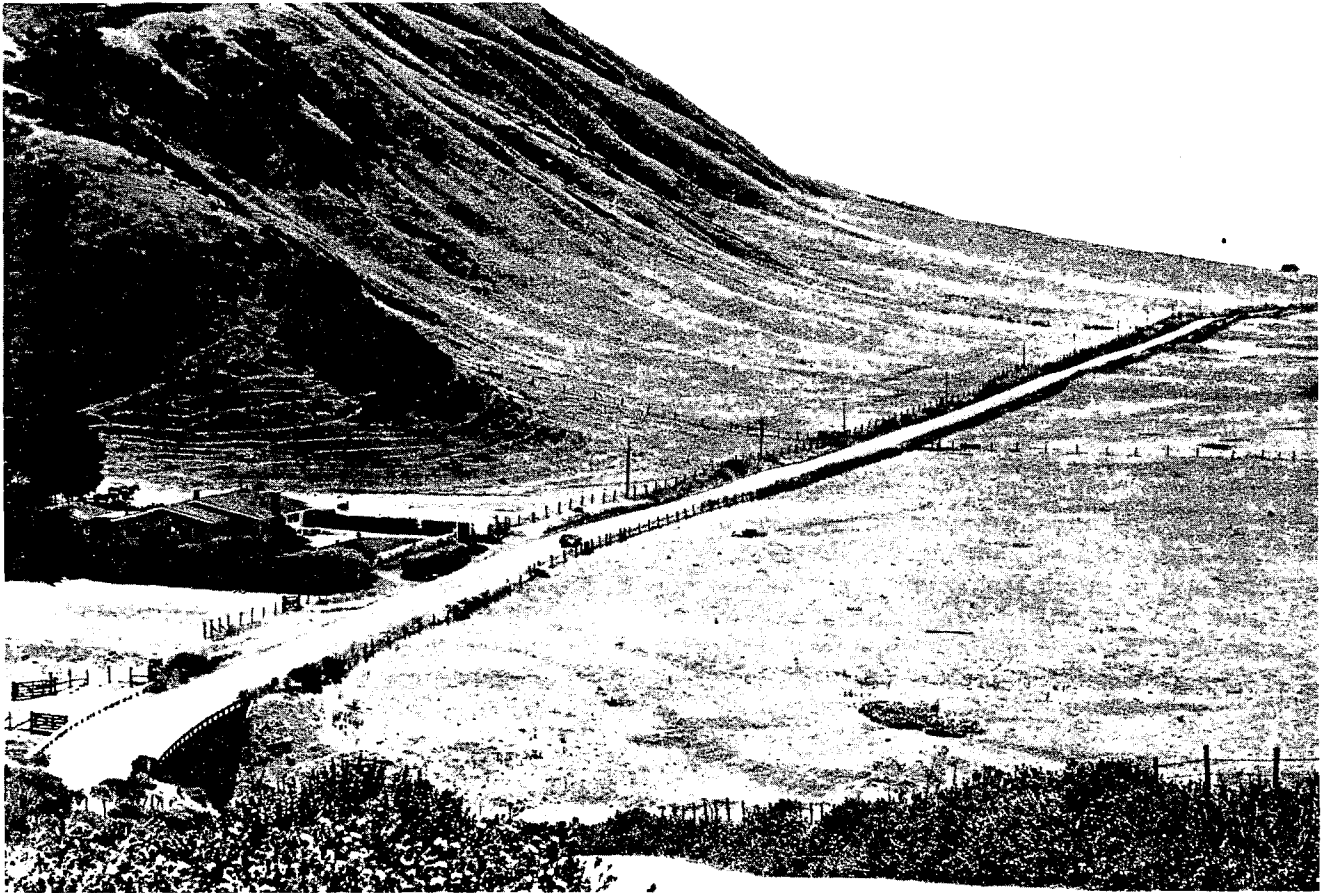
**101. Relate Land Use Decisions to Transportation Capacity.** Development controls should be the principal means of relating land use, access and coastal resource protection decision policies to transportation capacity. However, development controls are not always effective. Therefore, where the road system capacity is or should be limited based on coastal policies, a system of budgeting the remaining or planned capacity should be developed (1) so that public recreational and scenic uses of the coastal road system will not be limited by new private residential and commercial developments; (2) to reduce the costs to the public of extensive road construction; and (3) to reduce damage to coastal resources that might otherwise result from road construction. To this end, the coastal agency in cooperation with the

California Department of Transportation shall assign uses for the remaining capacity of road systems in the following manner:

- a. **Determine Traffic Demand and Identify Problem Areas.** Present and projected weekday and recreational traffic demands shall be determined for each major through-road segment both along the coast and intersecting with the coast. Particular attention shall be focused on those areas where the road network is approaching or exceeding capacity during peak-demand periods, or where increased road capacity would result in significant adverse impacts on coastal resources.
- b. **Determine Remaining Capacity.** For these road segments, the difference between the road's design capacity at an acceptable level of service and the current traffic load shall be determined — i.e., the amount of road capacity that could be available for new traffic demand beyond that generated by existing developments.
- c. **Assign Remaining Capacity (Capacity Budget).** The remaining capacity shall be allocated according to the following priorities: first, coastal-dependent land uses, essential public services, and basic industries determined by the coastal agency to be vital to the economic health of the region, State or nation; second, public recreation, commercial recreation, and visitor-serving land uses; and third, other private and non-coastal-dependent uses. The capacity allocations shall be the "capacity budget" for the road segment, and shall be the basis for allowing any additional development that is otherwise in accord with Coastal Plan policies (e.g., the capacity allocated to recreational use shall be based on the environmental carrying capacity of the coastal resources). Existing developments that account for existing traffic demand are thus not a part of the "capacity budget" and are presumed to continue indefinitely. If the analysis in paragraph (b) determines there is no remaining capacity to be budgeted, no further substantial individual or cumulative development that would be dependent upon the deficient road segment shall be allowed. The capacity allocations arrived at in accordance with these priorities shall be used until public transit service or road capacity expansions approved in accordance with Coastal Plan policies provide sufficient additional capacity to permit a readjustment of the allowable level of development. (See North Central Coast Regional Summary Appendix for example of how capacity budgeting could work.)

**102. Criteria for New or Expanded Coastal Roads.** The construction or expansion of coastal roads shall be allowed where the following criteria are met:

- a. **Prevent Adverse Land Use Impacts.** The proposed project shall not open coastal rural areas for development nor allow for increased development except in accord with Coastal Plan policies; where a necessary increase in road capacity could encourage development inconsistent with the Coastal Plan, appropriate land use restrictions shall precede any road construction.
  - b. **Justify Project Need.** The project is determined to be necessary (1) because existing roads are carrying traffic volumes in excess of their assigned service volumes (capacity) and no alternate route is available or alternative means of transportation is feasible; (2) to provide increased public access to the coast consistent with coastal resource protection and other means of meeting this goal (e.g., public transit, diverting non-coastal traffic) have been found to be infeasible; or (3) for unquestionably needed traffic safety improvements where no other safety measures are possible.
  - c. **Eliminate or Minimize Adverse Environmental Impacts.** Road construction shall eliminate or minimize adverse impacts on sandy beaches; environmentally sensitive areas, including but not limited to coastal wetland or estuarine areas, historic or archaeological sites; and other significant manmade resources. Mitigation measures shall be employed in planning, design, and construction of new or expanded roadways, including minimizing interference with natural drainage patterns and the need for cutting, filling, and grading for roadway construction, in accordance with Policy 53. (See also Policy 43 regarding freeway construction affecting coastal air quality.)
- 103. Develop Alternatives to Prevent Excessive Use of Coastal Routes.** Except where greater adverse environmental impact would occur, major transportation routes and public transportation systems shall be located sufficiently far inland to protect the scenic quality of the coastal road system and to reserve Highway 1 primarily for recreational use. Inland and lateral routes shall be improved and properly signposted to attract non-recreational through traffic away from coastal areas, consistent with the State Department of Transportation planning concept that "traffic which is not specifically oriented toward use of the coastal zone will be encouraged to use other nearby traffic corridors." Coordinated bus services, bus tours,



Highway 1 near Cape Mendocino

bus lanes, carpooling, and segregation of heavy vehicles from regular coastal traffic shall also be encouraged to reduce excessive traffic loads, as well as to reduce air pollution along coastal roads.

**104. Maximize Recreational and Scenic Value of Highway 1 and Other Coastal Roads.** The recreational use of coastal Highway 1 and other routes along the coast shall be maximized and their value as scenic roads, especially along the rural coastline, shall be protected. New and existing roads along the coastline with expansive views of the coastal waters shall be regarded as scenic routes. Toward this end:

- a. **Preserve Rural Highway 1.** Highway 1 in rural areas of the California coast shall be kept a scenic two-lane road.
- b. **Establish a Coastal Scenic Parkway Program.** It is recommended that a Coastal Scenic Parkway Program be established in conjunction with the State Scenic Highway Program, as provided for in State law. Highway 1 and all eligible State highways and county roads within the coastal zone shall be designated as part of the Scenic Highway Program, and, where

applicable, the Scenic Parkway Program shall be instituted. Particular emphasis shall be placed on protecting the highway corridor in scenic areas.

- c. **Use Shoreline Land Acquisition Law.** It is recommended that: (1) the State law (Streets and Highways Code, Section 880) that gives the State Highway Commission the authority to acquire shoreline property, between the mean high tide line of the ocean (including bays and estuaries) and a State highway up to 300 feet, be vigorously utilized where appropriate; and (2) this law be amended to enable the acquisition of all the area between the highway and the mean high tide line if more than 300 feet is needed to protect ocean views or shoreline recreational opportunities.
- d. **Provide Roadside Recreational Amenities.** Funding shall be provided for additional roadside parks, information centers, vista points, and rest stops, including picnic grounds, drinking water, rest rooms, and overnight camp spaces where appropriate. Where safety and feasibility permit, parking shall be on the inland side of the road, with safe pedestrian

access provided to the coastline. To protect the visual experience of traveling along coastal roads, as adequate off-road parking and roadside view areas are provided, parking shall be prohibited along the seaward shoulder. Provisions shall be made where feasible along all such scenic routes for pedestrians, equestrians, and bicyclists.

**e. Design Standards for Scenic Coastal Roads.**

New and existing scenic routes, including roadways along the coastline with expansive views of the ocean, shall be designed, constructed, and maintained with the highest regard for aesthetic considerations. Bridges, overpasses, parking areas, guardrails, and other such transportation and roadside facilities shall be integrated into the natural landscape so as to complement and enhance the surrounding area, and to retain scenic views and vistas. These facilities shall be harmonious with the scale and character of the existing road and/or any improvements suggested in other Coastal Plan policies. Small-scale elements such as

lighting fixtures, directional signs, street furniture, and landscaping materials shall also be designed to visually identify coastal roads and to help orient coastal viewers.

**f. Regulate Development Along Scenic Routes.**

Viewshed and roadside controls shall be required to protect the scenic qualities of roadway scenic corridors. (See also Coastal Appearance and Design chapter.)

**g. Promote Coastal Highway Tour Bus Service.**

To reduce automobile traffic on parkways and scenic routes, it is recommended that the California Department of Transportation vigorously promote attractive tour bus service, on the model of the European tour bus system. (See Policies 107-111 regarding public transit.)

**h. Provide Public Information on Scenic Routes.**

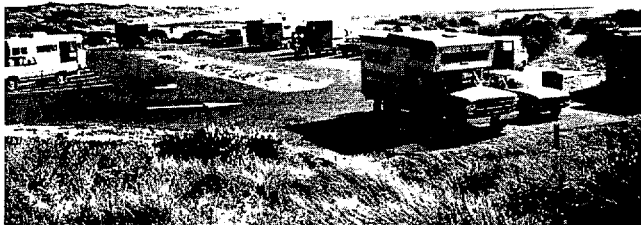
It is further recommended that information on the scenic corridors be made available to automobile clubs, bicycle clubs, YMCA, YWCA, tourist organizations, etc.

## PARKING

### Findings

**Adverse Impacts of Parking Facilities.** The demand for parking facilities is high along the coastline, but additional parking facilities would generally have negative environmental impacts and consume scarce coastal land. Encouraging automobile traffic as a form of local transportation may be detrimental to the overall quality of the coastal zone environment, causing air and noise pollution and the loss of visual and environmental amenities. Where parking is inadequate, however, cars spill over into surrounding streets and neighborhoods, or onto the shoulders of highways, causing congestion and impeding public access to the shoreline.

Humboldt County



**Shuttle Systems to Reduce Shoreline Parking Needs.**

Shuttle systems, by acting as collectors from remote parking areas or transit transfer points, can greatly reduce the need for parking along the immediate shoreline. Shuttles can also be used to provide exclusive transit access to areas that are environmentally fragile or overused. Care must be exercised, however, for it would be possible for the remote parking reservoirs themselves to have detrimental environmental impacts.

### Policies

**105. Minimize Impact of Parking Facilities.** The adverse impact of parking facilities upon coastal visual resources shall be minimized while allowing for increased public access for the enjoyment of these resources.

**a. Use Shuttle from Remote Parking Areas if Possible.** Public transportation to coastal beaches shall wherever possible be provided from existing centralized parking lots (such



as at schools, shopping centers, drive-in theaters, or offices) when available during peak recreational use periods. It is recommended that public transit authorities investigate means and scheduling to implement such systems. Where it is physically possible to do so, upland parking facilities shall be provided, linked to coastal recreational facilities by trails, shuttle buses, or trams. New shoreline parking facilities shall be allowed only if none of the foregoing alternatives is feasible.

**b. Design Standards for Parking Facilities.**

Where feasible, parking shall be consolidated for joint use by surrounding businesses and neighbors, and shall be below grade or underground, or in multi-story structures to prevent large, obtrusive lots, and shall be attractively designed and buffered with landscaping, berms, or other attractive screening materials. Where

improved on-grade parking lots are permitted, in addition to similar berms or buffers, they shall generally have trees planted throughout the lots.

**106. Require Adequate Parking in New Developments.** New, intensified, or expanded coastal development shall be required to have either (1) adequate parking facilities to meet the demand generated by the development (standards shall be determined in subregional or local coastal plans based on the particular needs of the area); or (2) reasonably assured access by public transportation to replace the need for private vehicles and parking spaces to accommodate them provided a sum equivalent to the cost of providing the parking facilities that otherwise would be required is advanced to the local transit district for improvement of transit facilities and services.

## PUBLIC TRANSIT

### Findings

**More Coastal Transit is Needed.** Transit systems are presently used very little to gain access to and through the coastal zone, especially for recreational trips. Coastal transit systems could help reduce congestion and pollution and help provide coastal access to those without cars and those who wish to avoid the problems of traffic congestion and limited parking, though some improvement in roads may be necessary to accommodate improved bus service. Ninety per cent of the public demand for recreation is generated within two hours driving time of metropolitan areas, which have the greatest need for public transportation. Existing bus systems could provide service in metropolitan coastal regions through weekend use of idle vehicles. Present service is currently limited and/or inadequate in most coastal areas.

**Rail Passenger Service on Coast Is Increasing.** Railroad passenger service to and along the coast, now provided almost exclusively by Amtrak, was on a steady decline from the 1920s and 30s but has been increasing since 1971 along with the public's desire for effective mass transit. New coastal passenger railroad service is being proposed but limited funding is available.

**Problems of Coastal Transit Travel.** Problems of transit travel on the coast, including recreational travel, include:

- Inconvenience due to time requirements for home to destination trip, frequency of transit service, inflexible schedules, difficulties in traveling with children and the use

- of vehicles not equipped to carry recreational equipment;
- High farebox charges, especially for groups and families; and
- Lack of personal mobility at the destination.

While it is clear that transit operations cannot always substitute for coastal automobile travel, transit improvements — e.g., improved capability for handling recreational gear and expanded schedules — could increase transit use.

**Need for Funds for Transit Operations.** Mass transit generally cannot pay for itself with fares alone. Although it has long been established practice for government to encourage automobile travel systems through highway construction, government support for mass transit has been limited. While transit's major financial need is for operating costs, State and Federal subsidies provide primarily for planning and capital expenditures. Labor costs constitute the major portion of costs for bus transit, and the problem is compounded by the need for weekend service when labor costs are higher.

**Possible Source of Transit Funds.** Transit funding programs could include:

- Placing responsibility on major traffic generators (e.g., by requiring contributions to transit service),
- Assumption of some costs by other agencies that have jurisdiction in coastal areas (e.g., park and recreation agencies), or
- Subsidizing transit through charges on automobile travel (e.g., gasoline taxes, license fees, parking taxes).

## Policies

**107. Provide New Funding for Coastal Zone Transit.** It is recommended that new sources of funding for the necessary expansion of public transit in the coastal zone be provided, with emphasis on subsidies for extensions or upgrading of such service and providing operating costs and increased user conveniences (e.g., bus shelters). High priority in the allocation of transit funds by transportation agencies shall also be given to (1) feasibility studies for alternative transportation systems in the coastal zone; (2) seed money for the establishment of new transportation services to serve the coastal zone; and (3) demonstration projects for new service, with emphasis on innovative approaches that will maximize access while protecting coastal resources.

**108. Establish Priority of Transit Over New Roads for Cars.** Public transit shall be given priority over new or expanded roads for automobiles, particularly (1) where public transit is most economically feasible, because of high population concentrations and concentrated recreational uses, and/or where existing transit districts or facilities could expand weekend service; (2) where present highway or parking facilities are congested and public transit could provide additional access without the adverse effects of new roads and parking; (3) to provide exclusive access to fragile coastal areas, in order to limit the amount of use; (4) to link all coastal communities currently lacking such connections, especially northern California coastal communities with the San Francisco Bay Area; (5) where existing rail right-of-way or

service could be improved to provide increased access to and along the coast; or (6) where critical air pollution levels either exist or are projected.

**109. Expand Transit in Urban and Air Quality Maintenance Areas.** Public transportation in urban areas and in Air Quality Maintenance Areas shall be developed, improved, and expanded in order to lessen dependence on the automobile for access to the coastline and in order to reduce air pollution levels. To this end:

**a. Improve and Expand Bus Service.** Coordinated bus service and tours, bus lanes, dial-a-bus service, jitney service to and from the coast, and intracity shuttle loops shall be developed. Commercial recreation and support facilities shall generally be clustered into multi-use complexes that can be served by public transit facilities.

**b. Design Bus Service for Recreational Users.** Public transportation shall include accommodations for the physically handicapped, bicyclists, surfers, divers, and others with bulky or specialized equipment, and weekend schedules shall be established with specific stops and pickup points designed to serve recreational users.

**110. Encourage Expanded Rail Service.** Amtrak and the rail companies shall be encouraged to expand intercity passenger rail service along appropriate existing rights-of-way in the coastal zone. An inventory of all coastal railroad rights-of-way shall be made and all rights-of-way potentially usable for railroad passenger travel shall be preserved for future rail service. No use shall

Amtrak train out of Gaviota, Santa Barbara County



be made of these rights-of-way that would preclude their use for some form of transportation, including mass transit. The long-term goal shall be the connection of passenger rail service with public transit to provide door-to-destination service.

**111. Encourage Transit Usage.** Regional transportation agencies shall work with the variety of public and private companies (e.g., Greyhound, Peerless, Amtrak, local bus lines) to encourage coordinated, integrated systems and to draw up unified and convenient schedules showing access to the coast. These schedules shall be distributed

in areas where people are likely to use transit facilities to the coast (e.g., San Jose, Salinas, Riverside) and especially to schools and senior citizens' centers since the young and old are particularly dependent on public transit. Transportation agencies shall also cooperate with education agencies at all levels and the public media to promote broader public consciousness and acceptance of mass transportation as a practical means of personal transportation, particularly as it serves public objectives of environmental protection, energy conservation, and reduced costs for total transportation service.

## AIR TRANSPORTATION

### Findings

**Airports Consume Large Amounts of Coastal Land.** By their very nature, and especially with new requirements for noise buffer areas, airports consume large amounts of land. Satellite business and industry also can consume large amounts of land, especially at the larger airports.

**Airport Noise Has Severe Impacts.** The most severe environmental impact of airports and air travel is their noise impact, particularly on residential and recreational coastal areas. This is most severe in the cases of Los Angeles International Airport and Lindbergh Field in San Diego, where there is intense urban development. To mitigate this impact, the State Department of Aeronautics has established Community Noise Equivalent Level (CNEL) standards with target dates for their attainment. For new airports, no residences may be located within 65 CNEL contour projected for such airports; existing airports must reach the same standard by 1985. On the other hand, airports located on or near the shoreline do offer overwater takeoffs and landings, which reduce noise impacts on the adjacent urban areas. Even small private airstrips consume large amounts of land and can have some of the foregoing effects.

**Airports Generate Surface Traffic Congestion.** During peak periods, airport-generated surface traffic congestion can compete with coastal recreational traffic.

**Airports and Airstrips Could Be Located Inland.** Considering airports' land requirements, the scarcity of coastal sites, and the nondependency of airports and airstrips on coastal locations, there appears to be strong justification for locating airports away from the coast in favor of more coastal-dependent or -related uses. No new coastal airports are now foreseen by airport planning agencies, with the possible exception of a site at Pebbly Beach on Catalina Island.

### Policies

**112. Policy on Future Airport Siting.** Because no new airports or airstrips are proposed by airport planning agencies in coastline or offshore locations, the Coastal Plan makes no provision for them. If a substantial need for a new airport in a coastal or offshore location should arise in the future, the coastal agency shall develop siting criteria in cooperation with the California Department of Transportation and other appropriate State agencies addressing the possible adverse impacts airports can have on coastal lands, residents, and other coastal users (e.g., noise, consumption of large amounts of coastal land, generation of airport-related surface traffic). The coastal agency shall adopt the criteria, after public hearing, before considering any specific airport siting proposals.

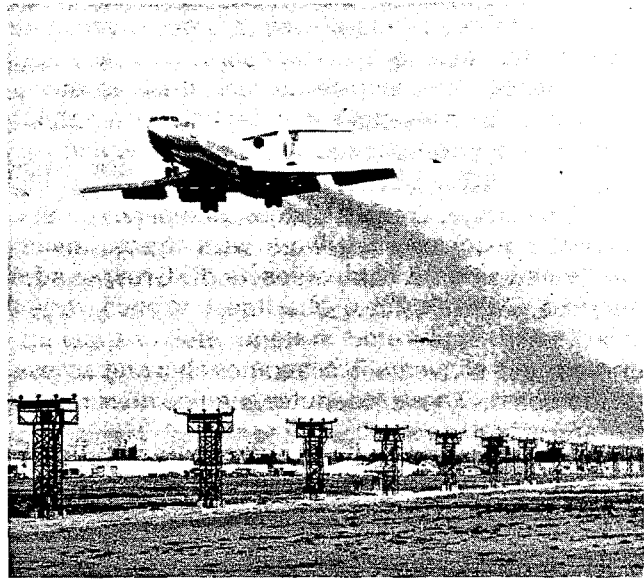
**113. Limit Expansion of Coastal Airports.** Landfill and other land expansion of existing coastal airport facilities shall be permitted only if the applicant can demonstrate that (1) there is a need for expansion that cannot be met through more efficient use of existing facilities, or through other transportation systems; and (2) all other means of expanding have been evaluated and are unacceptable because of economic, environmental, and social costs.

In the San Diego region, because the future of Lindbergh Field and Ream Field is somewhat

uncertain, expansions of these existing coastal airports shall be allowed only as interim measures to ensure their efficient operation, pending final decisions on San Diego regional airport planning and the maximum feasible consolidation and elimination of non-coastal-dependent military air operations. Any proposed interim expansions shall (1) not increase the total area encompassed by the airport boundaries; (2) not intensify the adverse environmental impacts of the existing airports; (3) increase airport efficiency and accommodate larger, quieter aircraft, reducing the total number of flights; and (4) be easily amortized over the useful life of the airport. The replacement of Lindbergh Field with a new regional airport at a site less damaging to the coastal environment is strongly urged.

**114. Provide Public Access in Some Airport Buffer Land.** Coastal airports with large amounts of adjacent buffer land that may contain areas suitable for recreation and/or environmental preservation in conjunction with coastal waters (such as Los Angeles Airport, Lindbergh Field, and Santa Barbara Airport at Goleta) should provide public access, where feasible, and recreational amenities, including bike paths, hiking trails, scenic turnouts, and viewpoints.

**115. Reduce Impact of Airport-Related Transportation and Parking on Coastal Access.** Airport ground transportation and parking facilities serving



Los Angeles International Airport

existing or proposed airports shall not be permitted to lower the level of service or budgeted recreational capacity of surrounding street, highway, or freeway systems that serve the coastline. Further, mass transit systems, regional airline bus terminals, jitney service, and park-and-ride lots shall be encouraged to provide transit alternatives, replacing the need for the private car, and to reduce traffic congestion and vehicle emissions at coastal airports.

## WATER TRANSPORTATION

### Findings

**Economic Importance of Ports.** The ports of California are major economic enterprises that serve major import, export, and domestic waterborne commercial needs of California and the nation. Directly and indirectly they provide a significant proportion of the jobs and income of the State. Because of the economic importance of port facilities, necessary port growth and development should proceed, but in a manner that minimizes damage to the coastal environment.

**San Francisco Bay and California Coastal Zone Planning.** The California Coastal Zone Conservation Act of 1972 (Proposition 20) excluded from the jurisdiction of the California Coastal Commission the San Francisco Bay region, one of the State's major port areas (including the ports of San Francisco and Oakland), because this area was already under

the jurisdiction of the San Francisco Bay Conservation and Development Commission (BCDC). Statewide port policies could have an impact on the relative competitive positions of all of the State's ports, including the San Francisco Bay ports. The BCDC is presently involved in a regional port planning effort with the Metropolitan Transportation Commission (MTC). Coordination of these efforts with coastal agency planning is necessary to ensure the development of compatible regional port policies.

**Competition Between Ports Can Result in Overbuilding.** The major California ports are public agencies that compete with each other for cargo and business. Such competition can result in overbuilding and underutilization of port terminals, as each port tries to capture the most cargo and to keep pace with changes in shipping technology. Renewal of existing port areas and increased efficiency of port operation could offset some of the need for expansion of port land area.

**Unnecessary Port Development Results in Avoidable Environmental Damage.** While the present system has resulted in competitive rates and modern facilities for shippers, it is not able to adequately take into consideration the environmental impacts that may result from unnecessary port development. As explained in detail in the Marine Environment chapter, dredge and fill operations to develop or maintain ports can have significant adverse environmental impact on marine resources.

**Analysis Needed to Determine Future Port Development Needs.** An updated analysis of future California commodity flows is necessary to adequately assess the need for port development. The Army Corps of Engineers is presently conducting such an analysis for the entire West Coast as well as a more detailed study for the Los Angeles-Long Beach and San Francisco Bay port areas.

**Existing Ports May Be Underutilized.** Although there are no generally agreed upon estimates of the capacity and present degree of utilization of California ports, one major study method (Frator, 1960) suggests the existing major port complexes on San Francisco Bay and San Pedro Bay (ports of Los Angeles and Long Beach) and Port Hueneme appear able to handle much more traffic than they do currently. The Maritime Administration in the U.S. Department of Commerce is now making a two-year study of ways to adequately determine port capacity.

**No New General Ports Are Needed.** No new general port areas are required in California for the foreseeable future. Present projections of commercial shipping needs (Water Resources Council, 1971) indicate that most general and bulk cargo port requirements for California can be handled at existing port complexes with modifications such as renewal (i.e., more intensive use) of port land and equipment modernization.

**Coordinated Planning Could Maximize Ports' Efficiency, Capacity.** Distributing commodity flows among a region's ports on the basis of available and planned facilities, and planning port development projects according to projected commodity flows, could maximize the yield from public funds and minimize the need for additional port development.

**No State Agency Now Coordinates Port Development, Traffic Distribution.** Although a voluntary association of ports in California (California Association of Port Authorities) does exist, and although all the major ports are publicly owned, there is no public agency to coordinate or plan for development or traffic distribution between ports, even for ports within the same bay or harbor. Currently, the BCDC in conjunction with MTC is involved in a regional ports planning effort for the San Francisco Bay Area. Although the California Department of Transportation is required by its enabling legislation to prepare a California Transportation Plan (for submission to the Legislature by January 1, 1976) that will include regional maritime transport elements, the Department has completed a survey indicating there should be a State role in maritime transportation planning, but no policy has yet been adopted as part of the Transportation Plan.

**New Cargo Handling Technology.** New methods of handling cargo may reduce some of the need for port expansion. Lighter-Aboard-Ship-Handling (LASH) vessels were specifically designed to on- and offload barges near ports lacking sufficient draft to accommodate deep-draft vessels and to permit unloading at congested ports. Use of these vessels would effectively eliminate the need for extensive dredging

in some California harbors, but they are not yet being used as efficiently or economically as they were intended. The use of currently available (though expensive) high-speed vertical stacking equipment could also reduce the need for port expansion; acreage requirements for storing standardized containers can be reduced from more than 35 acres per berth to less than 8 acres per berth.

**Marine Traffic Control.** Economics of scale and improvements of ship design have combined to produce ships of ever-increasing size. Planning is now underway for daily tanker trips from Alaska to Los Angeles, the development of facilities for offloading of liquefied natural gas (LNG), drilling rigs on the outer continental shelf and within the channels and bays along southern California, as well as projected increases in amount of commodities flowing through the ports of California. Navigation will be in ever-larger vessels over more congested waters with a large number of obstacles around which the superships must pass. Should an accident occur with the collision or grounding of a large-capacity oil tanker, a ship shearing off a drilling platform or an LNG tanker colliding with anything and exploding, major adverse environmental impacts would result. Every effort should be expended to reduce the possibility of a navigational accident to a minimum. While ground control over air capacity is widely accepted as essential to safety in air transportation, similar controls do not now exist over ships even in hazardous coastal waters or those sailing with extraordinarily dangerous cargoes.

**Rail Use at Ports.** An efficient land transportation system is a major consideration in port design and operation. Studies being done by the California Department of Transportation and regional planning bodies will deal with the land transportation requirements of existing ports. Rail transportation, while less flexible than truck, generally requires less land, generates much less air pollution and uses less fuel. However, trucks are required for short hauls.

**Lack of Coastal Water Passenger Service.** The highest coastal population concentrations in California are located around the San Francisco Bay Area and from Los Angeles southward to the Mexican border. Despite these high population concentrations, the only existing water passenger service is from Long Beach to Catalina Island and from San Francisco to Sausalito and Tiburon.

## Policies

**116. No Additional Major Port Areas Are Required.** No new port areas shall be developed outside existing port cities except for possible specialized facilities such as petroleum or liquefied natural gas (LNG) tanker terminals and naval facilities. Ports within existing port cities may be expanded in accordance with the following policies.

**117. Maximize Use of Existing Ports.** To make maximum use of existing ports, a master plan for each port shall be prepared, taking into account potential traffic conflicts between oil tankers or LNG carriers and other vessels and giving the highest priority in the use of existing land space

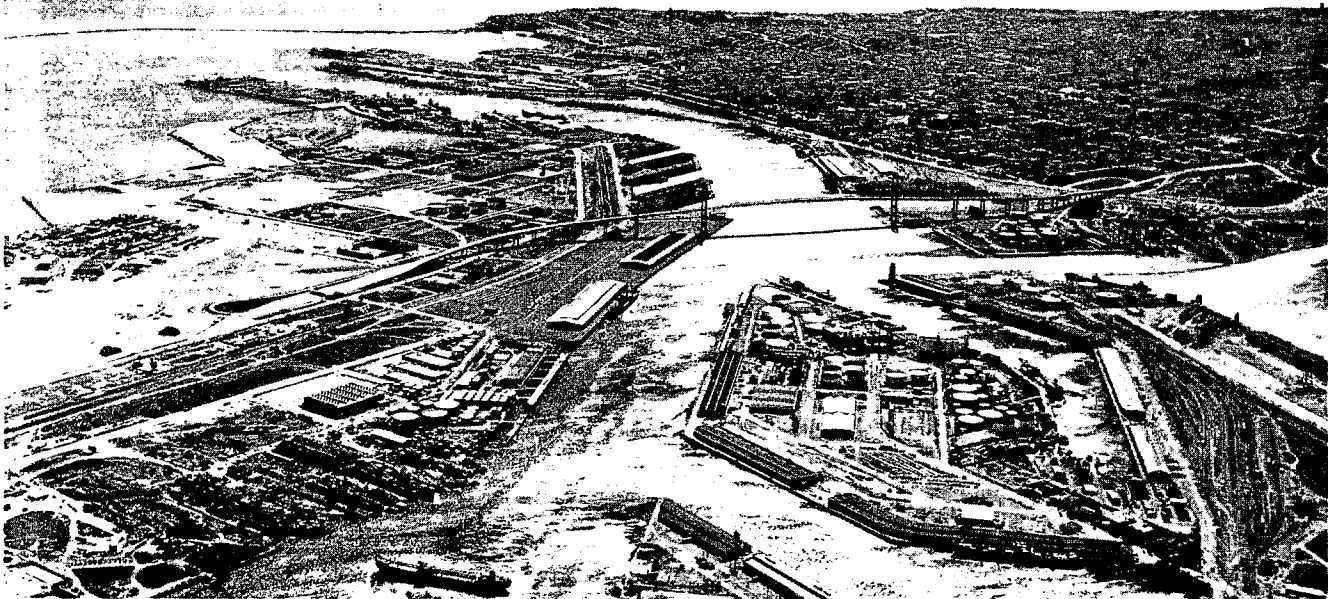
within harbors to port purposes, such as navigational facilities, ship-berthing and materials-handling facilities, shipping industries, and necessary support and access facilities. Other uses consistent with the public trust and otherwise beneficial, such as recreation and wildlife habitat, shall also be provided to the extent feasible. Rail service to port areas shall be encouraged.

**118. Criteria for Port Development Involving Filling or Dredging.** Because filling and dredging for major port development or expansion may be required to maintain the high economic values of California's ports, but because such development or expansion can adversely affect the marine environment and can displace recreational boating from important harbor areas, major filling and dredging for port purposes shall be allowed only when there is a clear need for it and when its adverse environmental effects have been minimized to the greatest extent feasible. Evaluation of the need for a project shall be executed cooperatively by the coastal agency and the California Department of Transportation and/or the Department of Navigation and Ocean Development (as the relative roles of the two agencies are clarified by the Governor and the Legislature) but the coastal agency shall make the final determination of need in the case of major dredging or filling projects. Specifically, major filling and dredging

for port development or expansion shall be permitted if the following conditions are met:

- a. **Need Based on Projected Types of Cargo and Vessels.** There is a need for the project based on the amount and type of cargo and the characteristics of vessels proposed to be handled by the new development, taking into account the significance of the economic efficiencies that might be obtained thereby. Where available, or where required by the coastal agency prior to approval, regional commodity flow studies, such as those presently being conducted by the Army Corps of Engineers, to be reviewed and accepted by the coastal agency, shall be consulted in determining the need for such development; also a detailed examination of berth occupancy, port tonnage, and other relevant port performance indices, such as those presently being drafted by the U.S. Maritime Administration, shall indicate that the proposed development is needed to accommodate amounts and types of cargo for which there are no existing adequate and available terminal facilities.
- b. **Regional Facilities at Capacity or Unavailable.** All regional terminal facilities capable of accommodating the projected commodity flow will be utilized to their maximum practical capacity. Regions for this purpose are San Diego, Los Angeles-Long Beach, Port Hueneme, San

Los Angeles Harbor looking south beyond Federal Breakwater



Francisco Bay-Stockton-Sacramento, Humboldt Bay, and Crescent City. Factors to be considered in determining the capacity of a port are: (1) landside movement of cargo into and out of the port; (2) storage of the cargo while in port; (3) movement of the cargo onto and off the ships; (4) navigation requirements of oceangoing vessels; and (5) the integrity of major ocean carriers' operations. Where any apparent surplus capacity is obsolete but is restorable for port use and is under the operation of another port operator in the same region who is unable to effect the restoration, the feasibility of lease and management of the surplus capacity by the port applicant shall be evaluated before additional filling and dredging is allowed for new facilities that might have otherwise used that surplus capacity.

- c. **Port Master Plan and EIR Completed.** A port master plan has been completed and a final environmental impact report of the port master plan carried out as prescribed by the California Environmental Quality Act.
- d. **Existing Areas Used Efficiently.** Wherever feasible, the required back-up land area has been minimized and existing areas more intensively used through the use of improved

equipment and handling methods.

(This policy does not apply to minor in-harbor dredging, which shall be allowed in existing ports to maintain existing or previously constructed water depth, in accordance with Policies 16 and 18.)

**119. Recommendations for Navigational Safety.** It is recommended that the Legislature petition Congress to authorize and fund the Coast Guard to establish appropriate systems for determining the position of all ships (those greater than 300 gross tons) at any time in coastal and ocean waters of the United States. A communication system shall be implemented to advise all ship commanders of the presence of other vessels in the area with which a course conflict could occur or of the presence of other obstacles to navigation (especially drilling platforms) that lie along the projected course of the ship.

**120. Study Feasibility of Expanded Coastal Ferry Service.** An in-depth study shall be conducted as part of the State Transportation Plan to determine the feasibility of implementing inter- and intra-regional recreational and commuter ferry service along the coast. Existing ferry service shall be vigorously promoted and expanded.



# PUBLIC ACCESS TO THE COAST

## Findings

### **Constitutionally Guaranteed Public Access Is Being Lost.**

Of the 1,072 miles of California coastline, only 508 miles are in public ownership, and 75.3 miles of the publicly owned shoreline are along military lands generally not available for public recreation. However, the right of public access to all coastal tidelands is guaranteed by the California Constitution and has been expanded in scope by various statutes and court decisions. In addition to the publicly-owned coastal recreational facilities, much of the coastline has historically been used by the public for recreation. In recognition of similar public use, Texas and Oregon have enacted "Open Beaches" laws to guarantee public access to larger parts of their coastlines; similar legislation has been considered by the U.S. Congress. Despite legal guarantees and historical public use of the California coastline, much access to the shoreline has been lost by the erection of fences, buildings, and other structures.

**Ways to Provide for Public Access.** Public access to the coastline can be provided by strengthening the public's existing legal rights in a number of ways such as the following. Existing powers that enable regulatory agencies to require public access as a condition in the approval of subdivisions or developments (or where public access is not feasible or desirable, the payment of "in lieu" fees for the acquisition of access elsewhere) could be more fully utilized. The Subdivision Map Act could also be amended to make such requirements more explicit. Experience indicates that access can be required without undue hardship to private property owners. A State agency could be charged with the explicit responsibility for enforcing the public's right to have access to and use of the coastline by bringing suit on behalf of the public. In addition, the power of eminent domain could be employed to acquire access to the coastline in areas where it cannot be secured through the regulatory process; the State Department of Parks and Recreation presently is not empowered to use eminent domain to acquire trails and beach access.

**Private Development in the Coastal Area Can Impede Coastal Access.** Along the immediate shoreline, homes, businesses, and industries have often cut off existing public access to the coastline, have used up available road capacity and off-street parking, and have precluded use of the coastline area for recreation. Development back from the shoreline also affects the ability of residents and tourists to get to and use the coast. In addition to its impact on transportation systems serving the coast, development can reduce upland recreational opportunities that would otherwise relieve

demand on the shoreline. Commercial recreation, on the other hand, is a private use of the land that can provide benefits for the general public when public ownership is not possible. (See also the Recreation chapter.)

**High-Cost Housing and Tourist Facilities Are Restricting Coastal Access.** Because of rising land and construction costs and high property taxes, the limited amount of land available on the coast, and the demand for higher-priced housing and visitor accommodations, few housing and tourist facilities for persons of low and moderate income are now being built in many parts of the coastal zone. Moreover, existing housing and tourist facilities serving low-and moderate-income persons are being replaced by higher cost apartments, condominiums, and motels. This trend, begun several years prior to the passage of the Coastal Act, is in several coastal areas changing the character of the population near the coast. Many elderly and low-income people, for example, can no longer afford coastal living and are forced to live elsewhere.

**Condominium Conversions Displace Low-and Moderate-Income Persons.** The process of converting rental units to condominiums often causes the elderly and other moderate-and lower-income persons and families to move away from the coast because of difficulties in obtaining mortgage financing, their lack of savings to cover the down payment requirements and their inability to afford monthly payments

Del Mar, San Diego County





higher than apartment rents, and the reduction in the amount of rental housing caused by the cumulative effect of condominium conversions elsewhere in the coastal zone.

**Expensive Recreational Facilities Can Exclude Equal Access.** Some areas of the coastline have been used for recreational activities involving expensive items such as second homes, large boats, and exclusive clubs that are limited to a relatively small portion of the general public. Unless these and other such costly recreational resources are made available to the general public through rental programs, many people will be precluded from enjoying certain areas.

**Institutional Facilities Provide Public Access Opportunities.** Because their peak use times do not generally coincide with peak coastal recreational use, and because of their public service orientation, certain institutional facilities such as libraries, city halls, and colleges, if properly planned, can provide substantial opportunities for greater public access and enjoyment of the shoreline, and can complement the protection, enhancement, and restoration of coastal resources.

**Military Lands Have Potential for Providing Public Access.** Military bases located on the coast have often served to protect coastal resources. However, many such bases also have the potential of providing additional significant opportunities for public coastal access that would be consistent with both military uses and resource protection.

## Policy

**121. Basic Policy: Provide Access to the Coast for All People.** A major long-term goal of coastal conservation and development shall be the provision of maximum amounts of oceanfront area for public use and enjoyment. Access to the coast for persons of all income levels, all ages, and all social groups shall be the goal, consistent with the need to protect coastal areas from destructive overuse and to protect both public rights and the

rights of property owners. Fully achieving this goal, especially in urban areas, may require many years of concerted public and private measures.

**a. Width of Oceanfront Area Available for Public Use.** The width of the oceanfront area available for public use shall be related to local conditions and to the possible public uses. In some places the width might be quite small; in others, several hundred yards or more. The goal shall be the provision of areas large enough to permit significant opportunities for public use and enjoyment of the oceanfront.

**b. Achieving Public Access.** In some cases, public purchase of lands will be necessary to achieve this public access policy. In others, public purchase or dedication of scenic easements across agricultural lands will be adequate to provide visual access to the shoreline. Private development of visitor-serving and commercial-recreational facilities in suitable nearshore areas shall have priority over other types of development in these areas. Such private developments shall be designed to maximize the provision of public access to the coast.

**c. Special Effort Is Needed in Urban Areas.** In metropolitan areas, an active program of public acquisition shall be initiated to preserve remaining open oceanfront areas for public use and to provide city dwellers access where development currently precludes effective access to the shoreline. Where large public open spaces cannot be provided (such as within existing port facilities, downtown areas, or built-up neighborhoods) public access through and around the areas that connect with other public open spaces shall be provided.

# THE RIGHT OF PUBLIC ACCESS

## Policies

**122. Guarantee Legal Rights of Public Access to the Coastline.** The rights of public use of the coast, protected by the California Constitution, recognized by the courts of California, and acquired through historic use and custom, shall be effectively guaranteed. To this end:

**a. Prevent Development from Encroaching on Public Use Areas.** Development shall not be permitted to interfere with the public's right, where acquired through historic use and custom, to use dry sand and rocky coastal beaches to the first line of terrestrial vegetation. In an area subject to public rights of access, development shall not be allowed to

proceed in a manner inconsistent with those rights. Where evidence of extensive public use exists, determination of public rights shall be made by the coastal agency in advance of development proposals, and for sections of the coast including several properties rather than on a lot-by-lot basis. This policy is intended to define and protect existing public access rights, and shall not be used or construed to allow a taking of private property in violation of the U.S. and California Constitutions.

- b. **Enforce the Public's Rights.** The Attorney General's Office, the Resources Agency, or another appropriate State agency shall be adequately funded and directed to survey and to more actively enforce the public's existing rights, under the implied dedication decisions, to have access to and use of the coast, and to take all necessary steps to protect the public's rights including bringing suit on behalf of the public.
- c. **Restrict Signs That Discourage Access.** No signs shall be posted that would discourage the public from exercising its legally guaranteed rights of access to the coast except under the provisions of Policy 124.

**123. Provide Public Accessways to the Coastline.** Public access from the nearest public thoroughfare to the shoreline and along the coast shall be provided in new developments as specified below.

- a. **Require Access Through New Developments.** New developments shall provide public accessways to the shoreline except in those individual cases where it is determined that public access is inappropriate, such as where (1) adequate access exists nearby, (2) the topography makes access dangerous, (3) the proposed development is too small to include an accessway, (4) the coastal resources are too fragile to accommodate general public use, (5) public safety or military security precludes public use, or (6) the public accessway would adversely affect agricultural uses. In developments where the provision of a public accessway is determined to be inappropriate, the project sponsor shall pay "in lieu" fees (to be established in regulations by the coastal agency, after public hearings, or in approved subregional or local coastal plans) to a fund for the acquisition, maintenance, and operation of public access at a suitable location elsewhere. To the maximum extent feasible, in-lieu fees shall be spent in the general area in which they are collected

Seascape Shores (private), Solana Beach, San Diego County



and in areas where access is called for in sub-regional and local coastal plans.

- b. **Guarantee That Access Is Permanent.** In public, semi-public, commercial recreation, and visitor-serving developments (such as colleges, museums, restaurants, and hotels) that allow public access to their grounds as a part of their normal operations, public access to the shoreline shall be guaranteed by the recording of a restriction covering the reserved accessway. In private developments, public access shall be ensured (1) either by dedication of fee title or an easement for the reserved accessway to a public agency, or (2) by the recording of a deed restriction, at the owner's option. Dedicated accessways shall not be required to be opened to public use until a public agency or private association agrees to accept responsibility for maintenance and liability for the accessway.
- c. **Provide Blufftop Paths and Linear Parks.** A coordinated system of paths and linear parks shall be provided on coastal bluffs, where consistent with other Coastal Plan policies, linking these areas with community trail and park systems, such as the Coastal Trails System recommended in Policy 145.
- d. **Expand Enabling Legislation for Requiring Dedications.** It is recommended that legislation be enacted to (1) amend the Subdivision Map Act (Government Code, Section 66410 and following) to provide for review and approval by the coastal agency of local determinations that "reasonable public access is otherwise available within a reasonable distance from the subdivision;" (2) extend the statute of limitations on government acceptance of coastal access dedications in the Subdivision Map Act or other appropriate statutes from the present

three years to ten years; and (3) continue the access dedication requirements of the Coastal Act (Public Resources Code, Section 27403[a]) and make such requirements for access dedication, where applicable, a condition of local government permits for development.

- e. **Authorize State Agency to Acquire and Maintain Accessways.** A State agency (e.g., Department of General Services, State Lands Division, Department of Parks and Recreation, or a coastal conservancy agency) shall be authorized to (1) receive and adequately maintain and police public accessways and to hold liability for these areas; (2) receive the payment of a fee in lieu of the dedication of access if actual access is not appropriate; and (3) exercise the power of eminent domain and expend the in-lieu fees to acquire, maintain, and operate public access in areas where access cannot otherwise be secured.

**124. Manage Public Access Areas.** Areas to which the public has the right of access shall be managed, maintained, and controlled by public agencies. These areas shall include (1) tidelands, dry sand and rocky beaches, and those portions of the oceanfront area historically used by the public; and (2) accessways through coastal developments provided pursuant to Policy 123. General public use of an area may be closed or limited by the government agency managing the area, upon concurrence of the coastal agency, where necessary to prevent deterioration of natural resources, conditions unsafe to the public, threats to military security, or uncontrollable public nuisance causing damage to adjacent properties. The legal right of public access shall not be surrendered because of the presence of any of these conditions, and areas closed to general access shall be reopened as soon as the condition can be resolved.

## EQUALITY OF ACCESS

### Policies

**125. Provide Lower-Cost Tourist Facilities in the Nearcoast Area.** To increase recreational access to the coast for the general public, tourist facilities

(including campgrounds, hotels, youth hostels, recreational vehicle parks, etc.) for low- and moderate-income persons shall be provided in the nearcoast area through the use of all available financing techniques, including the tax increment obtained from high-cost coastal housing and tourist

facilities. Lower-cost visitor facilities such as campgrounds, rustic shelters, ranch houses converted to inns, bed and board in private homes, summer home rentals where several families can share the cost, and new tourist accommodations that provide some moderately priced units and short-term rentals of other recreational facilities (e.g., boats) shall be given priority over exclusively expensive facilities (e.g., private residential developments, some yacht clubs). Recreational vehicle campgrounds – provided both by the public and private sectors – shall be encouraged where consistent with other Coastal Plan policies (see especially Recreation chapter). Where possible, vehicle camping areas shall be designed separately from tent camping areas. Such facilities shall be located well back from the water's edge and shoreline pedestrian access provided.

**126. Increase Coastal Access for Low- and Moderate-Income Persons.** Housing for persons of low and moderate income shall be adequately provided to increase access for all people to the coast. New developments that provide some percentage of moderately priced units shall be given priority over exclusively expensive facilities to the extent possible, as provided below:

**a. Do Not Decrease Low- and Moderate-Income Housing Opportunities.** An important goal shall be to protect and, where necessary, rehabilitate existing low- and moderate-income housing in coastal neighborhoods. To the extent that public or other funds are available to build low- and moderate-income housing, new replacement housing shall be required as a condition of

approval of the demolition of any such existing housing in the nearcoast area. The replacement housing shall be in the same general area and shall be of a size and in a price range similar to the housing to be demolished. This requirement shall not apply to single-family homes occupied by the owner of the home or the owner's immediate family.

**b. Provide New Low- and Moderate-Income Housing.** A significant percentage of new housing within the nearcoast area shall serve low- and moderate-income persons to the extent that funds are available from State and Federal sources, such as the Community Development Act of 1974. State and national programs to assist low- and moderate-income housing, such as the bills (pending in the State Legislature) to provide increased mortgage funds, shall be encouraged and expanded.

**c. Regulate Condominium Conversions.** Condominium conversions in areas which provide significant rental opportunities for low- and moderate-income persons, the elderly, and families with children (as determined by the 1970 census figures) shall be approved only if (1) proposed units are or will be brought into substantial conformance with current code standards; (2) other rental units are available in the immediate coastal area at similar rental rates (e.g., the rental vacancy rate in the coastal area of the local jurisdiction has remained above three per cent for the preceding six-month time period); (3) first option to purchase is provided to present tenants; and (4) 90 days notice of conversion is provided to present tenants.

## ACCESS THROUGH MULTIPLE USE OF COASTAL LANDS

### Policies

**127. Retain Surplus Lands in Public Ownership.** If publicly owned land and water areas are declared surplus, they shall be retained in public ownership for public use except where such use would be inappropriate. Any leasing or development of such areas shall be in accordance with an approved subregional or local coastal plan (see Policies 161

and 162) or shall be approved by the coastal agency as consistent with the Coastal Plan.

**128. Encourage Institutional Development That Provides Public Access to the Coast.** Institutions that have the potential for encouraging public use and preserving coastal resources (e.g., marine laboratories, libraries, museums, city halls, and colleges) shall have priority for location in the

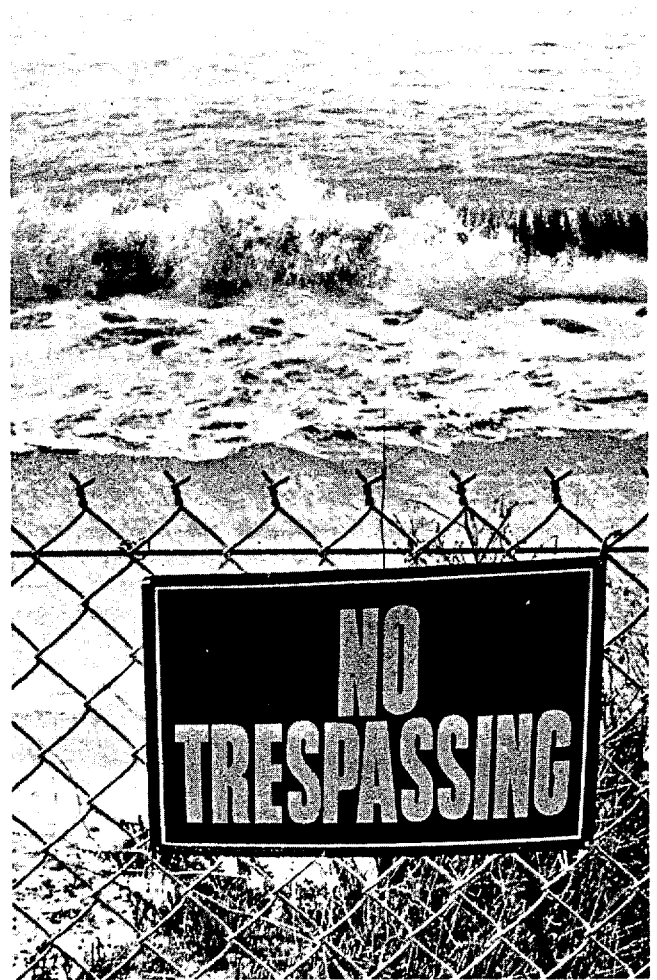
oceanfront area over residential and other uses that would exclude public access (except for agricultural and coastal-dependent developments). Approval of such institutional developments shall depend on (1) the amount of public access generated (e.g., public spaces, not private offices, on the ocean side of a building); (2) the degree to which the proposed development takes advantage of a coastal location by providing coastal amenities; (3) the way it combines public use with the protection of natural resources; and (4) its visual impact and the relationship to surrounding uses.

**129. Maximize Public Use of Federal Lands.**

Maximum public use of Federal lands, consistent with national security, public safety, and resource protection, shall be encouraged. Specifically, the Federal government shall be encouraged to open suitable areas of military land for public recreation (as has been done for parts of the Golden Gate National Recreation Area and at San Onofre on Camp Pendleton in San Diego County).

**130. Include Multiple Uses in Major Facilities.**

Each application for a major coastal energy or public service facility shall evaluate the potential for multiple, public-oriented uses of the site proposed, and shall incorporate such uses to the extent feasible and consistent with security, public safety, and resource protection.



Malibu

# RECREATION

## Findings

**Coast Provides Variety of Recreational Opportunities.** The California coast provides an almost endless variety of recreational opportunities for people to play, to be refreshed, and to be inspired: wide sandy beaches for cooling off from the heat of the city; rocky headlands for exploring; high bluffs for watching the ever-changing ocean; waters for swimming, boating, surfing, and fishing; and tidepools, sea caves, and coastal wetlands for nature study. In short, the coast is a major provider of recreation important to the quality of life in California.

**Shortage of Recreational Facilities Persists.** The coast is heavily used for recreation because 85 per cent of California's population lives within 30 miles of the ocean and because the coast provides many year-round recreational opportunities not found at inland areas of California and other states. Many public and commercial recreational facilities exist along the coastline, but a shortage of facilities persists for almost every popular recreational activity. The exact demand for specific types of recreational facilities is difficult to project, but there will probably be a continued high demand for traditionally popular coastal activities such as fishing, sightseeing, beach use, skin diving, boating, camping, hiking, bicycling, and general day use.

**Recreational Pressure Will Increase with Further Development.** Large-scale urban development in the coastal zone that does not include adequate internal open space or is not balanced with provision of public recreational areas away from the coastline increases congestion and limits access to coastal recreational resources for all Californians as the local residents use the remaining coastline for all their recreational needs. At the same time, the rapid development of large open spaces inland from the immediate shoreline destroys the scenic open space qualities of these areas and precludes use of these upland areas for recreation (picnic grounds, golf courses, recreational vehicle campgrounds), transportation (parking lots, roads, bus stations), and multi-use commercial services (restaurants, hotels, amusements) that could be linked to the shoreline by trails, shuttle buses, or trams.

**Coast Subjected to Conflicting Recreational Use Demands.** The coast makes significant contributions in satisfying the recreational demands of the State's 20 million inhabitants. However, to meet the desires of an ever-increasing population, this irreplaceable natural resource is being subjected to increasing and sometimes conflicting demands for recreational use. When there is a demand for recreational activities that are not compatible with each other, the result can be an intensive activity (e.g., dunebugging) taking over the use of the area from more passive activities (e.g., sunbathing,

**PUBLIC RECREATIONAL FACILITIES ON THE COAST  
(ILLUSTRATIVE AND APPROXIMATE)<sup>a</sup>**

	North Coast	North Central	Central Coast	South Central	South Coast	San Diego Coast
Boat Access Sites <sup>b</sup>	1,203	3,308	1,188	1,023	19,922	6,378
Picnic Tables <sup>c</sup>	454	399	1,587	1,915	1,231	933
Developed Camping Sites						
Auto Access <sup>d</sup>	679	78	414	1,465	272	397
Walk In <sup>e</sup>	6	48	0	25	0	0
Miles of Trail <sup>f</sup>	131	139	216	40	16	11

a Facilities available at shoreline and up to 5 miles inland.

b Public and private berthings, moorings, or parking spots associated with launching ramps; data from Department of Parks and Recreation, 1969.

c Parks and Recreation, 1969.

d Tent and trailer sites at Federal and State areas; data from parks and Recreation, 1971, and National Park Service and Bureau of Land Management, 1973.

e National Park Service, 1973.

f Foot and horse trails shown on Parks and Recreation Inventory, 1969, plus additions at Federal areas since 1969.



Laguna Beach

beachcombing). Conflicting demand for recreational facilities can also result in the alteration of the coastal environment for one activity (e.g., filling shallow waters for a park) at the expense of another activity (e.g., preserving the water area for boating). Moreover, the construction of roads and parking lots along the immediate shoreline uses up potential recreational areas. Often these support facilities could be located back from the shoreline area.

#### **Coastal Recreation and Tourism Benefits State Economy.**

Although there are no absolute data available that quantify the economic benefits of recreation and tourism along the coastline, they contribute, according to the California Department of Commerce, at least \$2.5 billion annually to the California economy and generate over 280,000 jobs. In a recent study done for the Department of Commerce (A Study for the Methodology for a Continuous Tourism Research Program, July, 1974)<sup>1</sup> it was determined that the California coastline is a major attraction to visitors from throughout the world.

#### **Many Potential Coastal Recreational Areas Have Been Lost.**

Potential recreational areas for active use by the general public and scenic open spaces (such as agriculture, forestry, and grazing lands) that enhance the recreational quality of the coast have been lost because the assessment of land for property taxation purposes has often been based on the land's speculative value (e.g., for residential or commercial development) rather than its present use value (e.g., for agriculture). High property taxes can economically preclude

the continuation of existing low-intensity uses. However, recently enacted legislation (AB 4107, passed in 1974) requires that the effect of governmental development restrictions must be considered in the assessment of land values.

**Beach Maintenance Costs Need Reevaluation.** When local communities are responsible for maintaining beaches used by the general public, the cost of maintenance may be inequitably borne by the local taxpayers if public costs exceed the "return" to the local economy.

## **Policy**

**131. Basic Policy: Increase Coastal Recreation Compatible with Resource Protection.** Increased opportunities for coastal recreation shall be provided, consistent with protection of natural resources, by (1) buying some additional ocean-front property for public beaches and parks; (2) giving high priority to private development of resorts, campgrounds, and other types of commercial-recreational facilities on privately owned property in appropriate areas; (3) reserving

some oceanfront areas for swimming, boating, diving, and other water-dependent recreation; (4) using areas upland from the oceanfront for parking, restaurants and snack bars, and other recreational support, thus freeing the oceanfront itself for maximum recreational use; (5) requiring adequate open space and recreational amenities

in new developments near the coast, to insure that they do not exert undue pressure on publicly owned beaches and parks; and (6) managing coastal beaches, parks, reserves, and other such areas to protect them from overuse and to offer a wide variety of forms of recreation — e.g., swimming, hiking, nature study, etc.

## RECREATION AND THE COAST

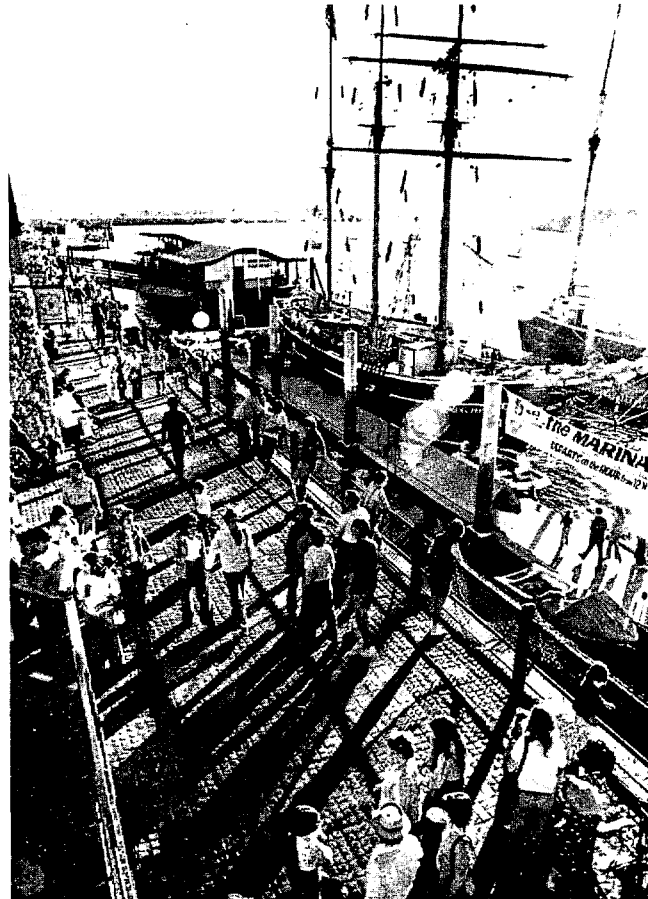
### Policies

**132. Consider Recreational Potential Before Allowing Other Uses of Oceanfront Land.** Upon application for a change in use of an oceanfront property, a prompt evaluation shall be made as to the property's potential for recreational use before other uses are allowed. Generally, however, advance determination shall be made on an area-wide basis as part of local or subregional planning and reevaluated as part of subsequent plan reviews and amendments. Especially critical are those areas recommended for public acquisition by any Federal agency, by the State Department of Parks and Recreation in the California Coastline Preservation and Recreation Plan and in the 1974 State Park Bond Act program, in city, county, and regional plans, and in the Coastal Plan, and any additional areas such as coastal Federal surplus lands found to be of high recreational value. In potential recreation areas, private development that complies with all other Coastal Plan policies may be delayed only in accordance with the provisions of Policy 157, and shall be allowed to proceed immediately if it is determined that that present and foreseeable future demand for the public recreational activities that would be accommodated on the property is already adequately provided for in the area. (See also Public Acquisition of Coastal Land chapter.)

**133. Give Priority to Commercial Recreation Over Private Development.** The use of private lands for visitor-serving commercial recreation (e.g., resorts, restaurants, hotels, and campgrounds) and their support facilities, designed to enhance public opportunities for coastal recreation, shall have priority over private residential, general industrial, or general commercial development

(but not over agriculture or coastal-dependent industry). Private residential, general industrial, or general commercial developments shall be permitted in oceanfront locations only if commercial recreation would be inappropriate (due to location, surrounding land use, accessibility, etc.) or is already adequately provided to meet present and foreseeable demand in the area. (See also Policy 125 regarding equality of access to such facilities.)

Boardwalk at Fishermen's Village, Marina del Rey





**134. Reserve Shoreline Areas for Recreation Activities That Need Access to Water.** To achieve a wide range of recreational opportunities, and to avoid conflicts among incompatible activities, the use of coastal recreational areas shall be determined according to the following priorities:

- a. **Coastal-Dependent Recreation.** Coastal areas suited for surfing, SCUBA diving, and other specialized recreational activities that cannot readily be provided at inland water areas shall be protected for these uses.
- b. **Water-Dependent Recreation.** Where they would not conflict with coastal-dependent activities, swimming, fishing, waterfowl hunting, boating, and other forms of recreation dependent on the water shall have priority over recreational activities that do not require direct access to the water.
- c. **Other Recreation.** Ball diamonds, golf courses, off-road vehicle areas, and facilities for other recreational activities that do not require coastal sites shall be permitted on the coast if they would not conflict with, displace, or prevent meeting the present or foreseeable demand for coastal-dependent and water-dependent uses.

**135. Restrict Substantial Alterations Along the Coast for Recreation.** Recreational uses of the coast that do not require extensive alteration of the natural environment (e.g., tent campgrounds, walk-in campgrounds, picnic areas, hiking trails) shall have priority in intertidal and oceanfront areas over recreational uses that would result in substantial alteration of the natural environment (e.g., hotels, vehicle campgrounds, parking lots). Substantial alteration of land and water areas along the coast (by dredging, filling, paving, grading, etc.) to accommodate a specific recreational use shall be permitted if (1) the proposed use is clearly water- or coastal-dependent (e.g., boating, swimming, fishing); (2) there is no less environmentally damaging alternative to accommodating the use; and (3) the alteration is in accord with Coastal Plan policies.

**136. Reserve Upland Areas for Recreational Support.** Whenever possible, recreational activities and support facilities that do not have to be in the oceanfront area shall be upland, connected to the shoreline by trails, bicycle paths, shuttle buses, or trams.

- a. **Upland Location for Developments That Would Degrade Shoreline.** In subregional and local coastal planning upland support areas shall be reserved (1) for intensive recreational develop-



Santa Monica

ment that otherwise would require substantial shoreline alterations, and (2) for commercial recreation facilities that would otherwise infringe upon or displace public recreational, educational, or scientific areas on the shoreline.

- b. **Priority for Public Recreation in Upland Areas.** Acquisition and development of such upland areas appropriate for public recreation shall be given high priority.

**137. Provide a Variety of Recreational Facilities near Metropolitan Areas.** A wide variety of facilities to accommodate heavy recreational use and intensive activities along the coast shall be provided in areas convenient to population centers. The few remaining large open spaces in southern California (e.g., Camp Pendleton, Santa Monica Mountains, Channel Islands) shall be reserved for predominantly low-intensity recreational use by clustering the parking lots, campgrounds, picnic grounds, and other facilities necessary to accommodate concentrations of people in limited areas where it can be determined that the sites have the capacity to withstand more intensive use. (See section on Controlling Recreation to Protect Resources.)

**138. Expand the Statewide System for Overnight Reservations.** The centralized statewide reservation system for overnight recreational facilities, used by the California Department of Parks and Recreation, shall eventually be expanded to include all major public and private facilities.

**139. Ensure Equity in Cost of Maintaining Coastal Recreational Facilities.** Because in extreme situations local taxpayers can inadvertently be penalized when a municipality is responsible for maintaining coastal recreational facilities (e.g., beaches, trails, parks, services for commercial recreational facilities) used heavily by inland residents, county, State, or Federal governments

shall assume greater responsibility for paying some of these costs in communities where it can be established that this inequity exists. It is recommended that legislation such as AB 3611 (introduced and passed in the 1973-74 legislative session but not signed into law), which would have provided funds to help rectify this inequity as it applies to beach maintenance, be reintroduced.

## RECREATION AND DEVELOPMENT

### Policies

**140. Balance Development with Open Space and Recreation Facilities.** To avoid undue local pressure on coastal recreational facilities because of insufficient alternative recreational facilities for nearby residents, the amount of new development in the nearcoast area shall be correlated with precise open space acquisition and recreational use plans prepared and adopted by local agencies, and with provision of on-site recreational facilities determined to be sufficient to serve the new development. Specifically:

- a. **Open Space, Recreation Requirements.** Open space and recreational requirements shall be based on standards adopted by the National Recreation and Parks Association unless other standards are determined to be more appropriate for specific coastal areas by the coastal agency.
- b. **Cities and Counties Should Assure Adequate Public Open Space.** As part of local government coastal plans (see Part III), acquisition techniques and a timetable shall be established

for the purchase and improvement of public recreational areas adequate to (1) fully meet the standards of paragraph (a) above in newly developing areas and (2) substantially reduce any deficiencies in existing areas.

- c. **Phase Intensified Development with Programs to Reduce Recreation Deficiencies.** New development proposed in already developed areas with existing recreational and open space deficiencies shall be permitted only if consistent with an approved program that includes implementation procedures and timetables to substantially reduce these deficiencies.

**141. Require Sufficient On-Site Recreation in New Development.** To help alleviate pressures on public beaches and parks, and to ensure that those areas have room to serve people from inland as well as coastal areas, new residential developments near the coast shall be required to have adequate open space and on-site recreational provisions. In addition, public amenities such as pedestrian walkways, bicycle paths, equestrian trails, open space, and parking areas shall be provided in new developments large enough to accommodate them.

## CONTROLLING RECREATION TO PROTECT RESOURCES

### Findings

**Coastal Areas May Be Misused.** Excessive recreational use can damage the fragile resources of the marine and land environment. Many tidepools have been virtually stripped

of all living organisms by people collecting specimens. Some areas, such as marshes and dunes, may be damaged by excessive foot traffic. Islets and offshore rocks that provide protected sanctuary for seabirds and sea lions are disturbed by human intrusion. In some areas, selective hunting and fishing of certain species can deplete these resources. With

adequate protection, public education, and in some cases, restoration, most disturbed areas can recover.

**Carrying Capacity Should Not Be Exceeded.** To protect the environment of the coast as well as the quality of recreational experiences, recreational use should be controlled according to the carrying capacity of each area. In urban areas where there is road access to much of the coast, it is likely that coastal recreational facilities will be intensively used by large numbers of people so that fragile resources can be adequately protected only by on-site measures such as limiting parking or erecting fences. In rural areas where access to the coast is limited to that provided by Route 1, the extent of recreational use can be limited by the capacity of the road system, which must also serve additional commercial, industrial, and residential development along it.

**Recreational Carrying Capacity of Coastal Areas Needs Investigation.** Recreational carrying capacity, defined as "the character of use that can be supported over a specified time by an area developed at a certain level without causing excessive damage to either the physical environment or experience of the visitor," depends on the interrelationship of three factors:

- The environmental or physical capacity, which is the amount and character of use beyond which the natural resource will be unacceptably altered;
- The social, psychological, or visitor capacity, which is a subjective level beyond which individuals feel the recreational experience is not fully satisfactory because of overcrowding, noise, loss of privacy, etc.; and
- The facility capacity, which is the maximum level of use the manmade facilities (parking lots, roads, trails, campsites) can accommodate. Facility capacity is not affected by natural constraints and is determined entirely by management decisions.

Very little definitive study has been conducted on the carrying capacity of coastal zone recreational areas, though these areas possess certain unique environmental characteristics that do not exist at inland locations. A model similar to the State Department of Parks and Recreation's Allowable Use Intensity Program could be developed for other carrying capacity assessments. Overuse, environmental degradation, and native flora and fauna declines have occurred in some coastal areas due to the lack of access control suitable to the circumstances.

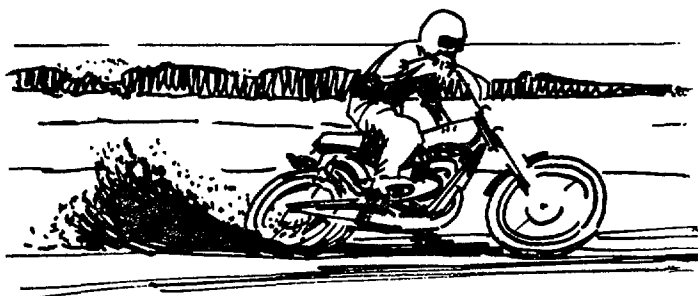
**Recreational Capacity of Coastal Areas Varies.** Although each coastal area must be analyzed separately to determine its optimum recreational use level, the recreational capacities of tidepools, sea caves, and coastal wetlands are most often determined by their fragile ecological conditions while the recreational capacities of sandy beaches, bluffs, headlands, bays, and nearshore waters are more often determined by access and the quality of the recreational experience than by the environmental qualities of the sites.

## Policies

**142. Limit Access and Recreational Use Where Necessary.** Use of the coast for recreation and education shall be controlled where necessary to prevent significant damage to natural resources by tidepool collecting, underwater fishing, trampling

of marshes, traffic on dunes and bluffs, etc. The controls shall seek to ensure continued productivity and recreational enjoyment of those resources and to protect public safety. Where information is available to determine the environmental carrying capacity of a coastal resource, the level of use of roads, parking areas, and other support facilities shall be kept within this capacity. Where feasible, other appropriate natural areas shall be made available to reduce overuse of existing areas. It is recommended that enforcement of regulations regarding the carrying capacity of an area be strengthened and consolidated and that State and Federal funding be provided to assist local or State agency programs to carry out this policy.

**143. Restrict Off-Road Recreational Vehicles along the Coast.** Off-road recreational vehicle (ORV) use in the intertidal and oceanfront areas shall be permitted only in (a) that portion of Pismo Beach in San Luis Obispo County where such use



is presently permitted and controlled by the California Department of Parks and Recreation, and (b) such other coastal areas where ORV use is presently permitted and where all of the following standards are met: (1) the ORV use shall not adversely affect coastal plant or animal life, water quality, air quality, or other natural resources, and shall not conflict with other recreational uses; (2) the ORV use shall not result in noise levels that exceed 65 dBA at a distance of 50 feet from the noise source; (3) adequate support facilities shall be provided (e.g., rest rooms, holding tank dump stations, first aid facilities); and (4) a private operator or public agency shall assume responsibility for the management of the area to ensure that the ORV use is limited to the area designated for such use, and that the area is closed to ORV use if the above standards are not continually met.

**144. Establish Long-Range Program to Protect Recreational Resources.** A long-range program to protect coastal recreational resources from overuse shall be established jointly by the coastal agency and other appropriate public agencies. This program shall coordinate the planning of coastal

access with the desired recreational use intensity along the coast, and shall ensure that public recreation areas are adequately managed and maintained to achieve this end. This program should include effective controls of recreational use at peak weekend or seasonal times and incentives for use at off-peak times.

**a. Criteria for Coastal Use Zones.** The foundation of this program shall be the designation of three zones of use-intensity: Heavy Use Zone, Moderate Use Zone, and Light Use Zone. Criteria for the designations shall include, but not be limited to, the following: (1) the area's environmental uniqueness or fragility; (2) the present and potential use; (3) the coastal recreation demand in the region; (4) the area's proximity to major population centers; (5) the availability of major transportation corridors;

(6) the area's value as an isolated and relatively low-intensity recreational area; (7) the area's ability to accommodate intensive recreational use; and (8) the need for a variety of recreation facilities.

**b. Distribution of Use Zones.** Except to the extent that natural features determine zone designations, the three types of coastal use-intensity zones shall be relatively evenly distributed through each Region.

**c. Improving Analysis Techniques for Use Levels.** Research shall be undertaken on ways of improving analysis techniques for determining recreational site carrying capacity; once developed, these techniques shall be used to evaluate all coastal recreational sites, and management action shall be taken to adjust recreational use levels accordingly.

## COASTAL TRAILS SYSTEM

### Findings

**Increase Accessibility to the Coastal Zone Through Coastal Trails System.** A system of coastal trails (including waterways valuable for rafting, canoeing, and kayaking) and overnight shelters for hikers, bicyclists, and equestrians would make more of the coast accessible to more people, would link population centers with recreation facilities, and would allow people to enjoy the scenic qualities of the coastline. Coastal trails being planned and developed by public agencies will be coordinated and linked into a State coastal trails system as part of the California Recreational Trails and Hostel Plan prepared by the State Department of Parks and Recreation, which will coordinate the overall trails system with local and regional agencies and organizations.

**Increase Bicycle Riding Facilities in the Coastal Zone.** Bicycle riding is inexpensive, does not harm the physical environment, and provides both transportation and recreation. Although bicycles can be used on existing roadways, mixed bicycle-auto traffic is often dangerous to riders and can adversely affect traffic flow. Increased bicycle use in the coastal zone can be strongly encouraged by giving high priority to the construction of special bike lanes, the provision of bike storage racks at coastal destinations, and the modification of transit vehicles to accommodate bicycles. (See also the Transportation chapter.)

### Policy

**145. Establish a Coastal Trails System.** A hiking, bicycle, and equestrian trails system shall be established along or near the coast, consistent

with the protection of agriculture, fragile natural resources, coastal-dependent developments, and land-owners' property rights, according to the planning concepts, design standards, and safety criteria developed by the California Department of Parks and Recreation. Ideally, the trails system should be continuous and located near the shoreline, but it may be necessary for some trail seg-

Near Point Arena, Mendocino County



ments to be away from the oceanfront area to meet the objective of a continuous system. To this end:

**a. Public Responsibility for Trail Development.**

The Department of Parks and Recreation shall be adequately funded to coordinate the implementation, maintenance, and policing of the State coastal trails system, and shall be empowered to use eminent domain to acquire the trail rights-of-way where all other means of securing access fail. Individual trail segments shall be connected over State coastal trail routes to be designated by the State Department of Parks and Recreation after consultation with other State agencies, in accordance with State law. Public agencies shall develop coastal trail segments through areas along the coast within their ownership or jurisdiction.

**b. Best Locations for Coastal Trails.** Priority shall be given to establishing trails systems in and near urban areas, with connecting links established as demand and resources dictate. Where appropriate, the coastal trails system shall use existing public rights-of-way and features such as ridgetops, wide beaches, abandoned railway beds, and unused roadways, and shall connect existing inland and beach access trails, parks, and historic sites. To protect agricultural lands, trails shall not interfere with agriculture. Trails shall generally be located along existing public roads or other public rights-of-way and separated from the agricultural lands by a fence where appropriate; adjacent agricultural landowners shall be permitted to post no-trespassing signs.

**c. Design of Coastal Trails.** The trails system shall be designed to accommodate only hikers, bicyclists, and equestrians. Trails used primarily

as bicycle paths shall be separated from roads where possible, but bicyclists shall not thereupon be barred from the road. Overpasses, underpasses, or other safe means of bike crossing shall be provided where necessary. Where bicycle trails must share roadways with autos, there shall be a maintained bike lane on each shoulder of adequate paved width, and unsafe storm drain grates shall be replaced; bikes shall have exclusive use of this lane except when motor vehicles are pulling off the road or making turns. Special trails, such as Braille trails and paved paths for wheelchairs, shall be developed to provide access to various coastal habitats for physically handicapped persons.

**d. Provide Campgrounds and Other Facilities.**

Campgrounds with water, sanitary facilities, and other basic amenities shall be provided at appropriate intervals along the coastal trails system, and camping shall be restricted to these designated areas. A well-planned hostel system shall be included in the trails system. Coin-operated lockers, bicycle racks, or other safe means for storing bicycles shall be provided and maintained at designated areas along the trails system.

**e. Secure Rights-of-Way.** Where appropriate, trail rights-of-way shall be secured in accordance with the provisions of Policy 123 as conditions for proposed development.

**f. Management of Trails.** Designated trail routes shall be opened to public use only after the public agency that owns or operates the trail segment accepts full responsibility for the management, maintenance, supervision, and liability for the trail and trail activities. The trails segment may be closed or public use limited under the provisions of Policy 124.

## MARINAS

### Findings

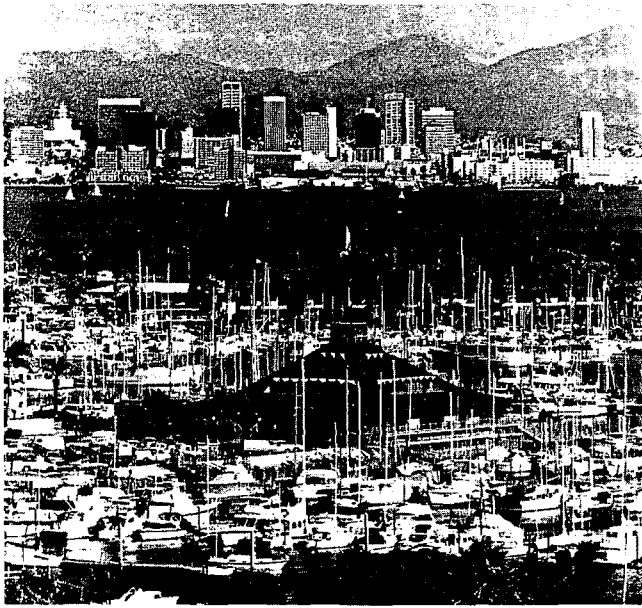
**Demand for Coastal Boating Facilities Is High.** Boating is important along the coast, both for recreation and for fishing. The demand for boating facilities is so great that the berths planned for construction over the next 10 years would, if built, barely cover the existing demand.

**Boating Facilities Can Be Environmentally Damaging.**

Boating facilities can cause serious environmental damage

by extensive alteration of the marine environment, especially by dredging and filling coastal wetlands. In boat maintenance areas where sanding and scraping of paints takes place, harmful pollutants may drain into coastal waters. (See Coastal Water Quality section.) And boating facilities can limit access to the coast for the general public.

**Increased Boating Can Be Accommodated Without Adverse Effects.** It appears possible to accommodate increased boating activity without serious environmental damage by encouraging more thorough use of existing boats and



Shelter Island (manmade), San Diego

boating facilities, by developing more dry storage and launching facilities, and by building any new marinas in areas less fragile than coastal wetlands.

## Policies

### 146. Accommodate New Recreational Boating Facilities Without Degrading Coastal Resources.

Increased use of coastal waters for recreational boating shall be provided by maximizing the use of existing boating facilities, providing harbors of refuge at appropriate locations along the coastline, and developing new facilities in a manner that does not degrade coastal resources. New recreational boating facilities may be permitted where they would not have significant adverse effects, in natural harbors (e.g., sheltered areas in the open waters of bays, estuaries, and coves) or in new protected water areas (e.g., areas created by the dredging of existing low-level dry lands or by the placement of wave barriers that are in conformance with other Coastal Plan policies). Dredging in coastal waters for recreational boating facilities shall be limited to the minimum necessary for new entrance channels to reach basins dredged out of existing dry land areas, for deepening water a few feet in existing and proposed berthing areas,

and for maintenance dredging in conformance with Policy 16. However, dredging or filling coastal wetlands to accommodate new or expanded recreational boating facilities shall be prohibited. Each proposed alteration of the coastline for a recreational boating facility shall require a careful analysis, with the final determination of whether to permit the facility made on the basis of the long-term environmental effects of the project.

**147. Maximize Use of Boating Facilities.** The present and future need for new coastal boating opportunities shall be met in ways that would not have significant adverse effect on the environmental quality of the coast. Such methods may include (1) developing dry storage areas and stacking devices with nearby public launching in new and existing harbors; (2) increasing the number of public launching facilities; (3) providing additional berthing space in existing harbors; (4) limiting nearby non-water-dependent land uses that congest access corridors and overtax boating support facilities; and (5) maximizing the use of each boat by encouraging the multiple ownership of boats, by giving priority for slip rental in existing small-craft facilities to boats available for rent to experienced boaters (i.e., those individuals who have successfully completed U.S. Coast Guard-recognized boat operation courses), and by giving priority for the use of public funds for the expansion or development of small craft harbors to facilities that have devised acceptable systems for encouraging more rental and multiple ownership of boats.

**148. Provide Public Access to Marinas.** The maximum recreational value of existing and future marinas shall be achieved by providing the general public with greater access to in-water marina facilities (e.g., piers, floats), consistent with necessary security and public safety precautions. (Appropriate agencies and leaseholders shall be provided with the opportunity to participate in resolving safety and security problems.) Designs for both new marinas and expansion projects shall include in-water facilities designated for use by the general public.

# EDUCATIONAL AND SCIENTIFIC USE

## Findings

**Resource Areas Offer Opportunity for Study as Well as Recreation.** The coastal land environment is composed of complex, interrelated ecosystems that are as yet not fully understood. Their study can be a source of great enjoyment as well as benefit to man. In the marine environment, rocky and sandy intertidal areas, islands, islets, offshore rocks, kelp beds, reefs, and wetlands support rich and often unique marine life. Many coastal sites, such as the Channel Islands, have been designated by local, State, or Federal agencies as having special biological or natural resource values. Both these areas and the coast's many historical and archaeological resource areas offer important recreational, educational, and scientific opportunities.

**Many Coastal Resource Areas Need Special Protection.** Many of the resource areas identified in the Coastal Plan can best be protected by public ownership. Some natural and historical areas are already owned by the public — for example, in military lands, wildlife refuges, and parks — but many unique and valuable areas of the coast are not. Without special protection, these irreplaceable, fragile, and outstanding examples of the coastal environment and its historic features may be lost.

**A Coastal Reserve System Can Protect Resources While Providing Public Recreation and Education.** One of the problems involved in effective management of the fragile resources of the coastal zone is the lack of public awareness concerning the coastal environment. Public awareness can be increased through education and limited recreation programs

Klamath River mouth, Del Norte County





carried out in coastal reserves. A comprehensive coastal reserve system can also provide sites for research on environmental carrying capacities and other valuable information for use in the management of coastal recreational areas.

**Archaeological Resources.** The archaeological sites resulting from the thousands of years of human settlement along the coast are among the most fragile nonrenewable resources in the coastal zone. Prehistoric California Indians kept no chronicles of their rich and varied cultures that spanned 100 centuries or more. Knowledge of their ancient heritage can be gained only from the detailed study of archaeological remains, the only source of information for more than 95 per cent of California's cultural history. Also valuable are the paleontological resources, the fossilized remains of plants and animals contained in coastal rocks and sediments.

**Historical Resources.** California's rich cultural history is also a valuable heritage, and its traces are irreplaceable. The historical record of the Spanish, Russian, Mexican, and early American eras of California's past can be found in many historical buildings and sites along the coast. Many other buildings may have historical value as significant examples of architectural styles.

**Protection for Archaeological Resources.** Historical, paleontological, and archaeological sites are protected to some extent by existing laws. But prehistoric sites are often destroyed because their precise locations are not always known and because construction may be carried out without concern for their protection. On the other hand, public knowledge of archaeological sites often leads to their destruction by vandals when they are not properly protected.

**Protection for Historical Resources.** Historic and architec-

turally valuable structures may be destroyed because of insufficient protective measures but could be appropriately protected if maintained in use under private ownership. Even those historic areas that are designated or under active consideration as National Historic and Natural Landmarks (being sites of national significance) are, due to lack of protective State statutes, now subject to adverse development at the pleasure of the owner. The same problem is apparent at sites of State and local significance. For instance, although the San Francisco Bay Discovery Site above Pacifica is now much more likely to receive sensitive treatment since its designation as a National Historic Landmark, Santa Cruz's McHugh-Bianchi building was recently demolished even though it too was listed on the National Register.

## Policy

**149. Encourage Education on the Coastal Environment.** Appropriate courses of natural resource study focusing, at least in part, on the environment of the California coast as a valuable resource to be maintained, preserved, and enhanced shall be encouraged in the public school system at elementary and secondary levels. County Offices of Education shall be consulted to recommend development of educational components when recreational areas are being planned. Signs and interpretive programs shall be provided in accessible natural areas to increase public awareness and encourage proper use of resources.

# COASTAL RESERVE SYSTEM

## Policy

**150. Establish a Coastal Reserve System.** A coastal reserve system shall be established to coordinate the management of all coastal reserves to (1) protect valuable natural, historic, and archaeological resources of the coast and (2) promote recreational and educational use of the coastal environment consistent with resource protection. Specifically:

**a. Areas to Be Included.** The system shall include all coastal reserves, preserves, and reservations currently operated by public agencies, educational institutions, and private organizations for the purpose of protecting coastal resources for scientific, educational, or recreational use. Additional sites shall be added to the system, based on the criteria in paragraph (b) below,

with appropriate sites selected from the following lists having the highest priority: areas recommended in the California Coastline Preservation and Recreation Plan (California Department of Parks and Recreation), in Appendix IX,—Education and Research,—of the Comprehensive Ocean Area Plan, and by the State Department of Fish and Game; all islets, offshore rocks, and other special marine features (such as submarine canyons and banks, kelp beds, etc.) as identified in the Coastal Plan or by other State and Federal agencies; historical sites identified by the Department of Parks and Recreation in the California History Plan and the second-phase inventory of Cultural Resources, or in the Coastal Plan; and other ecologically significant areas identified in the Coastal Plan.







program for the systematic archaeological and paleontological survey of the coastal zone. The program shall include a system of ranking site importance and level of protection necessary and shall give highest priority to surveying the following areas: (1) those areas where substantial information has been recorded but still require a systematic overview; (2) those areas of high "sensitivity" where suspected resources are endangered by proposed development; (3) those sites most likely to yield significant new information; and (4) those unsurveyed areas located within areas zoned and designated for near-future development.

**b. In Interim, Require Professional Survey in Areas of Probable Value.** Until the State Historic Preservation Officer's survey is completed, parcels proposed for development in an area identified by the State Historic Preservation Officer or other appropriate public official as likely to have significant archaeological or paleontological value shall be systematically surveyed by a qualified professional at the applicant's expense.

**c. After Survey, Require Protective Measures at Resource Sites.** Where development would adversely affect identified archaeological or paleontological resources, adequate mitigation measures (e.g., preserving the resources intact underground, fencing the resource area, or having the resources professionally excavated) shall be required.

**d. Strengthen Laws Protecting Prehistorical Resources.** It is recommended that existing laws pertaining to protection of archaeological and paleontological resources be amended to ensure effective preservation, protection, and management of significant resources and that new legislation be enacted declaring significant archaeological and paleontological resources to be in the public domain (i.e., the resources themselves, not the land in which they are located). The Legislature, or an appropriate State agency designated by the Legislature, is urged to (1) formulate criteria for determining which resources are "significant" and therefore within the scope of the law; and (2) develop a program for the protection and, where appropriate, professional excavation and study of the resources.

**e. Provide Tax Relief for Owners of Historic Places.** Pursuant to Article XXVIII of the State Constitution, it is recommended that legislation be enacted whereby cities and counties can contract with owners to preserve historic buildings and features in return for reduced tax assessments. Sites of local, State, and national historical importance shall be nominated to the National Register, and if designated for public acquisition shall receive interim property tax relief and development protection. (Historic areas of high scenic value are covered by Policy 45; see also Policy 150 regarding inclusion of appropriate sites in a coastal reserve system.)

# RESTORATION OF COASTAL RESOURCES

## Findings

**Incompatible and Adverse Coastal Developments Can Be Eliminated.** Many parts of the coast have been degraded by past development, both public and private. Incompatible or harmful, unwise coastal developments can generate air and water pollution, degrade or reduce wetland areas and coastal agricultural lands, block important views of or access to the coast, cause beach erosion, adversely affect marine life, and degrade coastal neighborhoods. Already degraded resources can be restored through several courses of action, including:

- Public purchase and restoration of natural areas and the creation of public recreation areas;
- Consolidation of existing small lots into parcels compatible with the Coastal Plan;
- Phasing out developments that are inconsistent with the Coastal Plan;
- Encouragement of new development that is consistent with the Coastal Plan; and
- Rehabilitation and redevelopment.

**Small Lot Coastal Development Can Impact Coastal Access and Resources.** In many areas, coastal lands have been subdivided into small lots and sold to many individuals. The piecemeal development of these lots can have a cumulative effect on coastal access and coastal resources comparable to large subdivisions developed at one time.

**Some Blighted Coastal Areas May Require Redevelopment.** Rehabilitation efforts can restore many blighted areas of the coast. If efforts to rehabilitate blighted areas are unsuccessful, the redevelopment of such areas can:

- Generate revenue necessary for improved public services and amenities,
- Provide for assembling and consolidating subdivided lands for orderly development as an alternative to fragmented lot-by-lot development,
- Enhance urban design and improve public access to the shoreline,
- Implement the adopted development goals of the Coastal Plan and community plans, and
- Provide housing opportunities for a wide variety of income groups.

## Policies

**152. Restore Degraded Coastal Resources.** Degraded or misused coastal resources shall be restored or enhanced wherever feasible. Specifically:

- a. Restoration Measures Desired as Part of New Development.** Wherever necessary and feasible, restoration shall be included in new developments. Developments that include the substantial restoration of significant coastal resources (e.g., restoration and replenishment of wetlands and wildlife areas, removal of damaging developments, improvement in public recreation) shall have priority over other development wherever the option exists.
- b. Restore Visually Degraded Coastal Areas.** Coastal areas that have been degraded by alterations of the natural landforms and vegetation, by signs and billboards that block views and create visual clutter, and by development out of character with the coastal environment shall, wherever feasible, be restored to a high quality. The coastal agency, working with local municipalities and citizens, shall prepare a long-range plan for the restoration of the desired visual quality and character of degraded coastal areas, including detailed design criteria consistent with the policies of the Coastal Appearance and Design chapter. New development shall be compatible with the long-range restoration plan. If approved restoration plans determine that rehabilitation efforts are not adequate to relieve visually blighted conditions in urban areas of the coastal zone, the redevelopment of such areas by local governments, consistent with the policies of the Coastal Plan, shall be encouraged through the provision of State and Federal financial assistance programs.

**153. Require that Environmental Damage Be Offset by Restoration.** Where permissible development must of necessity degrade an important natural coastal resource (such as but not limited to a unique habitat area, beach, or dune area), required mitigation measures may include the restoration or acquisition and dedication to the public of an area of equivalent resource value (preferably in the same general area). Appropriate financial security shall be required to assure the completion of the necessary resource restoration or protection activity. (See also Policy 17 regarding replacement of diked or filled estuarine or wetland areas.)

**154. Resubdivide or Consolidate Certain Lots.** Where the development of a subdivision or group of existing small lots near the ocean would adversely affect the preservation of coastal

resources, impede public access to the coast, or despoil public views, and where there is no other reasonable use for the area, the lots shall, to the extent funds are available, be publicly acquired to be left open. Where, however, the lots need only to be reduced in number or redesigned to eliminate the adverse effects, (1) an incentives program shall be offered to owners or investors to consolidate the lots, except that lots remaining in common ownership might be required to be consolidated, or (2) the lots and any encumbrances on them shall be acquired by the public and the lots resubdivided. Where lots are resubdivided, the original lot owners shall be given the first right to repurchase new lots. In those instances where public investment in roads and other facilities to serve existing lots would be more costly than public purchase of the land, public acquisition shall be considered as a means of reducing the number of lots.

# PUBLIC ACQUISITION OF COASTAL LAND

## Findings

### **Additional Shoreline and Beach Property Should Be Acquired.**

Public ownership on California's 1,072 miles of coastline is estimated at 508 miles, or 47.4 per cent of the coast. But these figures alone are misleading. While almost one-third — 164.1 miles — of the public ownership is managed by the Federal government, only 88.8 miles of Federal holdings are open to the public; the rest, which is within military reservations, remains off-limits to the general public. According to the Army Corps of Engineers, about 290 miles of coastline consists of sandy swimming beaches — but only 38 per cent of this prime recreational area is open to the public.

### **Additional Funds Are Needed to Buy Land for Coastal Recreation.**

Projections indicate that the demand for coastal recreation will increase, as will the price of coastal land. Many coastal sites are already proposed for public acquisition under existing programs, and some of these purchases are partially funded. But as recreational demand increases, more coastal land will be needed. Public funds available to buy recreational land are not adequate at this time, but have been reduced by the Federal Revenue Sharing Act of 1972, which permits local governments to allocate Federal grants in accordance with their own priorities; one result is that money formerly earmarked for park purchases may now be sent in other ways. (See Part III, Acquisition and Restoration, for discussion of preliminary recommendations for public acquisition of specific parcels of coastal property for recreation.

### **Acquisition Authority of Existing State Agencies Is Limited.**

With the exception of the Department of General Services, no agency of State government may acquire less than fee-interest in land. No agency may lease land for longer than five years, unless specifically authorized by the Legislature. On the average, a minimum of two years is required to complete State acquisitions after the funds have been appropriated by the Legislature. According to the Legislative

Analyst, some acquisitions funded in 1966 still have not been completed. During this delay period, the development value of the land often increases greatly, and the owner can take full advantage of the Legislature's commitment to purchase the land during negotiations on the selling price. Development or other changes in the land during this period may also diminish its value to the public.

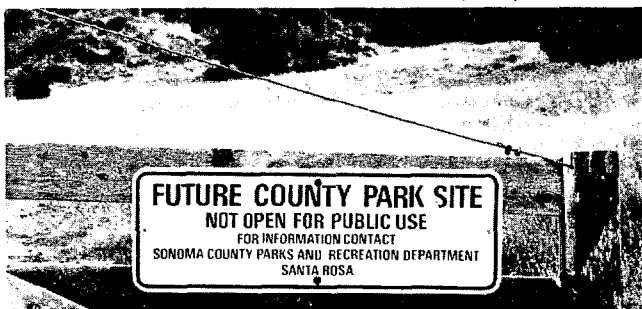
## Policies

**155. Priorities For Public Acquisition.** Priorities for public acquisition of coastal land and water areas shall be as follows:

- **First priority:** (1) lands best suited to serve the recreational needs of urban populations shall be acquired before land in outlying areas; (2) lands of significant environmental importance, such as habitat protection, shall have priority over other less important land; (3) as the highest priority, lands in either of the above categories proposed for development or use incompatible with their basic resource or recreational value shall be acquired or protected before land experiencing little or no development pressure.
- **Second priority:** (1) open space along urban and suburban waterfront areas where visual and pedestrian access to the coastline is limited; (2) small lots in scattered ownership in subdivisions if development of them would impede public access by using up remaining road capacity or would unavoidably despoil coastal views; (3) land for accessways at appropriate locations; (4) remaining areas of high recreational value (see Policy 132); (5) areas proposed for coastal reserves (see Policy 150); and (6) highly scenic areas (see Policy 45).

Based on the foregoing criteria, highest priority for public acquisition of coastal land and water areas shall be given to the list of areas proposed for acquisition in Part IV of the Coastal Plan.

Near Salt Point, Sonoma County



**156. Use Appropriate Techniques for Expanding Public Use of the Coast.** Public use of the coastline shall be acquired through public purchase, dedications from landowners as reasonable conditions of appropriate development, purchase and leaseback, scenic and open space easements, scenic restrictions, resource management contracts, and incentive zoning. All means chosen to obtain public use of the coastline shall be equitable and recognize the rights of private property owners. Acquisition programs shall proceed as rapidly as possible and should include leaseback and life estate provisions as incentives for placing privately held lands in public ownership and to prevent hardships to present owners.

**157. Protect Potential Acquisition Areas.** Until lands designated for public acquisition can be secured, they shall be protected from incompatible use through public regulation, and, in accordance with Section 402.1 of the Revenue and Taxation Code, property taxes should reflect this limitation on their use. If an area cannot be acquired within a reasonable period of time, usually not to exceed three years from the time of designation for acquisition by a public agency, development that complies with all other Coastal Plan policies shall be allowed to proceed.

**158. Increase Funds for Coastal Recreational Facilities.** Additional funds for public recreation along the coast shall be provided. To this end:

- a. **Apply Offshore Petroleum Royalty to Expanded Federal Fund.** The Federal government shall be urged to increase the maximum limit of the Federal Land and Water Conservation Fund by using the increased royalty income or higher value from the expanded extraction of offshore minerals to further support the fund, and should earmark the increased funds for spending on coastal projects. (See also Part III section on financing the Coastal Plan.)
- b. **Provide Special Recreational Funding.** It is recommended that special funding programs be provided, such as bond acts with purchase and leaseback provisions, dedication of State revenues from any extraction of mineral resources in State-owned tidelands and submerged lands, or special taxes on the sale of coastal properties.

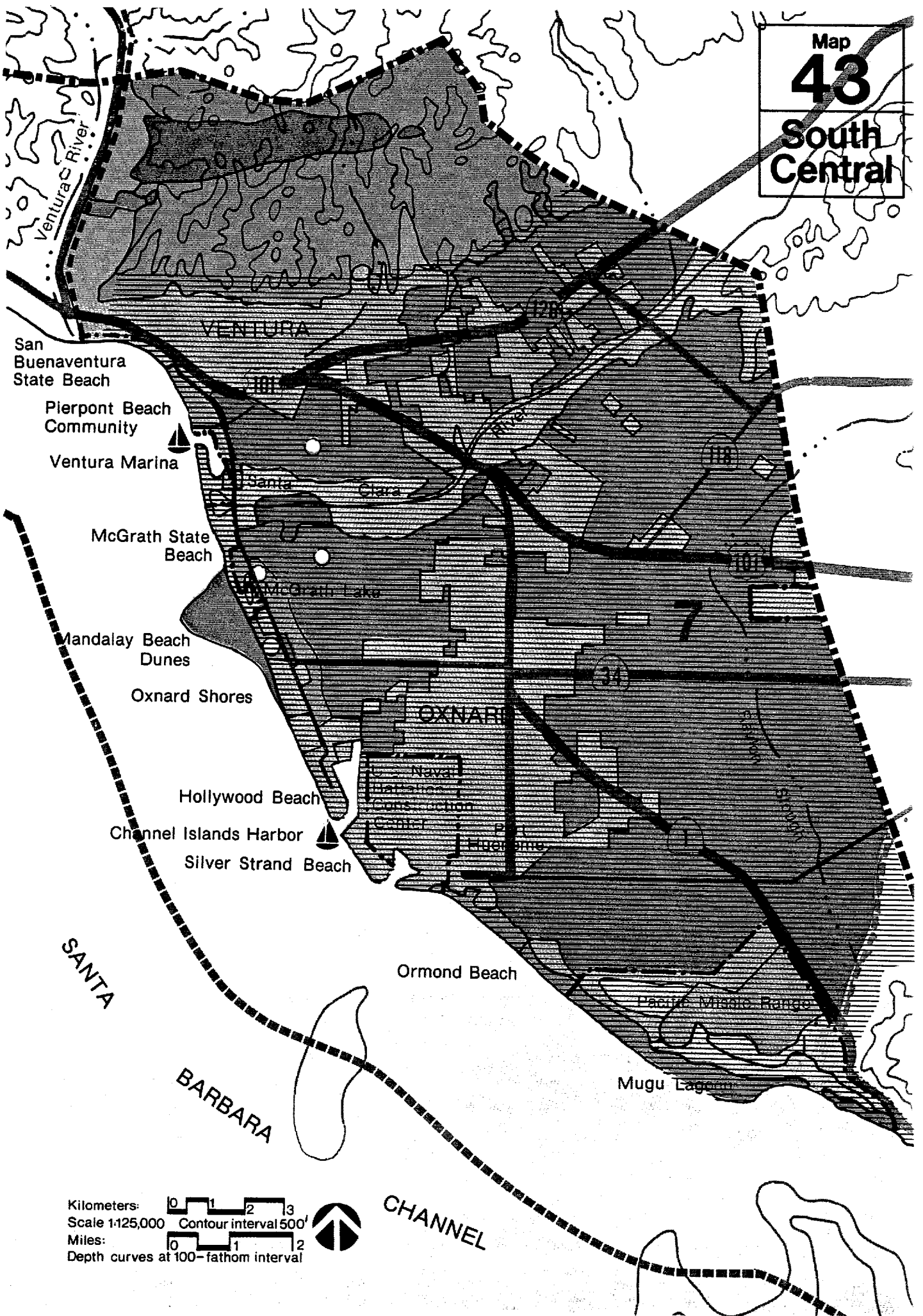
- c. **Allocate Environmental Protection Program Funds.** It is recommended that funds from the California Environmental Protection Program Fund be allocated for coastal recreation and reserves, such as interpretive facilities and programs, archaeological surveys (see Policy 151), or research on carrying capacity (see Policy 144).

- d. **Ensure Adequate Funding for Local Completion of Coastal Trails.** It is recommended that a State grant program be established to ensure that cities and counties will have adequate funds to complete portions of the coastal trails system in their jurisdictions. Legislation similar to AB 3297, which would have provided \$3 million from the General Fund for this purpose and was approved by the Legislature but not signed into law in the 1973-74 legislative session, should be enacted.

**159. Expand the Authority of Existing State Acquisition Agencies.** It is recommended that the State Department of Parks and Recreation and the Department of Fish and Game should be authorized to (1) acquire options up to a specified ceiling (e.g., \$2,000) per option at the discretion of the agency, before money is appropriated by the Legislature for a specific acquisition; and (2) acquire partial interests in land including the purchase of development rights, options, and easements.

**160. Create an Interagency Coordinating Council.** It is recommended that an interagency council composed of the Department of Parks and Recreation, Fish and Game, Transportation, the State Lands Division, the Natural Land and Water Reserves System of the University of California, the proposed Coastal Conservation Trust, and the coastal agency be established in the Resources Agency to plan and coordinate the State's overall acquisition program in the coastal zone. In addition, the Coastal Commission and the proposed Coastal Conservation Trust shall work closely with State agencies involved in the acquisition of public land to streamline the acquisitions process and minimize the time between legislative appropriation for an acquisition project and the transfer of title to the State.

Map  
**43**  
 South  
 Central



Kilometers: 0 1 2 3  
 Scale 1:125,000 Contour interval 500'  
 Miles: 0 1 2  
 Depth curves at 100-fathom interval





in many coastal areas. To this end:

- a. **Regional Supplements.** Regional Supplements may be prepared by the Regional Commissions to illustrate the Coastal Plan policies in greater detail than provided in Part IV. When the Regional Supplement is approved by the state-wide coastal agency as being consistent with the Coastal Plan, it may be used as an amplification of the maps in Part IV.
- b. **Subregional Plans.** Subregional plans may be prepared for some coastal areas as described in Policy 162.
- c. **Local Coastal Plans.** Local governments shall revise their general plans as necessary to conform to the Coastal Plan (and approved amplifications of it). Such local coastal plans may involve conforming existing general plan elements or preparation of a special coastal element. In particularly sensitive areas or areas designated for restoration, specific plans or special studies may be necessary. Such local plans could also incorporate existing community plans where these have been adopted by local governments and are found to be consistent with the Coastal Plan. Once local plans have been brought into conformance with the Coastal Plan, implementing ordinances and programs (e.g., capital improvement budgets for public services, specific programs for acquisition of public open space and recreational facilities, specific programs for improved public transit, appearance and design guidelines, and specific programs for preserving and restoring coastal resources) shall be prepared to provide for local implementation of the Coastal Plan. (See Part III regarding the content and function of local implementation programs.)

**162. Prepare Subregional Plans for Some Coastal Areas.** Subregional plans shall be prepared, in a joint effort of the Commissions or the coastal agency and local governments, regional agencies, other State agencies, and citizen groups, for coastal areas where the cumulative impact of development over time has the potential for adversely affecting coastal resources or coastal access. These plans shall apply Coastal Plan policies to subregional areas in order to establish development alternatives that are consistent with the Coastal Plan.

- a. **Boundaries for Subregional Plans.** The boundaries for such subregional plans shall be

based on natural geographic features (e.g., major valleys), important public services (e.g., a coastal road network), and situations where development occurring in more than one local jurisdiction would have a cumulative impact on resources and access. (In most cases, these boundaries correspond with the subregions designated in Part IV.)

- b. **Means of Establishing Development Alternatives.** The subregional plans shall: (1) define the nature and extent of the current commitment to development; (2) analyze the changes that would result in these development patterns if Coastal Plan policies oriented toward specific types of resources (e.g., agricultural lands, estuaries, coastal neighborhoods) are applied; (3) examine the implications of these different patterns of development for coastal access, public services, and other Coastal Plan policies (e.g., concentrating development); (4) determine major development alternatives that are consistent with the Coastal Plan; and (5) create a system for monitoring the effectiveness of subregional plans in protecting resources and preserving access.
- c. **Goals of the Assessment of Development Alternatives.** The assessment of development alternatives shall attempt to: (1) resolve questions about the type of development that shall have priority in specific areas; (2) indicate where density shifts (including increases or reductions) could or should occur, including setting the limits of urban development, where appropriate; (3) determine the relative ability or inability of particular coastal resource areas to tolerate development, where it is not designated in the Coastal Plan; (4) indicate the conditions that must accompany different levels of development (e.g., open space necessary to serve new development, improvements in transportation systems required beyond a certain level of development); and (5) define conditional uses appropriate for specific sensitive resource areas. The possibility and desirability of categorizing coastal resources for the purpose of establishing appropriate development guidelines shall also be investigated as part of the subregional planning program.
- d. **Provide State Funding For Subregional Planning Programs.** It is recommended that State grants be made available for this work in a new program similar to the Federal 701 planning program.



# Part III: Carrying Out the Coastal Plan

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## HOW TO USE PART III

For an overview of the recommendations for carrying out the Plan, see the Part I summary beginning on page 12.

Part III chapters are:

- Governmental Organization and Powers (recommendations for local implementation programs, continuing State coastal agency, and special provisions for public trust lands);
  - Acquisition and Restoration (proposing a Coastal Conservation Trust); and
  - Funding (both costs and funding sources).
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# GOVERNMENT ORGANIZATION AND POWERS

## Introduction

No plan can be self-enforcing. The wise use and protection of California's irreplaceable coastal resources require an implementation system to assure that the Coastal Plan is followed in the coastal conservation and development decisions of the future.

One of the principal means of implementing the Coastal Plan is the regulation of land use. Governmental regulation is a long-established and constitutional method to protect the public health, safety, and welfare. In the past, regulation of land use has been primarily a local concern but, increasingly, State interests and conflicts between local agencies have proved the need for State involvement in conservation and development. The proposed implementation of the Coastal

Plan through local land use regulations, with an overview by a continuing State coastal agency, is a new and promising approach to State and local cooperation. It offers the maximum in responsiveness to local conditions, accountability, and public accessibility, while assuring that local decisions will protect statewide concerns.

But regulation alone will not be sufficient; some of the policies of the Coastal Plan will require active programs of public land acquisition and restoration. In most cases, these will be carried out by existing agencies and many will not require new funding. But it is also recommended that additional acquisition programs and funding sources be established to assist in carrying out the Plan.

Following are the specific recommendations of the Coastal Commission:

## GENERAL PROVISIONS

**1. Establish Statewide Policy to Preserve, Protect, Enhance, and Restore Coastal Zone Resources.** Because the California coastal zone is a unique and valuable natural resource in which all the people of the State have a deep and continuing interest, and because the wise use and conservation of the remaining resources of the coastal zone for the benefit of present and future generations are of great concern to the people of California, it shall be the policy of the State to protect, use with discretion, enhance, and, where possible, restore the resources of the coastal zone, in accordance with the policies of the Coastal Plan.

**2. Require the Actions of All Governmental Agencies in the Coastal Zone to Be Consistent with the Coastal Plan.** Conservation and development in the coastal zone shall be consistent with the policies of

the Coastal Plan. State, regional, and local agencies that have regulatory responsibilities in the coastal zone, or that undertake or guide development in the coastal zone, shall be required to carry out those responsibilities and activities consistent with the Coastal Plan. To the extent possible under applicable Federal law, Federal agencies should also be bound by the provisions of the Coastal Plan.

Following are definitions of the key concepts of the proposed program for carrying out the Coastal Plan:

### 3. Definitions.

a. **Coastal zone** as used in this Plan means those land and water areas of the State of California specified in the Coastal Zone Conservation Act of 1972 and as shown on the maps in Part IV,

i.e., “that land and water area of the State of California from the border of the State of Oregon to the border of the Republic of Mexico, extending seaward to the outer limit of the State jurisdiction, including all islands within the jurisdiction of the State, and extending inland to the highest elevation of the nearest coastal mountain range, except that in Los Angeles, Orange, and San Diego Counties, the inland boundary of the coastal zone shall be the highest elevation of the nearest coastal mountain range or five miles from the mean high tide line, whichever is the shorter distance.”

- b. Coastal resource management area** is the area within which local governments are to bring their General Plans, ordinances, and other programs into conformity with the Coastal Plan. It includes those areas within the coastal zone containing significant coastal resources and those areas where the State and Regional Commissions have determined that development may directly or cumulatively affect access to coastal recreation areas. The significant coastal resources used to map the coastal resource management area are: beaches; dunes; wetlands and estuaries (and their immediate drainage areas); significant wildlife habitat areas; important agricultural lands influenced by the coastal climate or otherwise designated in Plan policies; existing public recreation areas; areas proposed by public agencies for public acquisition; potential public recreation areas located near major metropolitan centers (e.g., Santa Monica Mountains, Irvine, San Mateo County coast); special coastal neighborhoods; and other manmade resources as defined in the Glossary. Areas where development may affect coastal access include urban coastal recreation centers confronted with severe congestion problems (e.g., Marina del Rey/Venice, Newport Bay, and Mission Bay) and open coastal areas where there are few public access roads (e.g., Irvine, Malibu, Big Sur, and portions of the coast in San Mateo, Sonoma, and Mendocino Counties). This area is in some places much less than the entire coastal zone, and is shown in the maps in Part IV.
- c. Coastal agency** means the State and Regional Coastal Commissions as constituted until January 1, 1977, and such successor State coastal agency as the Legislature may designate after that date.
- d. Local implementation program** means the General Plan (or a coastal element of a General Plan), zoning, and other supporting ordinances and programs of a general-purpose local government (i.e., city and/or county) within the coastal resource management area after it has been certified by the coastal agency as being in conformity with the Coastal Plan.

## LOCAL IMPLEMENTATION PROGRAMS

### PREPARATION OF LOCAL PROGRAMS

Implementation of the Coastal Plan should rely primarily upon local governments because:

- Using the existing local government land use planning and development review system can help eliminate duplication at the State level;
- Local government is both accessible and accountable to local citizens;
- Consolidation of the development review process at the local level reduces the time and money costs to applicants; and
- Local governments are best able to reflect the different conditions and values of the many communities along the 1,100-mile coastline.

Because current State planning law already requires that each local government prepare a General Plan for the use of land within its jurisdiction, and also requires that zoning ordinances conform to that plan, Coastal Plan implementation by local government is a logical step. Local General Plans should conform with the Coastal Plan, and local governments should then adopt ordinances and zoning necessary to legally enforce the

provisions of the General Plan. These documents would then become the basis for coastal regulation, consistent with statewide concerns, in the following manner:

**4. Require Local Governments in the Coastal Resource Management Area to Conform Plans and Ordinances with the Coastal Plan.** As the principal means of implementing the Coastal Plan and to most effectively ensure that future development is consistent with the preservation, protection, and enhancement of coastal resources and with public access to the coast, cities and counties within the coastal resource management area shall be required to bring their General Plans or other long-range development plans into conformity with the Coastal Plan, using as a basis the policies of the Coastal Plan and all applicable maps and other material in Part IV. These plans shall be prepared in full consultation with appropriate State agencies (e.g., Department of Fish and Game, State Lands Commission, Department of Transportation) and special districts (e.g., sewer, water, transit, port, and airport districts). Local governments shall also prepare ordinances and zoning changes necessary to implement the plan, including those guidelines and programs addressing concerns enumerated in Recommendation 7 below that cannot be appropriately included in a General Plan itself, such as capital improvement budgets for public services, specific programs for acquisition of open space and recreational facilities, appearance and design guidelines, or restoration programs for natural or manmade resources. These plans and supporting ordinances and programs shall be submitted to the coastal agency for certification as set forth in Recommendation 10. Upon certification of the local implementation program (both the General Plan and the supporting ordinances and programs), the coastal agency shall cease to regulate development within these areas, and local governments will regulate coastal development subject to the review and appeal procedure in Recommendation 11.

But cities and counties are not the only agencies that govern local development. Special districts, exempt from the control of local governments, make crucial planning decisions when they construct water or sewer systems near the coast or build ports or other developments. The extent and capacity of these systems is often the single most important factor in determining the intensity of development of coastal lands. Special districts should, therefore, coordinate their plans with local governments and participate with cities and counties in plan certification, as follows:

**5. Special Districts and Other Units to Submit Development Plans.** Special districts (e.g., park, water, sewer, and transit districts), universities, and port and airport districts shall be required to

submit to the coastal agency and to the appropriate local governments of general jurisdiction either annual or long-range development plans for proposed developments within their jurisdiction. Such plans shall be considered in the preparation of the appropriate local implementation program(s), and the coastal agency shall act to resolve possible conflicts between the local implementation program and the development plans of the special districts. Upon certification of local implementation plans, any development undertaken by a special district within the coastal resource management area shall be consistent with the applicable certified local implementation program(s), shall not require further permits, but shall be subject to appeal to the coastal agency as provided in Recommendation 11 in the same manner as if the local government of general jurisdiction had approved the development. This recommendation applies to those districts having jurisdiction lying wholly or partially within a county or city in the coastal resource management area and that issue building permits or otherwise grant approval for development or which themselves conduct development activities.

To prevent costly waste of planning effort, the process of bringing local plans into conformity with the Coastal Plan will require the joint efforts of local governments, the Coastal Commissions, and the public. The Coastal Commission should work with local governments as they evolve their local implementation plans.

**6. Coastal Agency Assistance in Preparation of Local Implementation Programs.** To help resolve coastal resource conservation/development conflicts and to make the best use of the time and resources available to State and local agencies, the coastal agency shall assist local governments by providing data, staff support, and technical assistance, where requested, in the preparation of local implementation programs. (Funding shall be as provided in the Funding section below.) The geographic applications of the Coastal Plan policies in Part IV of the Plan provide guidance to local jurisdictions in preparing local implementation programs that conform to the Coastal Plan. Where either the cumulative impact of development or conflicts among various proposals create the potential for significant adverse impacts on coastal resources or on coastal access not resolved in Part IV, the coastal agency shall prepare a subregional plan (as defined in Policy 162 of the Coastal Plan) to deal with these matters. Local implementation programs in areas designated for subregional planning shall be certified only if they are in conformity with approved subregional plans. Wherever possible, the subregional plans shall be prepared co-

operatively and in conjunction with the local governments within the subregion and with other appropriate State and regional agencies.

To provide direction to the local governments as to their local implementation plans, the following is proposed, together with a requirement for full public participation in the local programs:

**7. Content of Local Implementation Program.** The local implementation program shall set forth the local government's application of relevant portions of the Coastal Plan, including specific regulations, programs, and maps necessary for the proper use, protection, and enhancement of coastal natural and manmade resources. The local implementation program shall include, but not be limited to, the following, as applicable to a local government and as more fully stated in Parts II and IV of the Coastal Plan:

- a. **Community Development**—a program to encourage more efficient use of existing developed areas and the concentration of new development in already-urbanized areas that can accommodate it, to control development that may singly or cumulatively have an adverse impact on coastal resources, to reserve appropriate shoreline areas for water-related activities, and to protect coastal neighborhoods (see Coastal Development chapter).
- b. **Shoreline Recreation**—a program to acquire and maintain accessways, open space lands, beaches, parks, and preserves, and to provide ample public recreational opportunities. This should include regulations that require dedication of public access to the coast as a condition of development in appropriate areas, that give priority to recreational developments adjacent to the coastline over other kinds of development, and that require new developments to provide adequate open space and recreational amenities (see Public Access and Recreation chapters).
- c. **Recreational Support**—a program to protect upland areas for recreational support facilities and coastal-oriented commercial-recreational development.
- d. **Streams, Estuaries, and Wetlands**—a program for the protection of coastal estuaries and wetlands, including (1) criteria for control of erosion, septic tanks, and wastewater discharges, and of runoff and silt entering coastal waters; and (2) restrictions on diking, filling, and dredging of coastal waters and on the construction of stream-blocking structures (see Marine Environment and Coastal Land Environment chapters).
- e. **Agricultural Resources**—a program for the protection of agricultural lands, including (1) the identification of agricultural lands; (2) a determination of overall land area and of the minimum size parcels in long-term production; (3) the prohibition of divisions of land or other development inconsistent with continued agricultural use; (4) the establishment of buffer areas on the urban fringe to protect agricultural lands from urban intrusion; and (5) limitations of special assessments of agricultural lands for public services (e.g., sewer and water) to serve urban needs not generated by the agricultural lands themselves (see Coastal Land Environment chapter).
- f. **Forestry Resources**—a program, consistent with the Forest Practice Act, for the protection of forestry resources through policies on conversion or subdivision of forest lands, the protection of coastal streams, and the preservation of highly scenic coastal timberlands (see Coastal Land Environment chapter).
- g. **Scenic Resources**—a program for the designation of highly scenic areas and coastal viewsheds, and procedures and standards to review the design of new development consistent with the design policies of the Coastal Plan (see Coastal Appearance and Design chapter).
- h. **Manmade Resources**—a program for the protection of manmade resources, such as sites of unique cultural, historical, architectural, or archaeological significance (see Education and Scientific Use chapter).
- i. **Wildlife and Plant Communities**—a program for the protection of areas designated as important or significant coastal natural living communities (as identified by appropriate State and Federal agencies or in the Coastal Plan) including controls on the use and development of such areas and immediately adjacent lands (see Coastal Land Environment chapter).
- j. **Hazards**—a program for the avoidance of risks and public costs in areas of high geologic or flood-hazard (see Coastal Development chapter).
- k. **Low- and Moderate-Income Housing**—a program for the protection and, where necessary, rehabilitation of existing low- and moderate-income housing, and provision, to the extent available in Federal, State, or local housing programs, for a significant amount of such housing opportunities in new developments (see Public Access to the Coast chapter).

- l. Water and/or Wastewater Service System**—programs for (1) the conservation of water supplies, including but not limited to a water management program, impervious surface limitations, and other development standards to protect groundwater and drainage areas; (2) the reclamation and reuse of waste water; and (3) the correlation of development with approved water management plans (see Coastal Land Environment chapter).
- m. Energy Facilities and Conservation**—programs for (1) the siting of energy facilities, reflecting national, state, and local interests; (2) the protection of areas surrounding such facilities from incompatible uses; and (3) energy conservation measures in new developments to the extent these may not be required if not part of a state-wide program (see Energy chapter).
- n. Transportation System**—programs for (1) the correlation of development with the capacities of existing future transportation systems; (2) the provision of recreational access to the coast; (3) the protection of air quality through transportation systems that reduce pollution; and (4) requiring, in certain areas, the payment of fees by developers (in lieu of providing parking spaces) for the purpose of constructing central parking facilities or establishing other transportation systems (see Transportation chapter).
- o. Minerals and Soils**—a program for the protection of soil and mineral resources (including sand and gravel) through regulations on building, grading, runoff, erosion, dust, waste materials and spoils disposal, and the reclamation of extractive sites (see Coastal Land Environment chapter).
- p. National Interest Facilities**—a program for the consideration of the siting of facilities in the national interest, including but not limited to national defense installations, energy production facilities, and resource production areas, and the protection of areas surrounding such facilities from incompatible uses.
- 8. Special Considerations in Local Implementation Programs.** To aid local governments in preparing local implementation programs meeting the requirements of the Coastal Plan, the coastal agency shall, before the program is prepared, designate areas where special provisions shall apply, as follows:
- a. Specific Plans for Sensitive Coastal Resource Areas.** Specific plans (as defined in Government Code, Section 65450) shall be prepared for sensitive coastal resource areas where the impact of a development on the resource would be immediate and direct. Such areas include wetlands, highly scenic areas, lands appropriate for public recreation, and the immediate shoreline area. The coastal agency shall make these designations in consultation with the local government.
- b. Consolidation of Small Subdivided But Undeveloped Lots.** Where the coastal agency finds the existing division of undeveloped land is inconsistent with the Coastal Plan: (1) with regard to contiguous lots in common ownership, it shall require provisions in the local implementation program for the consolidation of such lots; and (2) with regard to undeveloped lots in separate ownership, it shall, in accordance with Policy 154 of the Plan, require provisions for acquisition and restoration to the extent funds are available or establishment of incentive programs for redesign. In the event that lots are combined and resubdivided, the original lot owners shall be given the first right to repurchase new lots.
- c. Right of First Refusal.** In selected areas such as beaches, the coastal agency may provide that each sale of property provide the State with the option of first refusal on the purchase at the market price; such option must be exercised within 90 calendar days or the sale shall be allowed to proceed.
- d. Termination Clauses.** Where a long-term commitment of coastal resources would not be in the public interest, but where development can be undertaken for a shorter period consistent with the Coastal Plan and without irretrievable damage to such resources, the coastal agency may, in designated areas, require provisions for permits to contain a time limit for any allowed development, so that the development can be reviewed in the future to determine if it should be continued.
- e. Non-Conforming Uses.** The coastal agency may require that ordinances provide for the amortization and removal of signs and other non-conforming uses inconsistent with the Coastal Plan.
- 9. Public Participation.** Coastal cities and counties shall, during the preparation of local implementation programs, afford the widest possible opportunities for public participation and consultation with other agencies, including adequate public notice, workshops, and public hearings in the affected areas.

## CERTIFICATION OF LOCAL PROGRAMS

The transition from Coastal Commission to local government review of development would occur through a process of certification, as follows:

**10. Process of Certification of Local Implementation Programs.** Within three years of the effective date of legislation to carry out the Coastal Plan, every city and county within the coastal resource management area shall submit a local implementation program (which includes the plans of special districts enumerated in Recommendation 5) for certification by the coastal agency. The local government may first submit its General Plan for an initial approval before preparing conforming ordinances and programs, provided the entire implementation program can be completed within this schedule. The local implementation program shall be submitted first to the Regional Commission and then to the State Coastal Commission for review and certification. The State and Regional Commissions may take joint action on the program. The Commissions shall invite comment from other governmental agencies and the general public and conduct a full public hearing.

**a. Timetable for Review and Certification.** The Regional Commission shall have 90 days to act on a local implementation program after its submission to the agency, and the State Commission shall have an additional 60 days. If the State and Regional Commissions both fail to act within this time period, the local implementation program shall be deemed to have been certified. The deadlines in this paragraph may, however, be extended for a period not to exceed one year from original submission if the coastal agency finds that so many programs have been submitted at one time that a Regional Commission cannot consider them all adequately. In addition, efforts shall be made within each region to schedule submission of programs to avoid overloads, and the Commissions shall provide for this eventuality by regulation (e.g., setting a timetable for review and submission of local implementation programs). If the Commissions, in their review process, find that a local implementation program is not consistent with the Coastal Plan, they shall transmit their specific reasons for this determination to the local government.

**b. Local Government Issuance of Permits Upon Certification.** Upon a finding that the local implementation program is fully consistent with the Coastal Plan, the Regional and State Coastal

Commissions shall certify the program, subject to reasonable conditions to ensure compliance with the Coastal Plan. The coastal agency shall then cease its review of development occurring in the portion of the coastal resource management area covered by the program, except as provided in Recommendation 36 for tide- and submerged lands. Permits for coastal development shall thereafter be issued solely by the coastal city or county in conformance with its local implementation program, subject to appeals as provided in Recommendation 11 below. All State agencies, as well as other local governments and special districts, shall act in accordance with the certified program.

**c. Failure to Prepare a Local Implementation Program.** If, within three years after legislation adopting the Coastal Plan, any unit of local government has not submitted a local implementation program acceptable to the coastal agency, the coastal agency shall exercise permit authority within that portion of the coastal resource management area and may issue an order prohibiting the local government from issuing any building or other similar permits or undertaking any development within any area where it finds additional development may conflict with the Coastal Plan.

After certification, the Coastal Commission would retain a limited role in coastal regulation through a system of appeals. This State role is needed because certain categories of development have an impact beyond the jurisdiction granting or denying a permit. Major coastal facilities, construction in or near sensitive resource areas, and developments at variance with local plans should be appealable to insure that the State's interest in the coast is protected, and to insure uniform application of Coastal Plan criteria in various coastal areas. The interests of citizens would be protected because, under a system of administrative appeals, the time and expense of judicial review would not be an impediment to citizen participation. The interests of the permit applicants would be protected because only projects of statewide concern could be appealed, as follows:

**11. Appeals After Local Implementation Programs are Certified.** After the coastal agency certification of a local implementation program, local government decisions on developments within the coastal resource management area may be appealed to the coastal agency only for the following:

(1) approvals by means of variance or conditional use permits of uses or structures that are not the primary permitted use within a zone as pro-



vided by the approved local implementation program;

(2) approvals of residential structures of more than four dwelling units, or of commercial, industrial, or institutional development of greater than 10,000 outside gross square feet of floor space;

(3) approvals of any development proposed to be constructed (i) in or within 100 feet of a wetland or coastal stream, (ii) in a floodway, (iii) on prime agricultural lands, (iv) on a beach or sand dune, (v) on lots immediately adjacent to the inland extent of a beach, to the mean high tide line where there is no beach, or to a public access-way between the mean high tide line and the first public road inland, or (vi) within 100 yards of the top of the seaward face of a coastal bluff; and

(4) approvals or denials of energy-providing and public service installations that would serve an area larger than the geographic area of the local decision-making body.

Any person aggrieved by the action on a permit may appeal, or any two members of the coastal agency may bring an appeal. An appeal shall be heard by the coastal agency unless a majority of the authorized membership finds that it raises no substantial issue and that no question exists as to consistency with the certified local implementation

program. Upon hearing an appeal, the coastal agency shall affirm, reverse, or modify a local government decision or remand it to the local government for review. The proposed development shall be approved if the coastal agency finds that it is consistent with the certified local implementation program. All other aspects of the existing Coastal Act appeal process shall remain unchanged. (See also Recommendation 19 for appeals process before local plan certification.)

Local plans will need amendment from time to time. In an era of rapid change, the coastal agency should be able to amend both statewide and local policies, upon showing that such changes are dictated by new circumstances. The agency should, in addition, have the necessary enforcement powers to insure compliance with the Coastal Plan.

**12. Review of Changes in Local Implementation Programs.** The coastal agency shall review and approve all changes or additions to a local implementation program for any portion of the coastal resource management area before the changes are put into effect by the local government. The procedures for review shall be similar to those described in Recommendation 10.

**13. Authority to Revoke Local Implementation Programs.** The coastal agency shall be able to revoke any certification of a local implementation program if it finds after public hearing that the program is being violated.

## STATE COASTAL AGENCY

Because the coast contains resources of statewide importance, statewide perspective is needed in planning for the coast, along with local viewpoints. Moreover, no plan for the coast can be applied to the diverse and complex conditions of its 1,100 miles without a continuing need for interpretation, resolution of conflicts, and flexibility. It is essential, therefore, that statewide interests be reflected in the governmental

process of implementing and applying Coastal Plan policies. Other levels and agencies of government each have their own focus and concerns. A State agency specifically charged with coastal management is necessary to assure the breadth of jurisdiction and perspective essential to carrying out the objectives of the Coastal Plan.

## STRUCTURE OF COASTAL AGENCY

The coastal agency should be a citizen commission. No administrative agency, headed by a single administrator, can bring to coastal management and planning the breadth of interests and concerns that independent commissions can provide. Purely administrative decision-making would be less accessible and responsive to the general public. The commission structure

allows the decision-making body to focus on basic policy choices inherent in coastal planning and management. Technical expertise can be provided by the staff, the assistance of other State agencies, technical advisory boards, or independent consultants, rather than in the membership of the Commission itself.

**14. Incorporate Coastal Planning and Regulation into a Statewide Land Use Planning Agency.** Because the long-term protection of coastal resources and equitable regulation of coastal development can most effectively be achieved as part of a plan for the protection and wise use of all natural resources in the State, a State multi-purpose comprehensive land use planning and resource management agency should be established with representation comparable to the coastal agency. A statewide land use plan should be carried out as proposed herein for the Coastal Plan, with emphasis on implementation by local government. Upon establishment of such an agency, consideration should be given to incorporating coastal zone management (including the planning, review, and regulatory authority of the coastal agency) as one of the comprehensive agency's separate functions. However, such incorporation should not take place any earlier than five years after enactment of legislation implementing the Coastal Plan (1) to enable the coastal agency to complete the work of refining the Coastal Plan through certification of local implementation programs as proposed herein; (2) to give the new statewide planning agency time to establish its other functions; and (3) to permit sufficient evaluation of the statewide and coastal planning and implementation programs to determine how and when amalgamation would be in the best public interest. Until the issues regarding implementation of statewide land use planning are resolved, the coastal agency should remain a separate agency, as provided in the following sections.

**15. In the Interim, Continue Coastal Agency.** All applicable provisions of the California Coastal Zone Conservation Act of 1972 shall be continued, except as otherwise provided in this Part. The existing system of State and Regional Coastal Commissions shall be continued on an interim basis until the local implementation programs are certified, as provided in the Local Implementation Programs section above. After all local implementation programs have been certified within the coastal resource management area of a Region or within four years, whichever comes first, the Regional Commission shall be phased out, except that the State Commission may establish regional staff offices where appropriate to carry out its responsibilities.

**16. Appointment of Coastal Agency Members.** The membership of the coastal agency shall include

persons with a demonstrated ability and commitment to carry out the Coastal Plan. Members of the agency shall serve on a part-time basis and shall be appointed as provided in the Coastal Act. After the Regional Commissions have been phased out, as provided above, the State Commission shall continue to have 12 members and they shall be appointed one-third by the Governor, one-third by the Speaker of the Assembly, and one-third by the Senate Rules Committee.

**17. Terms of Coastal Agency Members.** After termination of the existing system of State and Regional Coastal Commissions under the Coastal Act of 1972, and during the interim continuation of the coastal agency with revised authority, members of the State and Regional coastal agency bodies shall be appointed for terms of four years; the terms for the State body shall be staggered to provide continuity in the decision-making process. No member shall serve more than two full four-year terms, and provision shall be made for removal for cause, such as non-attendance at coastal agency meetings.

One major segment of the California coast is not covered by the California Coastal Act of 1972 (Proposition 20): San Francisco Bay, which has since 1965 been under the planning and regulatory jurisdiction of the State's San Francisco Bay Conservation and Development Commission. The Federal Coastal Zone Management Act, which partially funds California's coastal planning, requires that a state's coastal zone management program deal with all segments of the coast.

**18. Coordinate with the San Francisco Bay Conservation and Development Commission.** Within 18 months after enactment of legislation to carry out the Coastal Plan, the Coastal Plan and the San Francisco Bay Plan shall be reviewed to assure a unified coastal management program. The review shall be performed jointly by the State coastal agency and the San Francisco Bay Conservation and Development Commission (BCDC) and shall determine the future relationship of BCDC to the overall State coastal management program, including consideration of possible changes in BCDC's existing regulatory authority and its area of jurisdiction. Recommendations for legislative implementation shall be presented to the Legislature by the coastal agency and BCDC within the 18-month period.

## DEVELOPMENT REVIEW

Although the Plan certification process will resolve many issues such as the cumulative impact of many small developments, some projects would by their size and location require special review. Therefore, to ensure the day-to-day decisions of local governments effectively carry out the Coastal Plan, an appeals procedure is needed.

**19. Interim Permits and Appeals Before Certification of Local Implementation Programs.** Until certification of the local implementation program by the coastal agency, the existing Coastal Act permit and appeal system within the present permit area or the coastal resource management area, whichever is less, shall remain in effect, except that the standard for approval or denial of a permit shall be consistency with the policies of the Coastal Plan. In addition, the following shall require a permit from the coastal agency during the interim period: (1) any conversion of prime agricultural land within the coastal resource management area to non-agricultural uses; (2) conversion or subdivision of other agricultural land in parcels of 20 acres or more within the coastal resource management area; and (3) any major water, sewer, transportation, or energy project in the coastal zone that could adversely affect coastal resources, as set forth in Recommendations 22 and 23.

**20. Appeals After Certification of Local Implementation Programs.** After certification of local implementation programs, the coastal agency shall hear appeals from local decisions within that portion of the coastal resource management area covered by the certified program only as set forth in Recommendation 11.

The State of California has title to the ocean bottom to a distance of three miles from shore (the Federal government has jurisdiction from the three-mile line to the 12-mile limit). Local implementation programs could not cover that area. For this reason the coastal agency's existing concurrent permit authority with the State Lands Commission should continue.

**21. Retained Jurisdiction Over Public Trust Lands and Areas Seaward of the Mean High Tide Line.** Because of the special responsibility of the State over public trust lands (see Recommendations 36-39), tidelands, and submerged lands, no certification of local implementation programs (except programs that include the detailed plans of a district operating a harbor under legislative grant of jurisdiction) shall replace separate coastal agency permit authority over State tidelands, other areas below the

mean high tide line seaward to the extent of State jurisdiction, or any other land or water areas held in trust for the public. In those areas, the coastal agency shall continue to issue permits in a manner substantially the same as that exercised under the Coastal Act.

Until State agencies and special districts bring their development plans into conformity with the Coastal Plan, project-by-project review is needed for major public works facilities that could adversely affect coastal resources. This review authority should cease within the coastal resource management area as soon as the local plans have been certified. Beyond the management area, however, because no General Plan certification process is proposed, and because major projects could have a direct impact on coastal resources, continuing review authority over major projects within the coastal zone is recommended.

**22. Review Authority Over Major State and Federal Projects.** Because major public works projects can have significant adverse effects on coastal resources, because they are presently administered by several different agencies, and because they can involve substantial public costs in planning, design, and operation, the proposed projects shall be evaluated as to consistency with the Coastal Plan at the earliest stage possible in their development to avoid unnecessary public expense. Before certification of local implementation programs, public works projects and development programs (including but not limited to highway, sewer, and water programs) within the coastal zone that are funded in whole or in part by the State or the Federal government and that could substantially affect the uses of land, water, air, and other coastal resources, shall be submitted to the coastal agency for its review and approval as to consistency with the Coastal Plan. After certification of local implementation programs, such public works projects or programs within the coastal resource management area shall be submitted at the earliest possible stage to both the coastal agency and the affected local governments, and the local government shall review and approve them as to consistency with the local implementation program. The coastal agency's review of public works projects covered in the local implementation program shall be limited to hearing appeals, as provided in Recommendation 11. The coastal agency shall continue to review and approve or deny such public works projects and programs beyond the coastal resource management area but within the coastal zone on the basis of consistency with both the Coastal Plan

and the local implementation programs of adjoining areas.

Review authority over major energy facilities is also recommended because of the far-reaching impact of such facilities on coastal development, resources, and land use patterns.

**23. Review Authority over Major Energy Projects.**

The coastal agency shall have permit authority over the environmental and land use aspects of, and the determination of need for, major energy facilities in the coastal zone, coordinated with other agencies' review procedures, as provided in Policy 76. Upon certification of the applicable local implementation program, coastal agency review of such facilities shall be limited to hearing appeals as provided in Recommendation 11.

To protect coastal watersheds during the time needed for preparation of watershed plans, the coastal agency would have limited authority as follows:

**24. Review Authority Over Major Watershed Projects.** Because upstream development can cause destruction or severe damage to coastal wetlands, streams, wildlife habitats, and beaches, and because these coastal resources may not be adequately protected by the regulatory authority of

other agencies, the coastal agency shall review and approve, modify, or disapprove specific projects in or near coastal streams (as described in Policy 24) within the coastal resource management area on the basis of consistency with the Coastal Plan. Upon certification of watershed management plans for the coastal resource management area (see Policy 22), the coastal agency's permit authority over specific projects included within the certified plan shall be limited to requiring mitigation measures.

Recognizing that there may be categories of projects that can be excluded from regulatory review, consistent with the goals and policies of the Coastal Plan, authority to exclude certain categories of development is provided as follows:

**25. Waiver of Review.** Both before and after certification of a local implementation program, the coastal agency may, by regulation, decline to review certain classes, types, and sizes within any category of development in certain geographic areas where it finds, after public hearing, that there is no potential for significant adverse effects, either individually or cumulatively, on coastal resources or coastal access or that an existing State agency can perform the review in a more timely and expert manner.

## OTHER DUTIES AND PROCEDURES

The authority to amend, refine, and enforce the Coastal Plan is necessary to insure its effective implementation. Thus, the following powers are recommended:

**26. Coastal Plan Amendment.** The coastal agency shall be able to amend Coastal Plan policies after 90 days public notice of a proposed amendment, a full public hearing, and upon the affirmative vote of two-thirds of its authorized membership. No amendment shall exceed the authority granted the agency by its enabling legislation. Plan maps and other parts of the Plan may be amended upon vote of a simple majority of the authorized membership after 30 days notice and with a public hearing in the affected area. All affected local governments, other agencies implementing the Coastal Plan, and interested citizens shall be notified of amendments. The coastal agency shall, by regulation, establish procedures for the implementation by local govern-

ments of any major amendments after local implementation programs have been certified.

**27. Guidelines, Standards, and Regulations.** The coastal agency shall be able to adopt, after public hearing, such guidelines, standards, and regulations as it deems necessary to carry out the Coastal Plan and these implementing measures.

**28. Enforcement.** The coastal agency shall be able to issue cease and desist orders and to initiate judicial proceedings to prevent a violation of the Coastal Plan. The Attorney General shall represent the coastal agency in all judicial proceedings and render legal advice as appropriate.

**29. Monitor Performance of Local Implementation Programs.** The coastal agency shall review the effectiveness of the local implementation programs

to assure that programs are being followed, that amendments to the Coastal Plan are incorporated into them, and that procedures leading to decisions afford the opportunity for public involvement. As set forth in Recommendations 13 and 14, the agency shall certify any amendments to the local programs before such amendments are put into effect and shall be able to revoke any program that is being violated.

**30. Set Performance Objectives.** The coastal agency shall set performance objectives for implementation of the Coastal Plan and annually report to the Governor and Legislature on the progress of meeting those objectives. The objectives should include but not be limited to such subjects as habitat restoration (e.g., wetlands), provision of beach access (maximizing access consistent with the carrying capacity of the shoreline), preservation of coastal agriculture, water quality, fisheries management, beach sand management, and maintenance of low- and moderate-income housing.

The implementation of the Coastal Plan must be an interagency effort. Cooperation in regulating land use, undertaking additional planning, and completing the research called for in the Plan is essential. These recommendations provide a framework for this joint undertaking:

**31. Improve Efficiency of Permit Procedures.** To reduce delays, expense, and uncertainty for those wishing to use and develop their land; to provide a simple, inexpensive procedure; and to reduce public costs while increasing coordination among regulatory agencies, the coastal agency shall take the lead in seeking cooperation among local, regional, and State agencies in drafting and imple-

menting a "single permit application" system for coastal development where feasible. Such a system should provide for joint public hearings to determine the facts in question; reports by the hearing body on the facts may then be forwarded to the appropriate agencies for their determination in accordance with the laws governing their duties and responsibilities.

**32. Inter agency Agreements and Role of Regional Organizations.** The coastal agency shall seek to develop agreements with other State and regional special-purpose agencies to permit the agency to directly borrow expertise when needed from them; funds shall be budgeted to support such inter-agency use of personnel. While a State coastal agency with regional components is adequate to implement much of the Coastal Plan, the State coastal agency shall also be authorized to contract with a regional organization in any coastal area to carry out some of the functions of its regional components, including plan review, if the State coastal agency finds that the regional organization is capable of doing so and if the regional organization, or the arm of it that would carry out the functions, consists of members chosen in accordance with the membership formula of the Coastal Commissions, i.e., half representatives of local government and half representatives of the public in the region appointed by the Governor and the Legislature.

**33. Coordinate Research and Studies to Implement the Coastal Plan.** The coastal agency shall assist State and local agencies, universities, private researchers, and other qualified persons and organizations to secure funding and technical resources for research, studies, and other activities necessary to carry out the Coastal Plan.

## PUBLIC PARTICIPATION

The agency designated to carry out the Coastal Plan should have a clear statutory mandate to advocate and protect the public interest in the coastal zone. Its members should represent and be accountable to the public. And it should develop procedures to encourage full participation in decisions affecting the coast.

**34. Maintain Public Involvement in Coastal Matters.** To continue the open, responsive operation of the citizen-initiated Coastal Commission, strong

efforts to maintain public involvement shall be undertaken. The coastal agency staff shall be directed to (1) provide for full participation by all interested groups and the public at large in coastal agency work; (2) ensure that groups and individuals are advised as to effective ways of participating and give direct assistance to all applicants and interested parties in the procedures for presentations before the agency or communications with it; and (3) pro-

vide prior public notice of proposed actions. To this end, the agency shall have an administrative advisor with functions similar to those in the act that established the State Energy Resources Conservation and Development Commission; the advisor shall recommend any additional measures necessary to ensure open consideration and public parti-

cipation in coastal agency matters.

**35. Equitable Public Access to the Courts.** Provision should be made for plaintiffs prevailing in litigation to prevent or halt a violation of the Coastal Plan and coastal legislation to recover reasonable attorney's fees.

## PUBLIC TRUST LANDS

The ocean bottom near the shore is largely held in trust by the State for the benefit of all the people of California.

### **36. Protect Public Trust Lands in the Coastal Zone.**

The State, as the legal guardian of certain coastal areas, generally seaward of the mean high tide line, that are held in public trust (i.e., the areas are held in trust for the public for commerce, navigation, fisheries, or other uses set forth in law) shall provide special protection for these areas. Because development adjacent to such public trust lands and waters can have an adverse impact on the public's rights in them (e.g., development may block constitutionally guaranteed access to coastal waters or cause damage such as erosion or landslides), development on or uses of public and private lands in the vicinity of trust areas that would significantly interfere with or harm the public values of these areas shall not be permitted. The Coastal Plan shall, consistent with applicable law, be a basis for determining permissible uses of public trust lands and waters and of adjacent areas within the coastal zone. If there is reason to believe that an area may be subject to the public trust, any proposed development in that area inconsistent with the public trust shall not be permitted to proceed unless it is found that the public trust is not applicable to the site.

The shoreline moves back and forth as cliffs erode or sands build up. The lands owned by the State in trust advance and recede accordingly. The rights of the public in those public lands is further clouded by actions in the past that may have lost some of the public rights by

imperfect or misdirected transfers of lands to other parties. More definitive mapping and more intensive legal research is needed to better protect the public's interest.

**37. Title Status of Certain Lands.** The State Lands Commission, with the Attorney General, shall undertake an accelerated legal research and boundary determination program to clarify the extent and status of all public trust lands, including areas enlarged by the addition of new materials (accreted or relict lands) and areas diminished by erosion (eroded or lost by avulsion).

**38. Uniform Coastal Mapping.** To clear up existing uncertainty in California as to the extent of public trust land, including the exact location of its landward and seaward limits, and to aid the effort described in Recommendation 37 above, it is recommended that a uniform coastal mapping act be drafted, using standard technical definitions consistent with those employed by the National Ocean Survey, that (1) outlines the practical and acceptable methodology for mapping shoreline property lines in a clear and understandable way, and (2) would mandate use of this methodology by all licensed surveyors upon adoption of the act.

**39. Coastal Survey for Beach Access.** The coastal agency shall survey the coast to identify beach access areas acquired by the public through grants or that may be subject to prescriptive rights or implied dedications, such survey to be undertaken in coordination with the provisions of Recommendation 33 above.

# ACQUISITION AND RESTORATION

## Introduction

The acquisition and restoration program proposed in the Coastal Plan relies primarily on existing agencies. Much can be achieved through the planning and regulatory policies in Part II of the Plan, but a program of public acquisition and restoration along the coast will also be necessary to fully protect and enhance coastal resources.

Where existing beach and coastal park lands are insufficient to meet growing demands for recreation, particularly in major metropolitan areas, additional coastal property should be acquired. Where public beaches are underused because of inadequate parking or access, additional parking and accessways should be provided. Where zoning alone is, because of economic pressures, unable to keep agricultural lands in productive use, it may be desirable for the public to acquire easements to limit development and to protect agriculture. Where wildlife habitat is threatened, purchase may be needed. And where environmentally important resources such as wetlands have been degraded, a restoration program should be started.

Actual acquisition of coastal properties would, in the vast majority of cases, be carried out by existing governmental agencies. In fact, many of the sites tentatively proposed for acquisition have already been suggested by State, Federal, and local agencies.

## Acquisition Criteria and Priorities

The Coastal Plan proposes the following priorities for public acquisition of coastal property:

1. Lands best suited to serve the recreational needs of urban populations should be acquired before land in outlying areas.
2. Land of significant environmental importance, such as for habitat protection, should have priority over other less important land.
3. As the highest priority, lands in either of the above categories proposed for development or use incompatible with their basic resource or recreational value should be acquired or protected before land experiencing little or no development pressure.

## Proposed Acquisitions: Some Examples

These criteria result in the proposal for a major acquisition of property along the Irvine Coast, for inexpensive overnight public accommodations that would allow persons of moderate income access to coastal recreation in the Orange County area. Point Dume State Park in Los Angeles County and San Onofre State Park in San Diego County are proposed for expansion. Also proposed is the preservation, restoration, and enhancement of habitat or biologically important areas along the coast, such as Elkhorn Slough in Monterey County and Willow Creek in Sonoma County. In addition, acquisitions are proposed to carry out major Plan policies and achieve balanced resource management within the coastal resource management area (e.g., acquisition of the planned but not yet built Whiskey Shoals subdivision in rural Mendocino County, where acquisition would preserve the scenic integrity of the area and would help to concentrate development in existing areas, preventing leapfrog and sprawling development in rural areas).

## Proposed Acquisitions: Tentative Proposals on Plan Maps

Shown on the Plan Maps in Part IV are sites tentatively proposed by the Coastal Commission for public acquisition. **These designations are preliminary, and changes will be included in supplementary material to be submitted to the Governor, the Legislature, and the public.**

Based on assessments by county assessors, the parcels tentatively proposed for acquisition have a total market value of about \$180 million. Because of inflation, and because some assessments have not been updated recently, the estimates may be low with regard to some parcels. On the other hand, the total cost may be reduced by eliminating some parcels from the list (the Commissions are continuing to review the acquisition proposals) and by purchasing easements rather than full title in some cases. The Plan proposes that, after further review of the proposed acquisitions, a bond issue be submitted to the voters of California in 1976 to pay for prompt purchase of coastal properties.

In accordance with existing law, all purchases should be made on the basis of paying fair market value to the owner of the property being acquired. The Commission recommends that

each parcel finally proposed for acquisition be acquired as soon as possible by the appropriate public agency.

The designation of a parcel of land on the Plan Maps in Part IV as being considered for acquisition does not prevent the site from being used pending acquisition. Use and development compatible with the proposed public acquisition can and should be permitted; for example, sites proposed for intensive recreation could be suitable for a combination of public recreation, such as parks, and commercial-recreation, such as campgrounds or resorts. But where the proposed use or development would adversely affect the recreational or natural resource value of the site, such as building a house over a sandy beach proposed for acquisition, then the proposed development should be denied for a limited time. As provided in Policy 67, if a parcel of land proposed at this time for acquisition is not in fact acquired within a reasonable time, usually not to exceed three years from the effective date of legislation to carry out the Coastal Plan, development in compliance with Coastal Plan policies should be allowed to proceed.

## Acquisition Techniques

The traditional method of public acquisition—a one-time cash purchase of fee interest in property, following legislative appropriation of funds—will continue to play a large role in any acquisition program. But, as both the price of land and the pressure for private development increases, public agencies should explore more innovative techniques that meet public needs while also respecting the concerns of property owners. For example, a landowner interested in selling his land to a public agency often hesitates because of the tax consequences of a major capital gain in a single year. Installment purchases are specifically prohibited by the California Constitution, but a State or local agency may acquire property over time through a lease agreement under which the agency receives a portion of the land each year in return for the lease payments.

Some acquisition techniques recommended in the Coastal Plan will require new legislation. For example, no State acquisition agency can now purchase less than fee interests in property, i.e., options or easements to limit development. Acquisition agencies should also be able to purchase and lease back lands, purchase and resell land (after placing use restrictions on it), enter into resource management contracts, and contract with outside agencies such as a non-profit corporation established by the State. The Legislature has already authorized the Tahoe Conservancy Agency to employ some of these acquisition techniques; similar authority should be granted for coastal acquisitions.

## Coordination of Purchases

The Coastal Plan proposes that a program of interagency cooperation in acquisitions be established through the newly formed Real Estate Council, organized by the Department of General Services, and through a coastal coordinating council, chaired by the Secretary of the Resources Agency. Particularly important is the proposal for greater coordination between the regulatory program now being carried out by the Coastal Commission and the acquisition and restoration activities of existing agencies. It may be possible, for example, to preserve major watershed areas by acquiring key buffer areas (e.g., Upper Newport Bay) within the drainage basin and regulating use of the rest of the land consistent with the overall goal of resource protection. Agricultural lands under

development pressure can be preserved for continued production through selected acquisition and a regulatory policy which requires that property taxes be lowered to reflect the restrictions on development of the land.

## The Coastal Conservation Trust

Some facets of the acquisition program proposed in the Coastal Plan cannot be integrated into the framework of existing agencies, and thus the Coastal Plan proposes establishment of a Coastal Conservation Trust. This agency would not compete with existing agencies but would take on responsibilities to complement those of other agencies. Working with the Real Estate Services Division of the Department of General Services, for example, the Trust could establish a purchase and lease-back program for agricultural lands. Working with regional and local park districts, the Trust could provide matching grants for the acquisition of coastal parklands and for the maintenance of lands providing public access to the coast. Working with the State Department of Parks and Recreation, the Trust could acquire easements on lands adjacent to existing parks to minimize the need for future acquisition.

The specific purposes, powers, and duties proposed for the trust are described below. These proposals are modeled after the Tahoe Conservancy Agency, established in 1974 to carry out the acquisition and restoration recommendations of the adopted plan for the Tahoe Region.

## Recommendations

**40. Establish a Coastal Conservation Trust.** Because certain acquisition and restoration activities cannot readily be carried out by existing acquisition agencies and because there is a need for an innovative and flexible program of positive public action along the California coast, it is recommended that the Legislature establish a Coastal Conservation Trust. The Trust should be administered by five trustees: the chairman of the State Coastal Commission or a designee, the Secretary of the Resources Agency or a designee, the Director of the Department of Finance or a designee, and two members of the public appointed by the Governor. The Trust should be part of the Resources Agency.

**41. Purposes of the Coastal Conservation Trust.** The Trust should be established to assist in the implementation of the acquisition recommendations of the Coastal Plan, and where necessary, to fund the Plan's policies calling for positive public action and restoration of critical resource areas to the public domain. Among the specific purposes for which the Trust should be established are:

- (1) The selective acquisition of prime agricultural lands proposed for conversion to non-agricultural use to prevent urban intrusions into agricultural areas, to protect lands not now in



agricultural production but needed to meet long-term food needs, and to assemble lands into parcels of economic size, using appropriate techniques such as purchase and lease-back or purchase and resale of lands for productive use or the purchase or lease of easements over agricultural lands;

(2) The acquisition of subdivided lots in scattered ownership, excess rights of way, and other lands that could be purchased from their owners and sold or leased for uses consistent with the Coastal Plan;

(3) The pre-acquisition of lands for reconveyance to other public agencies;

(4) The restoration and enhancement of degraded coastal lands, especially habitat areas and lands near urban areas suitable for intensive or passive recreational use;

(5) The acquisition of easements and development rights on lands adjacent to local, State, and Federal parks on or near the coast to establish a buffer of privately owned land for use consistent with the purposes of the park and to minimize the need for future acquisitions around existing parks;

(6) The acquisition or acceptance of lands providing public access to the coast;

(7) The administration and acceptance of in-lieu payments provided as part of permit decisions by the coastal agency or local government.

**42. Powers and Duties of the Coastal Conservation Trust.** To carry out these purposes at the least possible long-range cost to the State, the Trust should be authorized to do the following:

(1) Purchase, acquire, accept, hold, and convey fee or less than fee interests including, but not limited to, scenic easements, purchase of the

fee and leaseback or resale of lesser interests (e.g., farming or grazing rights), purchase of the fee subject to a life estate or other encumbrance;

(2) Purchase options to purchase any such interest in land;

(3) Lease lands pursuant to Sections 5060-5065 of the Public Resources Code;

(4) Negotiate land exchanges, with the consent of the seller and the landowning agency;

(5) Initiate, negotiate, and participate in contracts and agreements for the management and disposition of the land, including resource management contracts and joint powers agreements;

(6) Provide grants to other State and local agencies on a matching basis for the purposes described in (1) above, and for the maintenance of lands providing public access to the coast, consistent with the Coastal Plan;

(7) Exercise the power of eminent domain only for the acquisition of subdivided lands in scattered ownership. Where condemnation is found necessary to achieve one of the other purposes enumerated in Recommendation 36 above, the Trust should be empowered to request such action from the Public Works Board or to seek eminent domain authority from the Legislature on a case-by-case basis.

**43. Exemption from Review by the Public Works Board.** Because many of the rules of the Public Works Board (e.g., limitations on the acquisition of lands proposed for development) would inhibit the flexibility and effectiveness of the Coastal Conservation Trust, acquisition by the Trust should not be subject to review by the Public Works Board but should be governed by other provisions of the Property Acquisitions Law excepting those limiting the term for the leasing of public lands.

# FUNDING

## Introduction

The Coastal Plan is an investment in the long-term wise use and protection of California's coast. As with any other investment, there will be costs—in this case, the costs of the permit and appeals process, of planning by the State and Regional Commissions to keep the Coastal Plan up to date as conditions change, of additional planning by State and local governments, of property acquisition and restoration of coastal lands, and possibly of grants to some local governments that may suffer serious losses in their property tax base.

## Administration of Permits and Appeals

Under the recommendations in this section of the Coastal Plan, the present permit/appeals process of the State and Regional Commissions would continue for up to four years, while local governments are preparing their local implementation programs; after that, local governments would have primary responsibility for carrying out the Coastal Plan, subject to a limited appeals process. Based on the experience of the Coastal Commissions, it appears that the interim coastal agency permit and appeals process, with six Regional Commissions and one State Commission, would cost \$1 million to \$1.5 million per year, declining as local governments assume more and more of the Plan implementation and as Regional Commissions are then phased out. (Declines could, however, be partially offset by inflation.)

Funds to pay for the administration of the permit/appeals system would, as at present, come from the State General Fund. Costs would be partially defrayed by revenues from permit processing fees.

## Planning by State and Regional Commissions to Keep the Plan Up to Date

The Coastal Plan contemplates two major planning responsibilities for the State and Regional Commissions: (1) assisting local governments in the preparation of the necessary local implementation programs for certification; and (2) keeping the Coastal Plan up to date in light of future changes (e.g., the energy supply situation, or developments in international fisheries), and in light of practical experience in applying the Plan. Based on the planning experience of the present Commissions, these costs are estimated at \$1 million to \$1.5 million per year, and under the Federal Coastal Zone Management Act of 1972, Federal funds may be available to pay two-thirds of this cost.

## Planning by State and Local Agencies

The Coastal Plan provides for many policies to be carried out by existing State and regional agencies, and for local governments to bring their general plans into conformity with the Coastal Plan. For State agencies, the proposal is not for massive new planning programs but rather for assignment of high priority to coastal concerns in existing planning programs such as transportation. The costs of bringing State agency plans into conformance with the Coastal Plan should be minimal because such changes can be incorporated into the ongoing planning activities of the affected agencies. In many areas where further planning is recommended, Federal grants are currently available to defray much of the cost. Grants for watershed planning under Section 208 of the Water Pollution Control Act of 1972, for example, provide 100 per cent of the necessary funding to the planning agencies.

The costs of research and special studies proposed in the Coastal Plan should also be held to a minimum through a phased and coordinated research program directed by the coastal agency. These costs will not, of course, be incurred all at once. Projects will be undertaken as funding becomes available, and the coastal agency will assist participating agencies and researchers in securing the necessary financial and technical resources. Several of the proposed research projects, such as the studies of thermal pollution recommended in the Marine Environment chapter, are already funded and under way. Other research costs and their method of financing will only become clear as the studies are more fully defined and presented through the normal budgetary process.

For local governments, in addition to planning programs now under way, there will be extra costs during the three-year period while local implementation programs are being prepared. Based on discussions with planning officials in coastal cities and counties, the cost over the three years is estimated at \$2 million to \$2.5 million, or about \$700,000 to \$800,000 per year. Federal funds to assist in this planning are potentially available under the Federal Coastal Zone Management Act of 1972 and Section 701 of the U.S. Housing Act of 1968 (as amended).

## Acquisition and Restoration of Coastal Lands

The Coastal Plan tentatively recommends acquisition of 152 sites along the coast. Funds to acquire some of the sites have already been appropriated, but most of the areas proposed for acquisition will require additional Federal, State, and local

funding. Based on the property records of county assessors in the 15 coastal counties, the additional acquisition costs for the entire list (beyond the funds already appropriated) are estimated at \$180 million.

The long-term cost of developing and maintaining these sites is difficult to determine at this time. Costs at each site will differ, depending on the level of management and the extent of development appropriate in the area. The experience of park agencies in southern California places annual maintenance costs at about \$70,000 per linear mile of coastal park in that area; the costs for less heavily used areas would probably be less.

Funds to carry out Plan proposals for acquisition and restoration are potentially available from a variety of sources. If the properties are acquired over a long period of time, the annual costs of this program will be relatively low. Because, however, many of these properties will be put to other uses unless acquired soon, and because of the need for fairness to the owners of these properties, a statewide bond issue to provide funds for immediate acquisition of some or all of these properties is recommended.

Other sources of funding for the acquisition program are enumerated in Recommendation 44 below. Particular emphasis should be placed on the Federal Land and Water Conservation Fund, which is distributed on a project-by-project basis. California last year received \$12.5 million in grants from the fund for public acquisitions throughout the State. Because 62 per cent of the revenues in the fund nationwide are derived from leases of submerged lands on the Outer Continental Shelf, the Commission recommends that priority be given to coastal acquisition sites in the distribution of this money. State agencies submitting proposals for grants from the Land and Water Conservation Fund should place greater emphasis on coastal areas in the application process. Direct acquisition of coastal lands by the National Parks Service and the U.S. Fish and Wildlife Service should also be encouraged wherever possible.

## Grants to Local Governments Suffering Losses in Property Tax Base

The Coastal Plan recommends strongly that tax policies favor the protection of prime agricultural land. Taxing agricultural land on its present use, not its speculative value, could, however, adversely affect the tax base of some local governments, causing taxes to rise on other types of property. In situations where this occurs, consideration should be given to State assistance to local governments, in the manner currently used to compensate localities for property tax reductions on Williamson Act open space lands. Consideration should also be given to the revenue-equalization potential of legislation like the Minnesota Fiscal Disparities Act of 1971.

Accordingly, the recommendations of the Coastal Commission are as follows:

## Recommendation

**44. Finance Implementation of the Coastal Plan through Federal Grants, State Funds, and Revenues from Coastal Activities.** It is recommended that the Legislature annually appropriate between

\$2 million and \$3 million to support the planning and regulatory activities of the coastal agency and as matching money for available Federal grants, and other funds as needed to service a bond issue to support the property acquisition and restoration activities called for in the Coastal Plan. Specifically, the Legislature should consider financing the costs of carrying out the Plan from a combination of available Federal funding sources, existing State funding sources, and/or new State funding sources, as follows:

### a. Federal funds, including:

- Funds under the Federal Coastal Zone Management Act of 1972 for planning by the State and Regional Commissions and local governments in the coastal zone;
- Section 701 grants available under the Housing Act of 1968 (as amended) for local government planning;
- Categorical grants for planning the siting of energy facilities on the coast, watershed management, and pollution abatement;
- The Land and Water Conservation Fund for the acquisition and restoration of coastal lands on a project-by-project basis;
- Grants for the acquisition of estuarine areas authorized under Section 312 of the Federal Coastal Zone Management Act; and
- Grants for the acquisition of bicycle paths available under the Federal Highways Act of 1973.

### b. State funds, including:

- The General Fund;
- The Bagley Conservation Fund, both for operating expenditures and for the acquisition and restoration of coastal lands;
- The Environmental Protection Program Fund and Collier Park Preservation Fund, for the acquisition of land for park and recreation purposes;
- The 1974 Park Bond Act, the Recreation and Fish and Wildlife Enhancement Fund, and the 1964 Park Bond Act for the acquisition of land for park and recreation purposes.

### c. New State funds from coastal-related activities, including:

- Funds from existing tidelands petroleum production and any new offshore production approved in full accord with Coastal Plan poli-

cies, because some of the costs of coastal planning are directly related to the impact of offshore petroleum production;

- Severance taxes on oil and gas production, because the costs of coastal planning are to some extent directly related to the impact of such activities;
- Oil throughput charges on petroleum products moved across State tidelands, because some of the costs of coastal planning and protection are related to the risks inherent in the transportation of oil in California's coastal waters;
- Increased registration fees for pleasure boats, because boat users depend on the continued management of coastal resources for their recreational enjoyment;
- Transient occupancy taxes, because a majority of hotel and motel rooms in California are within 30 miles of the coast and because the coast is a visitor destination for many persons traveling to California.

**d. Consider a Bond Issue to Finance Acquisition and Restoration Programs.** The Legislature should consider submitting a bond issue to the voters for the acquisition and restoration of

coastal lands. The funds from such a bond issue, if passed by a majority of the voters, should be made available to the proposed Coastal Conservation Trust and to other agencies authorized to acquire and maintain coastal lands for recreation, education, research, and coastal protection (e.g., the State Department of Parks and Recreation, the Department of Fish and Game, the Natural Land and Water Reserve System, and local park agencies). Revenue sources listed above could be used to help retire the bonds.

**e. Consider Mechanisms for Equalizing Tax Inequities.** The Legislature should consider a mechanism, where one is needed, to equalize local tax revenues among affected jurisdictions in coastal areas. Because the Coastal Plan may have the effect of reducing the assessed valuation of certain coastal lands (e.g., prime agricultural lands) and because the Plan will tend to concentrate new development in already built-up areas, along with the property tax benefits of such development, the Legislature should consider enactment of a program under which local governments adversely affected could share part of the annual growth in property tax valuation. (The Minnesota Metropolitan Fiscal Disparities Act of 1971 could be evaluated as a model for such a program in California.)

# Part IV: Plan Maps and Regional Summaries

The following maps and summaries provide a detailed overview of the regional planning process, including the identification of key areas and the development of strategic initiatives.

The maps illustrate the geographical distribution of resources and the impact of various development projects. The summaries provide a comprehensive analysis of the regional economy, social conditions, and environmental challenges. This information is essential for the formulation of effective policies and the implementation of sustainable development strategies.

For further information and detailed data, please refer to the accompanying reports and documents.

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#### HOW TO USE PART IV

Part IV is divided between narrative material (Regional Summaries) and maps (Summary Maps and Plan Maps). Both text and maps are presented north to south.

- **Regional Plan Summaries** present an overview of each Region and discussions of coastal subregions, keyed to relevant Plan Maps.
  - **What the Maps Show** includes a description of map legend items.
  - **Summary Maps** illustrate the coast, major resources, and boundary lines at a glance. (Explanations of the coastal resource management area boundary for each region are on the facing pages.)
  - **Plan Maps** show the coast in detail, with Map Notes for each area on the facing pages. Each Region's Plan Maps begins with a location map for that Region: North Coast begins at Map 1, North Central at Map 14, Central Coast at Map 20, South Central at Map 33, South Coast at Map 50, and San Diego at Map 58. (Maps at greater detail are available at Regional offices.)
  - The **Map Legend**—the key to the colors and symbols on the Plan Maps—is a foldout page at the back of the Plan, so it can be viewed while reading the maps.
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# INTRODUCTION

Part II of the Coastal Plan sets forth the policies upon which conservation and development decisions in the coastal zone should be based. Part IV specifically applies these policies to the geography of the coastal zone--the sea, wetlands, beaches, farmland, hills, urban areas.

Prepared by the six Regional Commissions with coordination by the State Commission, the Plan Maps, accompanying Map Notes, and Regional Summaries show the Commissions' recommendations as of the date of completion of this Plan for the application of appropriate policies to specific coastal lands and waters.

The maps, notes, and summary text apply the Coastal Plan policies of Part II but are not intended to substitute for them; in case of any question between a policy and a map, the policy shall govern. Where the Map Notes and Regional Summary direct an action, they are, however, intended to be given the same force and effect as the policies upon

which they are based, and taken together with the maps, are intended to guide further planning as necessary by governmental agencies and property owners. Should further planning or new information indicate that changes in either the Part II policies or the Part IV maps, notes, or summaries are needed, specific procedures for possible amendment of the Plan are provided (see Part III, Recommendation 26).

Taken as a whole, Part IV can be used by private citizens, public agencies, and private organizations interested in knowing the location and extent of coastal resources and developed areas as well as what the Plan proposes in their community. Proposed in Part IV, for example, are areas for possible public acquisition and restoration, the possible location of coastal trails and coastal access, and, in some instances, areas within which urban growth could be encouraged or restricted. Local governments can use the maps, notes and summaries in their own implementation of the Plan (see Part III).

# REGIONAL SUMMARIES

**Regional Plan Summaries.** The Regional Summaries were prepared by the Regional Commissions to summarize the extent of critical resources, major local plans, development trends, environmental problems, and economic and social concerns where appropriate, and to describe specific conservation and development proposals that reflect Plan poli-

cies. Each Regional Summary begins with a brief description of the Region, followed by more detailed descriptions of smaller geographic units or "subregions." As depicted on the Plan Maps, subregions have been identified to provide more manageable planning areas for each Region.

# NORTH COAST

The North Coast Region, one-quarter of the California coastline, is composed of the three northernmost coastal counties in the State. This region is sparsely populated, with the focus of population scattered along Highway 101 and Highway 1. The counties and their population as of 1970 are: Del Norte, 14,600; Humboldt, 99,642; and Mendocino, 51,300. Unlike most other coastal counties which have experienced increasing population, the North Coast counties' populations have actually decreased between 1960 and 1970.

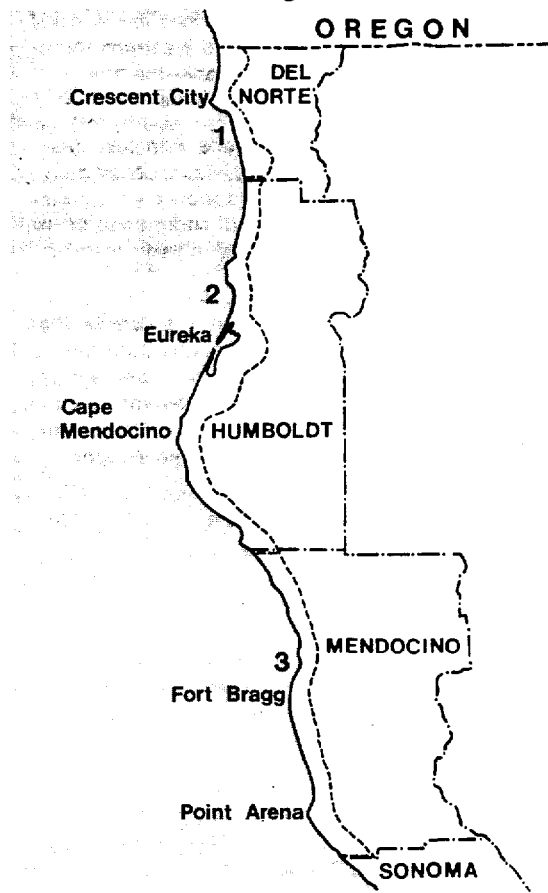
The rural character of the countryside with its ranches and dairy farms, the quaint and charming New England flavor of special communities such as Ferndale and Mendocino, and the lack of large city congestion contribute to the unique appeal of this region. The remoteness of the North Coast from any large population center has enabled low- and moderate-income residents of the region to be able to enjoy this appeal and to have the additional benefits of a slower-paced lifestyle.

The economy of the North Coast is based upon forest products, agriculture, fisheries, and tourism. The timber industry is by far the principal source of livelihood for the people in this region. Agriculture and fishing are additional but cannot replace timber as the basis of the North Coast economy. The recreational appeal of the region attracts 40,000 to 50,000 visitors annually from across the nation; however, this influx of visitors is limited to the period from June to mid-September. This short tourist season is not only significant to the North Coast but a stimulus to the national recreational industry. The timber and fishing industries not only are important to this region and the State but are of national concern. The objectives of the Coastal Plan particularly applicable in Del Norte, Humboldt, and Mendocino Counties are to maintain this region as a scenic and natural resource area, to preserve agricultural lands, and to conserve natural areas without jeopardizing economic stability.

**General Recommendations.** Major planning issues to which Coastal Plan policies are applied in the North Coast Region include timber and watershed management, lot splits and premature subdivisions, and protection of scenic, recreational, and ecological resources. To this end:

- **Timber** is a valuable national resource; its sustained harvesting is necessary for the nation's welfare. Coastal Plan policies call for maintenance of all prime timberlands now in economically feasible harvesting units in the North Coast Region. Programs for rehabilitation and enhancement of commercial timber resources should be developed to insure continued timber productivity. Reconsolidation of uneconomical parcels should be done in areas that are not significantly built out at this time. Conversion of prime timberlands to other uses shall be minimized.
- **Water quality and fishery resources** in coastal streams shall be maintained; remaining estuaries and wetlands and buffer areas necessary to protect these wetlands and their wildlife habitats shall be preserved and protected.
- **Soil productivity** shall be protected and development regulated to prevent soil depletion or degradation. A detailed upland soils survey should be completed for the three North Coast counties.

## North Coast Subregions



- **Agriculture.** All agricultural lands which are established economic units in production shall also be maintained in agricultural use. Division of lands or subdivisions shall not be permitted to convert agricultural parcels which are in economic units of production. All prime agricultural lands, especially those around the Smith River floodplain, the Arcata Bottoms (including McKinleyville), the Eel River Bottoms, Hunters Lagoon, and the Garcia River, shall be protected from conversion to non-agricultural uses. Remaining agricultural lands around developed areas should be designated as open space visual resource areas such as land between Mendocino and Fort Bragg and between Eureka and Arcata.
- **Special Neighborhoods and Communities.** The protection, maintenance, and enhancement of the unique character of numerous special neighborhoods and communities is to be achieved through the restriction of inappropriate development and use of design guidelines as determined by community design review committees and appropriate public agencies.
- **Views.** The "view corridor" as defined and mapped in North Coast regional supplements is a highly scenic area. Plan Policies provide that new development within the view corridor should complement natural, scenic, and



historic values especially within or near special communities and where scenic open vistas exist. Tall structures that are out of scale with existing buildings or structures shall not be allowed. Realignment or construction of any travelled surface shall minimize alterations of natural landforms and shall restore, as much as possible, the original contours and vegetation after completion of the alterations. A buffer area may be required to effectively screen logging operations within the view corridor (the need for and width of a buffer will be determined on a case-by-case basis). Those subdivisions west of Highway 1 are to be considered part of the view corridor. Where build out is permitted, use of screening with indigenous plant species and design controls will minimize adverse visual impacts. Screening will also be required east of the highway for development that is incompatible with the view corridor.

- **Offshore Rocks and Marine Resources.** To protect the offshore rocks and islands that are important nesting areas for seabirds and resting grounds for sea lions, especially those accessible by foot at low tide, access should be permitted only for purposes related to research and resource management and should be controlled by the Department of Fish and Game.
- **Coastal Strand, Sand Dunes, and Beaches.** Sand dunes, beaches, and associated indigenous plant habitat areas are extremely fragile communities. To prevent accelerated dune movements and loss of wildlife habitat, these dune and beach areas should be used only to the extent that no significant disruption of habitats or environmental damage will occur.
- **Wetlands and Estuaries.** Many of the remaining wetlands and estuaries are small, but when combined they provide important habitat for many birds, mammals, reptiles, and amphibians. Before any manmade alteration of a wetland or estuary is permitted, an overall plan assessing natural protection and restoration and recreational and aesthetic values shall be prepared by the public agencies and private interests involved, for review and approval by the coastal agency.
- **Streams, Rivers, and Riparian Habitats.** A major concern of Coastal Plan policies is protecting the water quality of streams and rivers for fish and wildlife use as well as for domestic and industrial needs. Logging and other uses of the watersheds shall be strictly regulated, and buffers

shall be used to protect riparian vegetation.

- **Trails.** A coastal trail system throughout the North Coast Region shall integrate and make use of existing trails within public lands and existing local roads, streets and highways where pedestrian, bicycle and/or equestrian access is permitted. Consistent with Coastal Plan policies, to protect agricultural lands, the coastal trail system shall be kept separate from agricultural lands by alternate routing or by a fence or other appropriate barriers in certain areas. As an initial phase, it is recommended that a coastal trail extending northward from the King Range National Conservation Area to the Mattole River and southward from the King Range to the De Vilbis Ranch be established (taking into account the Usal Creek trail proposal by the Department of Parks and Recreation). This would be in addition to the Mendocino Coast Pilot Trail Corridor (from Mackerricher State Park to the Mendocino Headlands) as proposed by the Department of Parks and Recreation's California Recreational Trails and Hostel Plan.
- **Land Divisions.** New subdivisions, including simple lot splits, will be determined through a land classification system which would set forth environmental, including ecological, criteria. Such a system will use as a base the natural character of the area, proximity to urban service areas, feasibility of reasonable alternatives, and economic demand based on a current inventory of land available for immediate development in the area. Local implementation programs, including revised General Plans and supporting ordinances to be developed consistent with the policies of the Coastal Plan, will reflect the criteria for such land divisions by specific areas as to lot size minimums, density, services (either available or to be extended), other limiting factors to development such as soil characteristics, slope, streams, and groundwater supply, open space requirements, including views and aesthetics, and consistency with Coastal Plan policies encouraging concentration of development.
- **Capacity Budgeting.** Capacity budgeting should be utilized as a planning tool where appropriate, especially where access routes are constricted and residential development beyond a certain point may substantially affect recreational travel, such as along the southern Mendocino stretch of Highway 1 where there is no major lateral route between the Russian River (Highway 116) to the Navarro River (Highway 128).

## SUBREGION 1: DEL NORTE COUNTY

[See Plan Maps 1-2]

Del Norte County's coastline extends from the Oregon border south to Humboldt County. Of this 45.5-mile-long coastline, 51 per cent is open to the public. Approximately 20 miles or 44 per cent of this shoreline is composed of rocks and rugged beaches. These rocky habitats are often ecologically unique or important wildlife areas; for example, four offshore rocks (Hunter Rocks, Prince Island, Castle Island, and False Klamath Rock) support 46 per cent of all

the newts located on coastal rocks in the State. The remaining 25 miles of shoreline is composed of wave-swept sandy beaches. The marshes and mudflats of Del Norte County are valuable in furnishing food and habitat areas for an assemblage of water-associated birds and mammals. Principal wetland areas are located at Lakes Earl and Talawa and at the mouths of the Smith and Klamath Rivers. The coastline of Del Norte County is a valuable scenic and natural

resource area, and the adjacent coastal plain is the location of over three-quarters of the county's population and its primary activity area. Public ownership in the county, nearly 75 per cent of its total area, limits the activity area and also the tax base of the county.

#### OREGON BORDER TO CRESCENT CITY

[See Plan Map 1]

**North of Smith River.** The lands north of Smith River to the Oregon border shall be maintained in agricultural use, and linear development shall not be allowed along Highway 101 to the stateline.

**Ship Ashore.** It is recommended that modification of the existing sewage system at Ship Ashore be encouraged as necessary to maintain water quality standards.

**Pacific Shores.** The Pacific Shores subdivision was created in 1963, but at the present time only two trailers occupy the area. County restrictions prevent the building of septic tanks in the area, making it infeasible for home construction. This subdivision is located on sensitive sand dunes, only portions of which are stable. Development can disturb the stabilized dunes, causing them to become active. It is recommended that this entire subdivision continue to be managed through appropriate regulation consistent with Coastal Plan policies. A few select roads should be maintained to allow public access (foot traffic) to dunes and beach for day-use activities only.

**Lakes Earl and Talawa.** Extremely valuable to fish and wildlife, Lakes Earl and Talawa provide local residents and tourists with valuable recreation opportunities. The State and a private landowner both claim ownership of these lakes. If the courts decide in favor of the State, these lakes should be managed by the Department of Fish and Game. If the courts decide otherwise, the State should acquire these lakes and maintain public access. The Federal Government is also interested in the lakes as a possible wildlife refuge, and could participate in the acquisition and management of this area.

**Smith River to Dead Lake North.** The area from Smith River south to Dead Lake North largely consists of sand dunes and sandy soils. The water table is extremely close to the surface. There are several valuable wetlands scattered throughout these dunes that are used heavily by wildlife. An open-space easement should be purchased on these lands to prevent habitat destruction. The Department of Fish and Game should enter into a cooperative management agreement with the landowners surrounding these wetlands to enhance wildlife values and at the same time protect the existing ranching programs. Consistent with Plan policies, agricultural land should not be converted to other uses.

#### CRESCENT CITY AREA

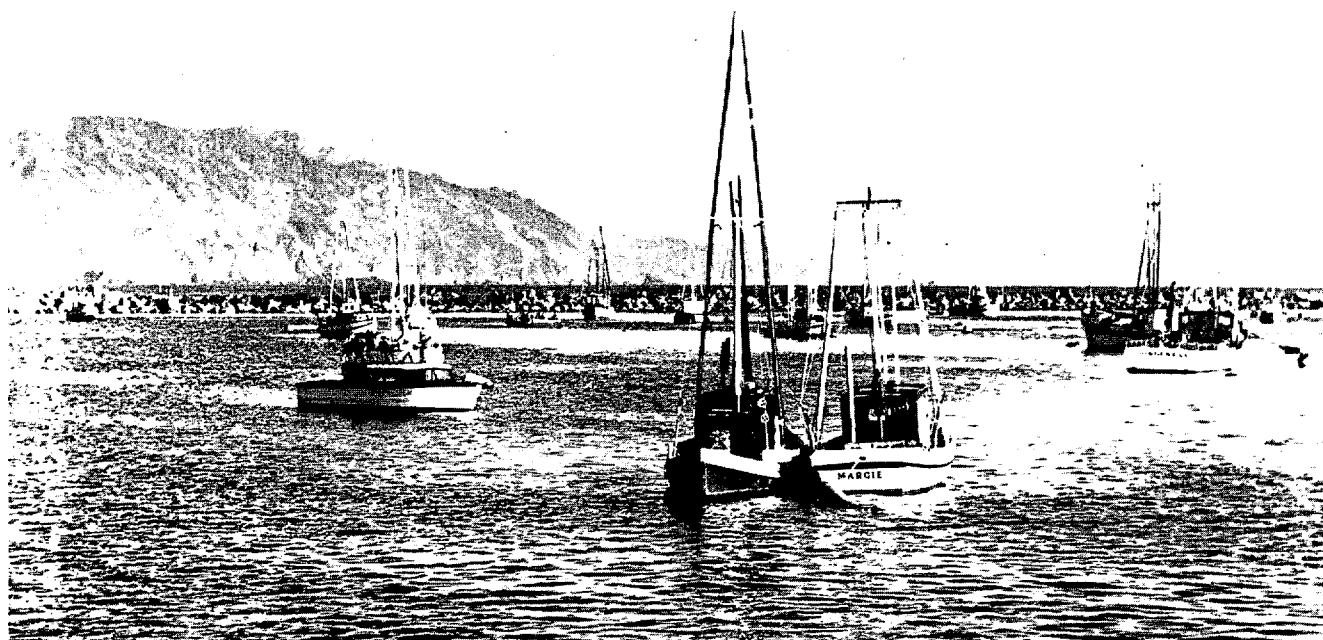
[See Plan Map 1]

**Crescent City Manor.** A portion of the Crescent City Manor subdivision is located in the middle of an unstable sand dune. Another portion is located in the poorly drained marshlands that are part of Dead Lake. These parts of the subdivision shall, as an immediate priority, be acquired by the State and public use should be limited to foot traffic. A study of the remaining portions of this subdivision should be done by the North Coast Regional Commission to determine which parcels should remain in residential zoning (and hence, be allowed to build out) and which areas should have a zone change to allow for recreational use of the property.

**Crescent City and Environs.** In the Crescent City area, to maintain water quality standards set forth in the Klamath River Basin 1-A Plan, it is recommended that modifications and updates be encouraged. Development of the Bertsch-Ocean View sewage facilities to restore water quality and remove prevalent health hazards should be encouraged.

**Crescent City Harbor.** Maintenance dredging and necessary modification to the Crescent City Harbor to insure safety should be allowed to continue. Disposal of dredge spoils shall follow the applicable Plan policies when dredging next becomes necessary.

Commercial fishing boats, Crescent City



**Wetlands South of Crescent City.** South of Crescent City are wetlands that should be protected by an open space easement around their perimeter. Future development permitted near these wetlands shall not be allowed to degrade them.

**Crescent Beach.** From the southernmost breakwater of the Crescent City Harbor to the north of Enderts Beach, Crescent Beach is one of the most biologically productive areas for invertebrates on the North Coast. Off-road vehicles should be prohibited from driving on this beach because compaction represents a significant threat to the survival of the invertebrates.

#### SOUTHERN DEL NORTE COUNTY

[See Plan Map 2]

**Requa.** The regional importance of Requa as an historical site to both American Indian and white settlers shall be

recognized and protected. To maintain the special character of this community, commercial development should be limited, and the steep, scenic hillsides above the town not be allowed to develop.

**Klamath River.** Development within the Klamath River watershed shall not be allowed to adversely affect the valuable anadromous fish resources utilizing the river all year long.

**Klamath Glen.** It is recommended that construction at Klamath Glen of septic tank-leaching pit systems consistent with Regional Water Quality Control Board and County Health Department standards and Coastal Plan policies be permitted.

**Klamath.** It is recommended that modifications and updates, necessary to maintain water quality standards in the city of Klamath as established in Klamath River Basin 1-A Plan, be permitted and encouraged.

## SUBREGION 2: HUMBOLDT COUNTY

[See Plan Maps 3-8]

Humboldt County's 121.3 miles of coastline comprise 39.1 miles of rocky shores and 82.2 miles of sandy beaches. The rocky shoreline provides secluded habitats for seabirds and marine mammals. The sandy beaches of Humboldt County are unsuitable for swimming but are used for fishing, strolling, and clamming. Boating facilities at Trinidad, Humboldt Bay, and Shelter Cove provide launching sites for sport fishermen. The remote southern third of the county, between Centerville Beach and Shelter Cove, is infrequently used by visitors and consequently provides habitat areas that remain relatively undisturbed. Two major wetland areas, Humboldt Bay and the Eel River delta, are of statewide importance in their contribution to maintaining associated wetland wildlife populations. These and other coastal wetlands along with pasture lands and sheltered waters comprise the center for wintering waterfowl in California north of San Francisco Bay and are essential in maintaining Pacific Flyway waterfowl populations.

More than 34 per cent of the coastline of Humboldt County is owned by the public. Combined with private lands available to the public, this increases the percentage available to public use to more than 65 per cent. The public land along the Humboldt coast provides the beach visitor with experiences ranging from the ruggedness of the King Range National Conservation Area to the quiet beauty of the Redwood National Park.

Clustered around Humboldt Bay are the industrial, commercial, and population centers of the county; 50 per cent of Humboldt's 99,642 residents live in the bay area. The bay in addition to its role as a wildlife area provides waterborne transportation for Eureka industry and recreation.

#### DEL NORTE COUNTY LINE TO PATRICKS POINT

[See Plan Maps 3-4]

**Orick.** To protect valuable resources and yet provide for or-

derly growth, development should be allowed that is consistent with Coastal Plan policies. However, no further divisions of agricultural lands shall be permitted. A community water system should be developed to provide for existing needs and to eliminate the problems of poor water quality and quantity from existing well systems.

**Freshwater, Stone and Big Lagoons.** Development within the Freshwater Lagoon-Stone Lagoon-Big Lagoon watershed shall take into account viewshed, watershed, and water quality policies and the importance of these lagoons for fish and wildlife production. The State should acquire the small area west of Highway 101 as an addition to Dry Lagoon State Park and a larger area from Agate Beach to Big Lagoon. These acquisitions would give the State Park ownership of the entire beach from Freshwater Lagoon to Patricks Point.

**Lagoon Subdivisions.** The Big Lagoon and Big Lagoon Park subdivisions should be allowed to build out consistent with Plan policies and the North Coast Regional Commission's blanket conditions for these areas.

#### PATRICKS POINT TO MAD RIVER

[See Plan Maps 4-5]

**Trinidad Area.** The Trinidad area, consisting of North Trinidad, Trinidad, and Moonstone should be considered a special community, and a design review committee should be formed to review future development in these areas to keep it consistent with the character of the community. Special consideration should also be given to development in the Westhaven area. To this end:

- The Tsurai Village should be reconstructed in an authentic manner, and commercialization of it should not be allowed.
- The College Cove area of Trinidad State Beach shall be designated a limited-use area, and erosion control mea-

asures undertaken to prevent further problems along the trails and parking areas. Designated parking areas should be constructed and managed by the Department of Parks and Recreation.

- Trinidad Head should remain undeveloped and in State ownership.
- The development occurring in McConnahas Mill Creek and Luffenholtz Creek shall take into consideration the importance of water quality from these creeks supplying Trinidad with its water supply. A study should be undertaken to determine the feasibility of providing water service to North Trinidad. Even an expansion of the Luffenholtz or McConnahas Mill Creek facilities might not be sufficient to meet the needs of proposed development in Trinidad and North Trinidad and planned development will have to take this into account. It is recommended that this area consider the formation of an underground utility district.
- Trinidad harbor boat launching facilities should be expanded and improved for commercial and recreational fishing. The launching facilities and restaurant should remain in private ownership.
- The State should, as an immediate priority, acquire an open space easement west of Patricks Point Drive and Stagecoach Road to protect steep coastal headlands and the view corridor in this area; an eight-acre beach and bluff parcel north of Trinidad for general recreational use; and large undeveloped parcels north of Little River and west of Scenic Drive to Crescent City for beach access and recreation.

- It is recommended that a public bus system be established extending from Trinidad south to Fortuna and Rio Dell. This system should tie in with existing bus systems (Arcata and Mad River Transit and Bishop Transit). The system could be developed through an intercity cooperative similar to a regional transportation commission.

**Moonstone-Westhaven.** In Moonstone-Westhaven a septic tank maintenance program should be developed as part of an existing community services district to insure high water quality standards. In addition, a detailed study should be done on the feasibility of a sewer system for this area.

**McKinleyville.** Good airport and highway access have made McKinleyville the fastest growing part of the county. Residential expansion has been scattered and widespread through the conversion of much agricultural land. Most residential development in the area utilizes septic systems; however, this area is underlain by a natural hardpan condition that prevents adequate percolation of effluent, and the resulting serious health hazard necessitated the imposition of a building moratorium. Because of these factors, it is recommended that a wastewater facility be developed that meets regional water quality standards, as indicated in the North Coastal Basin 1-B Plan. All remaining prime agricultural land shall be protected from conversion to non-agricultural uses.

**Little River to Mad River.** The State should acquire the land west of Highway 101 from Little River State Beach north of Moonstone Beach. Day-use only of Clam Beach County Park should be maintained; no overnight camping facilities should be allowed. Off-road vehicle access to sand

Surf fishing, Little River (near Trinidad), Humboldt County



dunes and beach areas from Little River to north of the Mad River should be prohibited until studies are conducted to show the effects of sand compaction by off-road vehicles on the invertebrates inhabiting these beaches. The beach is readily accessible by foot from a frontage road that parallels the beach. The Mad River estuary is important for salmon and steelhead resources, and it should remain undeveloped except for those projects that may enhance the fisheries resource.

#### HUMBOLDT BAY AREA

[See Plan Maps 5-6]

**Eureka and Arcata Areas.** Linear development along Highway 101 between Eureka and Arcata shall be prohibited to insure open space values, protect agricultural lands and wildlife habitat, and maintain the integrity of the two communities. Buildout should be allowed in the developed areas consistent with Coastal Plan policies. The Eureka waterfront shall be considered a special neighborhood. The pasture lands between Eureka and Arcata including the pasture lands on the Arcata Bottoms that are now in economic units shall remain in agricultural production. Development on these pasture lands should be limited to facilities that are related to or support the present land use. These lands shall not be zoned for industrial, commercial, or residential development.

**Mad River Slough.** This slough and the islands within it are lined with several acres of salt marsh. To prevent the destruction of this diminishing habitat, the State should, as an immediate priority, purchase an open space easement along the slough and on the islands in the slough. The Department of Fish and Game should enter into a cooperative management program with the landowners to manage for wildlife protection. Public access for duck hunting should be included in a management plan.

**Humboldt Bay North Spit.** It is recommended that, on the North Spit, the section of coastal dunes lying west of the new Samoa Boulevard and south of the town of Manila to the Coast Guard Station remain undeveloped. The State should, as an immediate priority, acquire an open space easement across these dunes for the purpose of preventing future development on them. The sand dunes lying north of the town of Manila to the mouth of the Mad River are largely undeveloped at the present time. These dunes should remain undeveloped. If a noncompatible use appears imminent, the State should obtain the right of first refusal. A safer site should be sought for the gun club located adjacent to Bureau of Land Management and Nature Conservancy land, at one of the wetlands scattered throughout these dunes.

**Humboldt Bay.** Humboldt Bay is an extremely important coastal estuary. Its natural resources offer the people of the area and the State diverse economic and recreational use opportunities. It is vital to protect the biological integrity of the bay in order to maintain its capacity to support fish and wildlife. Maintenance dredging should be allowed to continue to insure the economic viability of the bay as a harbor and shipping facility. Spoil dumping shall conform with Plan policies, and will probably be offshore rather than on lands adjoining the bay. Development or degradation of the salt and fresh water marsh areas of the bay shall be prohibited. Commercial fishing facilities should be accommodated consistent with Coastal Plan policies.

**King Salmon and Fields Landing.** Buildout of the King Salmon and Fields Landing subdivisions should be allowed to

capacity of the existing sewer facility with priority given to commercial fishing support facilities. Continued use of the harbor and commercial fishing facilities should be allowed and future land divisions in the adjoining areas limited.

**Humboldt Bay South Spit.** It is recommended that current uses on the South Spit be permitted to continue consistent with Plan policies and with strict enforcement of the county ordinance that requires off-road vehicles to stay off vegetated dunes but allows them access to the seaward side of these dunes. Phasing out the off-road vehicle use on the beach should be seriously considered, and a study made to determine possible alternative inland sites.

**Eel River Floodplain.** In the Eel River floodplain only development necessary for dairy support shall be allowed; these facilities should be required to withstand periodic flooding. Conversion of agricultural lands now in use as pasture shall not be allowed.

**Eel River Salt Marsh.** Because of past salt marsh destruction in Humboldt County and high biologic value of this habitat type, the salt marshes north of the mouth of the Eel River around McNulty Slough and from the mouth of the Eel River southward to Centerville Beach shall not be converted, reclaimed, or otherwise destroyed. It is recommended that, as an immediate priority, the State acquire an open space easement and that the Department of Fish and Game enter into a cooperative management agreement with the landowner to protect and enhance wildlife values in the area.

**Centerville Beach.** Expansion of the Centerville Beach County Park should be allowed when demand increases. Continued use of off-road vehicles on the beach should be permitted consistent with Coastal Plan policies and with the county ordinance requiring vehicles to stay seaward of the vegetated dunes. Phasing out the off-road vehicle use on the beach should be seriously considered and a study made to determine possible alternative inland sites.

**Fortuna, Loleta, and Ferndale.** It is recommended that modifications be made, necessary for existing water/sewage systems to meet regional water quality standards, as indicated in North Coastal Basin 1-B Plan. No further land division of agricultural land in Loleta shall be permitted. The unique character of the business district of Loleta shall be maintained. The City of Ferndale shall establish a city design review committee.

#### SOUTH OF FERNDALE

[See Plan Maps 6-7]

**Bear River.** Bear River supports good runs of steelhead and silver salmon in the winter. Since public fishing access is prohibited, it is recommended that, as an immediate priority, a public easement along the river be acquired to provide general recreation and fishing access.

**Petrolia.** Petrolia should be considered as a special community.

**Southern Humboldt Coastal Trail Segment.** It is recommended that an initial coastal trail segment extending from the Mattole River to the King Range National Conservation Area be established. This trail shall not remove agricultural land from productive use but rather be established along the beach where feasible.

**Shelter Cove.** The Shelter Cove Rancho, composed of 40- to 80-acre parcels, lies on steep hillsides and because of this

high geologic risk, no development shall be allowed. It is recommended that some existing lots at Shelter Cove Sea Park now serviced by sewer and water systems be allowed to build out consistent with geologic hazard requirements. The remaining lots lie on steep, unstable hillsides; landslides are a common occurrence and pose a hazard to any development. Selected lots should, as an immediate priority, be acquired to protect the viewshed and archaeological and soil resources; the possibility of adding the parcels to the King Range National Conservation Area shall be explored with the Federal Government. Priority should be given to acquisition of shoreline lots, especially between the Shelter Cove airport and the ocean; lots near the bluff at the south end of the subdivision; and parcels of special archeological importance.

**Special Study Area—Orick.** A special study of the Orick area will determine an appropriate scale for the community and will take into consideration the pressures of agricultural land conversions.

**Special Study Area—Patricks Point to Trinidad.** A special study for the area from Patricks Point to Trinidad should determine the allowable buildout east of Stagecoach Road and the potential for recreational vehicle facilities to handle the overflow of tourists from Patricks Point State Park. Preliminary analysis suggests that a minimum of two acres per single family residence might be appropriate for any permitted residential development. An open space easement west of Patricks Point Drive and Stagecoach Road has been recommended as a means of protecting the view corridor in this area.

**Special Study Area—Trinidad.** A more detailed development plan should be prepared for the Trinidad area by the

North Coast Regional Commission in cooperation and consultation with the Trinidad City Council, Humboldt County, and State and Federal agencies with jurisdiction in this area.

**Special Study Area—Trinidad Bay.** A comprehensive, detailed study of the Trinidad Bay should be undertaken by a cooperative effort of the City of Trinidad, Humboldt County Planning Department, Department of Navigation and Ocean Development, and the Army Corps of Engineers in conjunction with the North Coast Regional Commission to determine the needs of and modifications necessary to provide for a safe, all-weather harbor facility and harbor of refuge. In addition, such a study would determine the feasibility of constructing a breakwater between Trinidad Head and Prisoner Rock and the consequent carrying capacity for mooring facilities, assuming that local commercial fishermen would be given priority on 75 per cent of the moorings.

**Special Study Area—McKinleyville.** Public health hazards resulting from septic tank failures (which have led to a building moratorium over much of the area), agricultural land conversions, absence of zoning controls, and substandard building conditions must be addressed in a special study, including all of the developed portions of McKinleyville and outlying scattered lots.

**Special Study Area—King Salmon/Fields Landing.** The appearance and design of this community, as well as the functional role of this area in the regional economy, should be evaluated and recommendations made in a special study.

**Special Study Area—Shelter Cove.** A special study of this area should be undertaken to study geologic hazards, septic tank problems, and visual problems.

## SUBREGION 3: MENDOCINO COUNTY

[See Plan Maps 9-13]

Mendocino's coastline is dominated by rocky beaches and headlands over 84 miles of its length interspersed with 36 miles of sandy beaches. Of the 120 miles of shoreline, 10 per cent or 12.6 miles is open to the public; 11 of these miles are in existing State Parks. The Noyo, Ten Mile, Big, Albion, Navarro, Garcia, and Gualala Rivers, along with 19 other coastal streams, rivers, ponds, and creeks, provide salt and fresh water marshes, mudflats, and riparian habitats which support many forms of wildlife. The rugged terrain, cold water, and other characteristics which make the beaches unsuitable for swimming reduce the current amount of human use and will probably keep it at a low level in the future, offering a minimum threat to the wildlife resource. The wetlands of Mendocino County have not yet been subjected to intensive development, either, providing an important opportunity for preserving this valuable habitat type.

The coastal shelf of Mendocino, one of the largest and least populated coastal counties, contains one-third of the county's 52,000-plus population. Numerous small communities and towns, such as Gualala, Mendocino, and Westport, re-

flect a New England flavor. These communities and the scenic and natural resources are the attraction of the Mendocino coast.

To protect these resources and to carry out the objectives of the Coastal Plan, the general recommendations for the Mendocino County subregion are as follows.

- Prior to construction of any development in subdivisions or in areas of small-lot concentration, all applicable requirements of the Regional Water Quality Control Boards, the Coastal Plan, and the county health department shall be met. Development that would degrade coastal waters, such as in areas of failing septic tanks, shall not be allowed until adequate facilities are provided.
- Recreational impact studies shall be conducted by the North Coast Regional Commission for the following coastal watersheds: Gualala River, Garcia River, Navarro River, Albion River, Big River, Noyo River, and Ten Mile River. Such studies shall determine the recreational impact upon these areas of critical biological concern.

- A comprehensive study of boating needs along the Mendocino coast shall be undertaken by local government, the Department of Navigation and Ocean Development; and the North Coast Regional Commission.
- Proposals providing for public transportation service in two areas of coastal Mendocino should be encouraged. The feasibility and needs of the two proposed systems — the MCCPC bus service from Fort Bragg to Willits and the North Coast Institute bus service from Elk to Santa Rosa — should be determined.

Specific recommendations to carry out the Coastal Plan are outlined below.

**HUMBOLDT COUNTY LINE TO FORT BRAGG**

[See Plan Maps 9-11]

**Usal Creek.** Usal Creek contains the largest concentration of osprey nests on the West Coast. The osprey feed in the estuary and nearshore waters on various fish species.

Buffer areas shall be maintained around the osprey nests as well as along the creek. Construction activities within this watershed should be managed to keep high water quality and to minimize effects on nesting osprey. Logging activities should not start until their nesting season is over.

**Initial Northern Mendocino Coastal Trail Segment.** It is recommended that an initial segment of the coastal trail from the King Range National Conservation Area to the De Vilbis Ranch be developed. This system shall tie into the trail system at Usal Creek, which is proposed for acquisition.

**Cottoneva Creek.** Cottoneva Creek has a small estuary at its mouth and a valuable riparian corridor along its banks. As a former lumber schooner port, it is an historically significant area. This area should, as an immediate priority, be acquired by the State, and its present day-use status maintained.

**Ocean Meadow.** Ocean Meadow, a 31-acre planned subdivi-

Mendocino





sion on coastal grasslands, should, as an immediate priority, be acquired for open space and agricultural use.

**Ten Mile River.** Ten Mile River is one of the most important estuaries along the Mendocino coast with an extensive wetland habitat. It is recommended that 170 acres be acquired as an immediate priority for preservation of the estuarine environment. Off-road vehicles and trail bikes should not be allowed on vegetated sand dunes and bluffs in the oceanfront area including the Ten Mile Beach area.

**Cleone Acres.** Continuous strip development should not be allowed along Highway 1 in all undeveloped areas and north of Cleone Acres.

#### **FORT BRAGG TO SONOMA COUNTY LINE**

[See Plan Maps 11-13]

**Fort Bragg.** To insure adequate water supplies and the maintenance of water quality, future development in Fort Bragg shall be allowed only if compatible with the existing and proposed water and sewage systems. The kelp beds near Fort Bragg, Point Arena and Saunders Reef are a very limited resource in Mendocino County. Because these beds supply important feeding, living, and shelter areas for numerous species of birds, fish, and marine mammals and invertebrates, it is recommended that no commercial kelp harvesting be permitted.

**Noyo Harbor.** Regular maintenance dredging should be permitted at existing Noyo Harbor facilities. Refuge facilities should be maintained at Noyo Harbor and the smaller coves along the coast.

**Todd Tract.** The Todd Tract north of Ocean View Drive should be acquired to provide day-use facilities for the Fort Bragg area.

**Caspar.** As a community of special character, Caspar has historical significance and is located in a scenic area. Consistent with Coastal Plan policies, service facilities for the subdivision near Caspar shall be limited and open space should be maintained.

**Mendocino.** To protect the unique character of Mendocino, appearance and design guidelines shall be rigorously applied west of Highway 1. Consistent with Coastal Plan policies, current growth may require a water system.

**Big River.** The importance of Big River estuary is comparable to that of Ten Mile River. The wetland marsh habitat

is equally extensive and 150 acres should be acquired for preservation of the estuarine habitat.

**Albion River Wetland.** The 145-acre Albion River Wetland should be acquired for preservation of its estuarine habitat.

**Elk and Elk Creek Wetland.** To preserve and maintain the unique character of Elk, linear development along Highway 1 shall be restricted. To protect the Elk Creek estuarine habitat, 720 acres should, as an immediate priority, be acquired.

**Irish Beach.** Expansion of the Irish Beach subdivision shall not be allowed since it is not compatible with this scenic area and the capacity of existing service facilities. New residences should be located either within the existing subdivision or in Point Arena.

**Hunters Lagoon.** The largest freshwater marsh in Mendocino County, covering 60 acres, Hunters Lagoon is currently threatened by development of homesites on its south side. This vital freshwater wetland should be acquired and restored as feasible to its original natural state.

**Point Arena.** High-intensity development, service centers, and commercial activity should be concentrated in areas of Point Arena already committed to development to prevent uncontrolled growth.

**Whiskey Shoals.** To reduce visual impact on the grassland area and to prevent the inappropriate use of this area, the Whiskey Shoals subdivision should, as an immediate priority, be acquired for open space and agricultural use.

**Gualala.** Height of development and service facilities should be limited to the existing scale of development and coordinated with North Central Regional Commission guidelines.

**Iverson Point to Gualala River.** Conversion of timberland to residential use should be prevented.

**Subdivisions and Lot Splits.** Special studies should be undertaken in three large areas (Fort Bragg to Navarro river, Mallo Pass Creek to Garcia River, and Iversen Point to Gualala River) to evaluate the impact of lot splits and subdivisions within the coastal resource management area of Mendocino County. The studies shall be undertaken jointly by the Regional Commission and the Mendocino County Planning Department. Objectives of the studies include preventing conversion to residential uses of timberlands that remain in economic units and limiting new development to existing community boundaries.



# NORTH CENTRAL COAST

The North Central Region covers 140 miles of coastline in Sonoma, Marin, and San Francisco Counties.

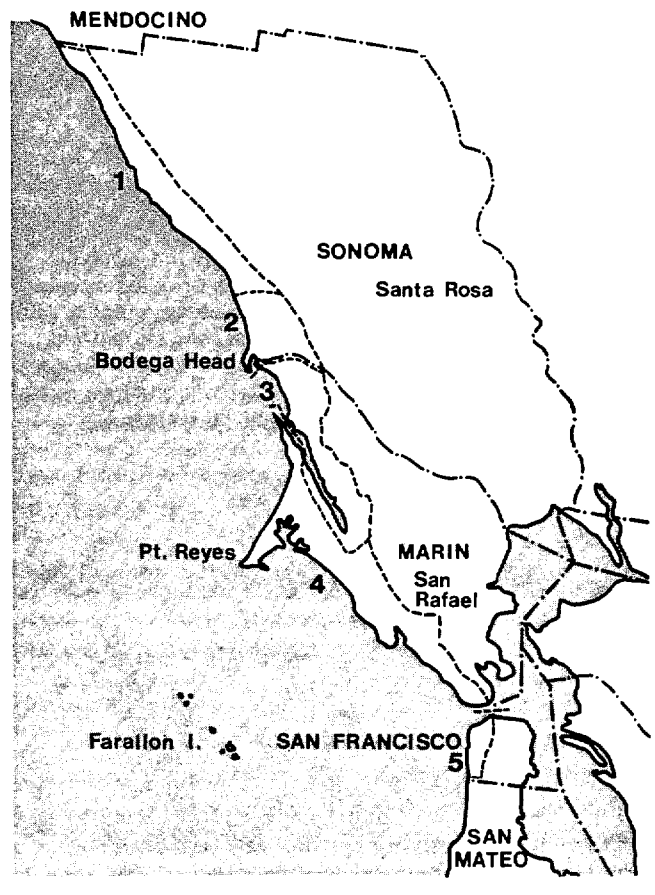
**Sonoma County.** The northernmost county, Sonoma, has a rugged, rocky coastline shared in roughly equal proportions by second-home development, public parks and grazing cattle. Coastal problems center on the tremendous future commitment that has been made to second-home subdivisions by the county government, and how to keep the remaining coast physically and visually accessible to visitors.

**Marin County.** Much of Marin County's coast is in public ownership, except for a few coastal villages surrounded by parklands. Tomales Bay is an important feature in the Marin landscape, both as an estuarine area of environmental significance and as a reminder of the geologic feature that has so influenced the region's coastal landscape — the San Andreas Fault. In Marin the growth commitment issue is somewhat reversed in that development is being strictly limited at the local level. But the exclusionary effect upon California citizens is similar, because it is visitor-serving facilities catering to "outsiders" — even in parks — that come under strong opposition.

**San Francisco.** In San Francisco, the sand dunes that once made up the coastline were so long ago covered over with homes there is little natural coastline left, and access is hardly an issue when city sidewalks reach almost to the sea. Accommodating newcomers, however, is an issue even in urban San Francisco, though the unwelcome newcomers here are the bland four-story apartments that are randomly replacing the small aging houses that represent San Francisco's last bastion of single-family living.

**Plan Proposals.** The Coastal Plan proposes that development on presently open lands within the coastal zone of Marin, Sonoma and San Francisco Counties be minimized. More people should be able to enjoy the shore and its wonders through the reservation of road capacity for visitor travel, provision of coastal trails and campgrounds, and acquisition of key coastal properties. Protection and support should be given to coastal-dependent activities such as agriculture, commercial fishing, timber harvesting, aquaculture, and marine research. Portions of the coastline are designated as protected habitat areas and some places should be scheduled for restoration. The construction of homes and small-scale commercial enterprises should continue, but they should be limited, for the most part, to already subdivided lots in existing communities.

## North Central Coast Subregions



The recommendations that follow represent applications of the Plan policies to the geography of the North Central Coast Region. The recommendations are presented in north to south order, and are supplemented by Plan Maps. The maps for this region contain supplemental map graphics that delineate urban expansion areas, campground, and visitor-enterprise locations. In the appendix following the north-to-south narrative are recommendations relating to the entire region on transportation, access (use) levels, trails, and restoration.

## SUBREGION 1: NORTH SONOMA COAST

[See Plan Maps 14—16]

The northernmost 44 miles of Sonoma County, from the Gualala River on the north to the Russian River Valley on the south, are spectacularly scenic, rugged, and rural. Red-

wood and fir forests cover the undulating ridgelands of the coastal range. The San Andreas Fault Zone slices along this stretch of coast, forming the Gualala River Valley. Much of

the area is geologically active and unstable. Even the more level terraces adjacent to the ocean are poorly drained and highly susceptible to erosion and soil slippage. There are few sandy beaches; most of the shoreline is rocky with numerous offshore seastacks. At the base of steep cliffs are tidepools and rocks rich in intertidal life. Ample rainfall (40 to 75 inches per year) creates a lush vegetative cover, and the forests and grasslands provide rich wildlife habitat. Cattle and sheep range across the lightly forested land, and logging has become a sustained activity in areas of denser tree growth. The many tiny coves along the shoreline that once gave minimal protection for the loading of lumber schooners are now frequented by skindivers and fishermen.

**Coastal Highway and Subdivision Buildout.** Virtually all land transportation between the Navarro River and Jenner (a distance of 86 miles) is confined to Highway 1. Heavy commitments have been made to second-home subdivisions along this stretch. The traffic generated by these subdivisions as they build out, combined with anticipated increases in visitor traffic, creates a formidable planning problem. On one hand, major alterations of the coast road system will involve major costs as well as a significant transformation of the coastline; on the other hand, keeping the road in its present configuration is a commitment to bumper-to-bumper traffic in the future.

**The Sea Ranch.** The Sea Ranch is the largest second-home development on the northern California coast. The developer, Oceanic California, received master plan approval from Sonoma County for a 5,200-lot subdivision in 1964. To date, 2,267 lots have been subdivided and 1,765 of these sold; so far, only 350 dwellings have been built.

In evaluating the effects of various levels of buildout at The Sea Ranch, the North Central Commission considered four general options: (1) a Sea Ranch of 4,000 dwellings (the developer's current plan); (2) a Sea Ranch of 2,000 dwellings (which approximates the number of lots subdivided and improved); (3) a Sea Ranch limited to about 800 dwellings (a density which an initial traffic study indicated could be serviced by the existing road system); and (4) a Sea Ranch limited only by dwindling market demand.

The amount of traffic that would be generated by this sizeable development, accessible only by two-lane roads of limited capacity, is a key issue in determining an appropriate buildout figure. Refinements to the initial traffic study, performed with assistance from the Metropolitan Transportation Commission and the Department of Transportation, concluded that a development of 4,000 homes in this location **would** overload the capacity of the road system. Historic and current traffic count information for the Sea Ranch and the Sonoma Coast is fragmentary, making it impossible to develop a firm estimate of precisely how much second home development could be permitted without overloading the roads. It appears that, taken together with other future North Coast traffic, that the impact of the currently subdivided lots (2,267) **may** be just within the capability of the road system. (Adopted Coastal Plan policies call for the retention of Highway 1 as a two-lane road, with some minor safety improvements, but with no major redesign which would increase its capacity.)

Future improvement of the lateral Skaggs Springs Road would relieve the traffic situation significantly. Privately owned Kelly Road, connecting Gualala with Cloverdale, should be considered as an alternate route to the coast and could be improved to public road standards or used in con-

junction with Skaggs Springs Road. The possibility of giving priority to public transit and emergency vehicles in the use of these roads should be considered. No expansion of these two roadways, however, should be undertaken until plans and zoning patterns are adopted which will protect the large-lot, resource-production characteristics of lands between Highway 101 and the coast through which the roads would pass.

**Buildout Rate.** The Coastal Plan provides that presently subdivided, improved, legally buildable lots at The Sea Ranch continue to be developed at the rate of approximately 50 per year (the historic rate of development) until such time as further studies on road capacity and other services determine that buildout is inadvisable. In the meantime, traffic-generating effects should be monitored and a thorough study of the entire coastal road system between the Navarro and Russian Rivers should be undertaken utilizing this data. The State Coastal Commission shall review a progress report on this traffic study within two years of the Legislature's creation of the continuing coastal management agency. Until there is reliable evidence that the road system is adequate, there should be no further subdivision of land in this entire area.

The established environmental deposit fund should continue to be used to implement the adopted overall conditions for The Sea Ranch. Retention of The Sea Ranch Association's existing architectural controls is encouraged, as well as Commission guidelines for reducing the scale and bulk of dwellings on lots adjacent to Highway 1. Concurrent with this is the need to remove about two per cent of the rows of planted trees west of the highway to retain several outstanding views that would be lost when the landscaping matures. Because of poor soil conditions over much of the area, a comprehensive septic tank monitoring program should be established. A total of 1,400 lots at The Sea Ranch will be ultimately served by individual septic tank systems, with the remainder served by two land disposal sewage plants.

**Access at The Sea Ranch.** Additional access to public tidelands at The Sea Ranch is absolutely necessary to protect and preserve the public's right to reach the shoreline. The beautiful Gualala Point Park, dedicated to the county by Oceanic, cannot be used as a reason to exclude the public from the remaining 10 miles of public tidelands at The Sea Ranch. In the 10 coastal miles of The Sea Ranch, the only public access is at the extreme northern end of the development along two trails 20 feet wide, adjacent to the park. Units 8 and 34A and an access path through Unit 36 should be purchased to provide for adequate access, parking and use of beach areas, as well as to protect public views to the water by precluding development. The Gualala Park should be extended southward along the bluffs as shown in the plan maps.

**South of The Sea Ranch.** Except for several existing parks, much of this subregion's dramatic coastline south of The Sea Ranch is in private ownership and in use as grazing land. The Coastal Plan calls for practically all of the undeveloped land between Highway 1 and the shoreline from The Sea Ranch southward to Jenner to be retained in open space. Much of this area is in agricultural production, and some ranchers encourage public use of the shoreline by selling trespass permits. There are outstanding views of the coastline across most of these properties. The present private agricultural uses of these lands should be continued, but they should be acquired by the public in cases where

development pressures threaten their loss. Access to the coastline should be guaranteed by public purchase of trails along the coastline, but these should be designed in accordance with Coastal Plan policies calling for public maintenance and policing of the trail system and maximizing protection of agricultural lands, such as by using existing public roads or rights of way. In cases where public acquisition is appropriate there should be a continuation of agricultural production and selective timber harvesting. Approximately 16 miles of coastline between The Sea Ranch and Jenner should be included in the category of lands designated for immediate acquisition, in recognition of their extremely high scenic value.

**Stewarts Point to Russian Gulch.** At Stewarts Point a number of buildings remain of a settlement which was once a coastal lumber port where timber was dropped "by wire" to the pitching decks of schooners anchored offshore. It is proposed that this area be preserved as an historic park and restored with either private or State funds. Salt Point State Park should be expanded in area and some 200 additional campsites built. The existing Stillwater Cover Regional Park is proposed for expansion in three directions: west to Ocean Cove along the bluff and in the meadow area east of the Ocean Cove Store; north to include all of the Stockhoff Creek Canyon; and south along the coast to the Timber Cove subdivision.

**Ocean Cove.** The "private visitor facilities" to be expanded at Ocean Cove should include only those lands of the present motel, restaurant, store and Stillwater Cove Ranch. The scattered clusters of homes along this portion of the coast

should remain and any use adjacent to public lands and trails should be planned to minimize conflicts between visitors and residents.

**Timber Cove.** The Plan approves about 214 lots at the Timber Cove subdivision for development; this includes all of the subdivided lots except those with septic tank problems that are within the Timber Cove Creek watershed, which is the subdivision's water source. The lots in the Nineve Drive terrace section should be acquired for public view protection and coastal access for nature study and skin diving. Limited private development should be permitted on the Windermere Point terrace, adjacent to the historic Fort Ross/Timber Cove settlement. Design of such development must be very sensitively handled, as this 24-acre parcel slopes gently to the edge of the seacliff and view protection is of primary concern.

**Fort Ross.** More than 4,000 acres of parklands should be added to Fort Ross State Historic Park; this would make it the largest State Park in the region. This acquisition has a high priority because it will protect many miles of pristine coastline, open meadow terraces, and forested upland slopes around the historic Russian stockade for public access and use. This expanded park should reach from the ocean beaches to Seaview Road, and from Kolmer Gulch on the north to Mill Gulch on the south and include an historic interpretive center, overnight camping facilities, skin diving coves and day-use areas. The open rangelands should be leased back for agricultural uses and selective timber harvesting permitted.

SCUBA divers, Salt Point State Park, Sonoma County



**Road Improvements.** The Seaview-Plantation Road should be somewhat widened and improved from Highway 1 to Timber Cove Road to provide an alternate access to the north Sonoma coast, both to avoid the slope failure problems of the parallel segment of Highway 1, and to get above the often fog-bound cliff route. The design of improvements to the segment of Highway 1 between Jenner and Seaview Road should receive careful study since this appears to be a major bottleneck to north coast traffic.

**Jenner Beach-Russian Gulch.** Almost 850 acres at Jenner Beach-Russian Gulch (which is not to be confused with Russian Gulch in Mendocino County), including almost five miles of beach and bluff areas, are proposed as a potential acquisition. Since it appears, however, that the owners of this property may be able to provide off-highway parking areas, comfort stations, trails, day-use areas, and overnight facilities (east of the highway in Russian Gulch), the land is recommended for deferred rather than priority public acquisition. Access provisions should be developed in a manner that would not affect public rights to use these beaches that may have been created by historic public use. Should private plans to create the equivalent of a State Park fail, the land would again receive a priority acquisition status. A similar approach would be applied to all coastal properties where private efforts are able to develop management plans consistent with Coastal Plan objectives for their public use, view enjoyment, or resource protection.

**Russian River Area.** At Jenner, geologic hazard and septic tank constraints dictate that some consolidation of the remaining 200 lots will be needed prior to any further approval of construction. This will effectively restrict growth to about 200 units located in the existing village area, as no further division of open lands adjacent to the village will be permitted.

At Willow Creek, the California Department of Parks and Recreation is currently negotiating for the purchase of 500 acres, including the valuable freshwater marsh area adjacent to the Russian River. The Coastal Plan recommends a large State Park facility in the Willow Creek Valley, covering more than 1,000 acres. This valley is close to Highway 1, yet is protected from direct coastal winds and fog, making it an ideal complementary area to the nearby day-use public parks located directly on the coast. All overnight camping facilities and day-use areas shall be located away from the sensitive marsh area at the lower end of the valley. The determination of size and scale of campground development should be based upon careful study of the capacity of this area.

Visitor-serving facilities should be concentrated in Duncans Mills along with additional residential and commercial uses in keeping with the scale village. The number of future campsites in the area should be about double the present 205.

The forested areas of this coastal subregion provide valuable osprey and heron habitat. Timber harvesting plans should be designed to protect this habitat; at a minimum, there should be no cutting of timber within a 300-foot radius of any osprey or heron nest from March through August, the nesting season. During the remainder of the year, September through February, cutting may occur to within 50 feet of the nest provided that selective cutting is employed and the nesting tree is not damaged and "osprey snags" remain.

**Russian River Floodplain.** Any building in the flood channel of the Russian River interferes with the river's capacity to carry flood waters; therefore, except for essential transpor-

tation and utility transmission facilities, no construction should take place within the floodway (the widest extent of the riverbed (itself)). Within the adjacent floodplain subject to frequent (10-year) flooding, development should be strictly limited to uses which do not restrict the flow of flood waters and which can withstand periodic flooding (open-character, recreational, industrial, or agricultural uses), but not residential or community-serving commercial uses). Within the 100-year floodplain (which includes most of the village of Duncans Mills), no development should be allowed which does not conform to the Federal (HUD) floodplain insurance program guidelines. None of the low-lying lots on Steelhead Blvd., should be considered for permanent construction. Optimum uses in the 100-year floodplain are agricultural, open space, parklands, and camping sites.

Sonoma County has enacted a floodplain ordinance that prohibits placing residential, commercial, and industrial development within the floodway of the Russian River. However, detailed mapping of the flood-prone area (the floodway, 10-year floodplain, 100-year floodplain) has not been completed by the Corps of Engineers. This mapping should be completed prior to the adoption of precise plans for the area.

Plan policies require careful control of mineral extraction (sand and gravel) within the floodplain, based on ecological and aesthetic concerns. Existing mineral extraction activities should not be expanded. Every effort should be made to insure an adequate supply of sand to preserve the beaches which depend on the river for sand replenishment, especially in light of the possible construction of the Warm Springs Dam upstream.

**Resource Production Lands of the Subregion.** The Plan policies provide that, in cases where agricultural activities have ceased to be feasible (determined according to procedures described in the Plan), some development may be permitted in portions of the lands outside of the areas proposed for development or special protection. Policies specify that uses such as dude ranches, summer camps, or hunting clubs which would retain the open character of the land should be given first priority in determining alternate uses. In some cases, very low densities of residential development would be permitted, but it would be required that this occur as clustered units which would allow continuation of agricultural production on most of the land.

On lands where agricultural activities have ceased to be feasible, gross densities would be limited to between one dwelling per 50 acres on level land to one unit for 200 acres for steep, inaccessible lands. At such densities a maximum of about 500 additional dwellings could be built outside the areas proposed for village expansion in this subregion. However, since agricultural or timber harvesting uses are still viable over much of this area, it is expected that no more than 100 dwellings would be added to this subregion during the next several decades.

There are a number of valuable natural areas in this subregion which are in private ownership and where present owners are managing them consistent with the Coastal Plan. However, should any of these areas be threatened, then public acquisition should proceed. These natural areas include osprey and heron nesting areas on private forest lands, two ponds north of Plantation, Jenner Pond, Markham Pond, Foresti Pool, and the gravel floodplain below the Duncans Mills bridge.

## SUBREGION 2: SOUTH SONOMA COAST

[See Plan Map 16]

The 15 miles of coast from the Russian River to the Marin County boundary at the Estero Americano differ from those further north in several ways: The coastal ridge softens in its contours and the coastal terrace broadens. Except for scattered plantings of cypress and eucalyptus, the land is treeless and open. A very narrow band between the shoreline and the coast highway has been developed as the Sonoma Coast State Beach. While much of the area inland is now used as grazing land, there are interspersed patches of subdivision, both developed and speculative. The settlement of Bodega Bay, with a permanent population of about 600, represents the greatest concentration of dwellings in this section of the coast.

While the land in this subregion is now relatively barren, the sea coast is spectacularly attractive. The sea, cutting into coastal sandstone, has sculpted a shoreline that includes expanses of sandy beaches punctuated with low cliffs and offshore seastacks. Bodega Bay is a sheltered harbor that is home port to more than 200 fishing boats and temporary home to many migrating water birds. Bodega Head, a small peninsula jutting into the sea, is the site of the University of California's Bodega Marine Laboratory—testimony to the rich variety of habitats in the area.

Underlying the sandy dunes which connect Bodega Head with the mainland is the San Andreas Fault, which also underlies Bodega Harbor. Also hidden under the sands and grasses around the harbor are the remains of historic Indian settlements. Because of its historical importance, the entire area around the village of Bodega Bay is listed in the National Register of Historic Places.

**Sonoma Coast Beaches.** The State parklands lining the subregion's beaches are intermixed with small subdivisions. High acquisition priority is recommended for approximately 40 undeveloped parcels in the Pacific View Estates subdivision, which lies in the important view corridor between Highway 1 and the ocean. Eventual acquisition of the visually prominent vacation homes at Goat Rock State Park is recommended, but the present owners of these homes should be granted lifetime use of their property. While other coastside subdivisions in this stretch of coast are unwelcome intrusions on the landscape, the development in these areas has been so substantial that purchase and restoration is impractical. Construction in these subdivisions would be permitted to continue as guided by overall conditions tailored to the needs of each particular situation. This would permit 150 dwellings in addition to the present 180.

**Highway 1 Congestion.** In the summer months the length of the coast roadway becomes lined with parked cars and campers. Projections of future traffic indicate that current problems will intensify in the future. Parking for the State Beaches is a problem that will require detailed study for a solution. The recommended parking study should include an appraisal of the feasibility of providing shuttlebus service between the various park units. Wherever possible, parking should be provided east of Highway 1 with safe pedestrian undercrossings, and roadside and blufftop parking should be discontinued.

**Salmon Creek.** At the settlement of Salmon Creek, a severe septic tank failure rate has been reported. While construction on the remaining several dozen lots in this settlement is otherwise consistent with Plan objectives, further construction should be halted until the Regional Water Quality Control Board approves recommendations for a long-term solution to this pollution problem. Even when construction is authorized, it appears that no more than 20 additional dwellings could be adequately served by septic tanks in the tract.

A number of environmental threats to the Salmon Creek watershed can affect its value as a habitat and a spawning stream—ranging from saltwater barrier construction at its mouth to logging at its upstream source. For this reason the Salmon Creek watershed deserves special watershed-wide study and regulation and is therefore included within the coastal zone. At the upper reaches of the watershed is a 30-acre stand of virgin redwood—perhaps the only remnant of the forest that once covered this portion of the Sonoma coast. Historically, this creek was an important spawning habitat and even today there is a small salmon run in the Finley Creek tributary. Along Salmon Creek there are a wide variety of wetland habitats. The coastal section is bordered by marshes, both saltwater and brackish, with some freshwater marsh pockets. About a mile upstream is freshwater Coleman Marsh, where some rare marsh plants and unusual plant associations are found. A few extremely rare invertebrates are also found in the stream.

**Bodega Bay Area.** At Bodega Bay the question is, how much growth? The current county plan for Bodega Bay, taken together with prior county commitments to the Bodega Harbour subdivision and the community, projects a higher population level (2,750) than is acceptable to the Coastal Plan. Given the limitations of the area's road and water system and the Coastal Plan's emphasis on giving first preference to visitor-serving facilities, it is necessary to limit this area's population growth. Instead of extensive residential growth, an approximate doubling of the current level of commercial fishing and visitor-serving facilities is indicated. Even though this magnitude of cutback of existing plans appears great, it would still allow a tripling of the area's permanent population and implies a growth rate that is far in excess of that which has been experienced in recent time.

Total dwelling units proposed by the Plan for the Bodega Bay area would be 1,270: 120 at Salmon Creek, 400 in the village area, and 750 at Bodega Harbour. The reservation of local sewer system capacity for visitor-serving activities was established at the time a coastal permit for construction of a treatment plant at Bodega Bay was approved. However, it may be that the assessment system established by the Public Utilities District fails to reflect this permit condition and instead assumes that this capacity will be available to serve residential subdivisions on vacant parcels. If detailed planning for this area indicates that some vacant parcels have been overassessed, procedures should be established where fees from future commercial hookups would be used to offset overpayments.

If the Bodega Harbour development should be limited to the presently developable 336 lots rather than 750, the 414-unit difference would be allocated to the village area of Bodega Bay.

Several key factors make it important to contain the development of the Bodega Bay area. One of these is the inevitable traffic problems that will occur with any further intensification of development in either the parks or the community. The Bodega Bay Land Use Study includes a proposal for a bypass around the central area of the community that is an absolute necessity, given the existing commitments to development and the inevitable further demands of coastal visitors. Such traffic safety improvements as signalization in the village area and turning lanes in the vicinity of the State Park entrance will be required to handle the anticipated flows. But even with these improvements (and they are not yet scheduled), traffic will continue to be a limiting factor at Bodega Bay. Beyond this technical factor, massive expansion of the community would inevitably result in the loss of the unique character of this functioning fishing village; and this character in itself is a coastal resource deserving of protection.

**Commercial Fishing and Bodega Harbor.** Another growth issue relates to the need to improve existing facilities for the commercial fishing fleet that uses the Bodega Harbor. The Plan endorses construction of modern facilities within the harbor to serve the needs of commercial fishermen, but it also requires that full consideration be given to reconstruction of existing marinas as an alternative to dredging new areas of the harbor for boat moorings such as at Spud Point. Continued maintenance dredging of the harbor is

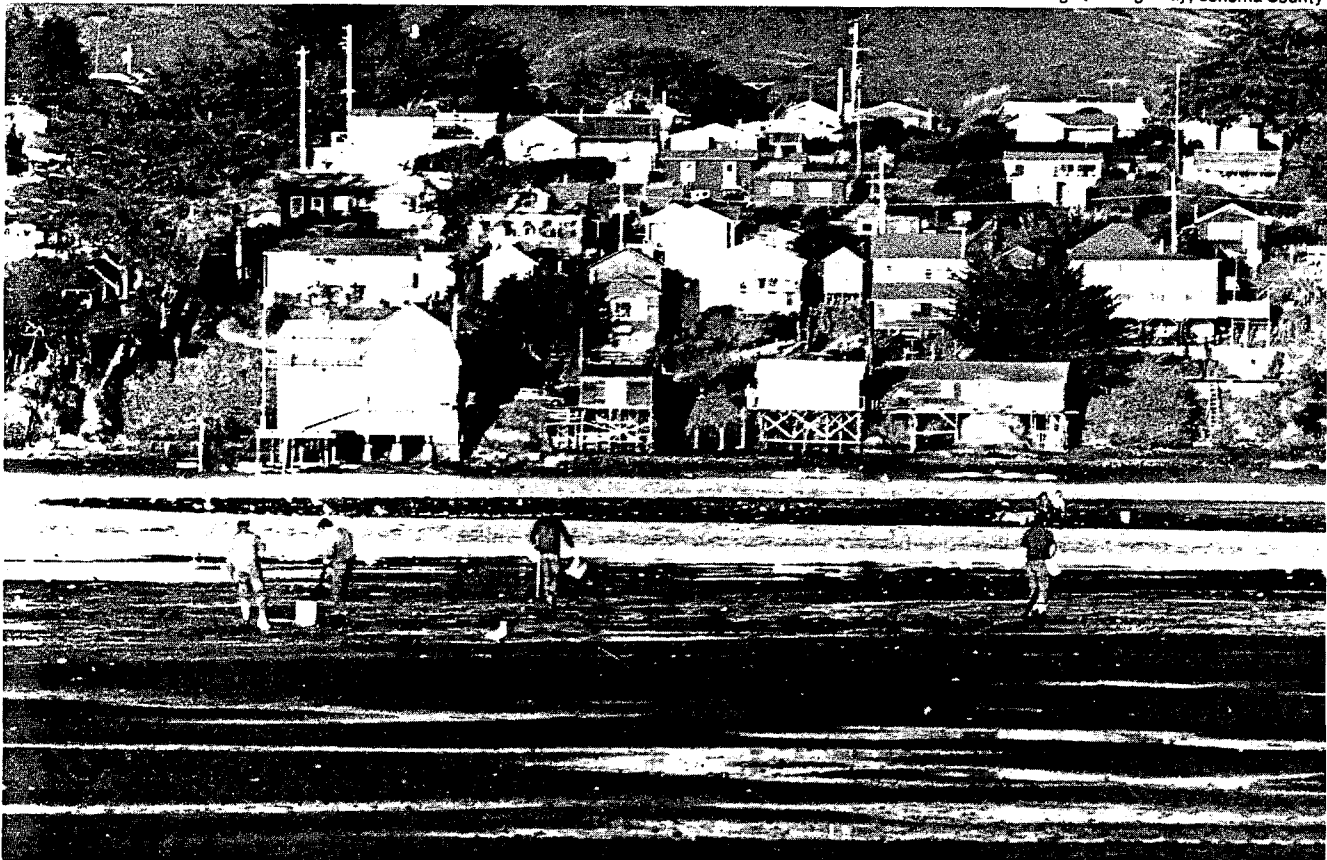
consistent with Plan policies as well as the deepening of present channels to accommodate the greater draft of more modern boats. Dredging spoils should be disposed of in a manner consistent with Plan policies.

**Marshes.** The marshes of Bodega Harbor are extremely important to the maintenance of the area's biological productivity. The small areas of marsh which rim the harbor, especially along the inner edge of Doran Spit in the southeast corner of the harbor, are examples of a rather rare habitat. In particular, the large marsh near the former dredge disposal site at the southeast corner of the harbor (the airport area) and the enclosed tidal pond are designated for special restoration and protection. Also deserving special protection are several freshwater marshes adjacent to the harbor. These include the Bodega Head marsh, the north end marsh and several smaller marshes at other points around the perimeter of the harbor.

Because of its biological interest and productivity, the Bodega Harbor area should be studied and managed as a single environmental unit. Several problems that deserve immediate attention at Bodega Harbor are: (1) the sources of siltation in the bay, (2) the effects of unrestricted bait harvesting, (3) provision of pump-out facilities for boats, and (4) the protection of sand dunes from overuse.

**Bodega Bay Development.** The public trust would best be served by retaining Bodega Harbor free of additional structures and fill. Existing tideland structures could remain, but no further fill or structures would be allowed or new tidelands leases granted or alteration of existing structures be permitted. Exceptions could be made where found

Clamming at Bodega Bay, Sonoma County





necessary for expansion of commercial fishing or visitor enterprises and no alternative location for these activities was feasible.

To carry out Plan policies, commercial development should not be permitted to line the length of Highway 1 as it passes through Bodega Bay. New commercial development south of the present village should be concentrated, and inconspicuously sited, along the loop road with no entrances or exits directly from Highway 1. Existing plans and zoning which would allow a continuous strip of commercial activities through the village should be revised to concentrate commercial construction along the loop road and in the village.

**Bodega Marine Laboratory.** The University of California's present plans to retain Bodega Marine Laboratory as a modest-sized center for research are consistent with the Coastal Plan; the facility should not be expanded into a residential or classroom campus. The laboratory property now blocks public access between public parklands to the north and south of the facility. It would be desirable to establish a connecting trail between the park units north and south of the facility and, considering the environmental importance and interest of some of the lands now included within the parks property, it might be best if some land trades between the University and State Department of Parks and Recreation were considered. In this way the lands of greatest scientific interest would come under the influence of the University system and the State Parks could develop a more workable management unit.

Because of the high probability that any new construction in the vicinity of Bodega Bay will disturb archeological sites, surveys will be required by the coastal agency before any construction is authorized.

**The Esteros.** In the area of coastline between Bodega Bay and Dillon Beach the two esteros, Americano and San Antonio, are of prime interest. Only a few such largely undisturbed estuaries remain in the entire State. The Estero Americano and Estero De San Antonio should receive special protection, and public access to the portions inland from the beach should be restricted. The shoreline area should be accessible, but only to those willing to hike in from Bodega Bay or from Dillon Beach.

**Inland Rural Communities.** There are a number of small rural communities inland from the coast, such as Bodega, Valley Ford, and Tomales, where there has been little apparent change or pressure for development in recent decades. The communities, distant from centers of employment and with no marketable ocean view properties, provide an important resource within the coastal zone. While the glamor of coastside living has inflated the prices of all housing and property close to the shoreline, the value inflation has not spread to these inland communities. The continuation of the leisurely pace of growth in these inland communities of a scale in character consistent with existing structures, could provide a continuing source of moderately priced housing within the coastal zone.

**Coastal Zone Boundary.** The coastal zone boundary should include the lands immediately adjacent to Highway 1 where it jogs inland from the coast near Valley Ford.

**Resource Production Lands.** Development in the area outside the village expansion boundaries in the subregion would probably not exceed 70 additional dwellings over the next twenty years. The precise rate at which such development occurs will be dependent upon the parcel-by-parcel determination concerning the viability of continued agricultural production.

## SUBREGION 3: TOMALES BAY

[See Plan Maps 16-17]

The San Andreas Fault creates a great sunken valley as it cuts into the California mainland near the northern boundary of Marin County. The resulting embayment, Tomales Bay, is a wetland with many unusual properties. The eons of slippage along the fault have resulted in the opposition of shorelines that are geologically from different places. The land on the east side of the fault is arid, open, and rolling, while the opposing shore is rocky, tree-covered and angular. Visually the bay appears as a great hallway where the viewer is ever aware of the sweep of the narrow bay and the peculiar contrast of the opposing shores.

Many small areas of salt marsh occur along the edges of Tomales Bay and at the south end of the bay is a large region of marsh and mudflat. The most important of the fresh and saltwater marshes include the marshes near the Walker Creek Delta on the east side of the bay, the Caroline Livermore Marsh adjacent to Cypress Grove, both the salt and fresh water marshes at Tomasini Point, the marsh just north of Millerton Gulch, the extensive marshlands at the south end of the bay owned by the Wildlife Conservation Board, the Olema Marsh, and the William P. Shields Salt

Marsh Study Area. All of these marsh areas need special protection including coordinated management of upland drainages and control of buffer areas.

The intertidal areas of the bay are quite varied, ranging from exposed rocky coasts at Tomales Point to the extensive marshes and mudflats in the shallower portions of the bay. A great variety of bottom sediments supports an extensive and diverse collection of marine invertebrates, including large populations of Japanese invertebrates and other exotic species introduced through years of oyster culture. Several commercial oyster farms are spotted along the east shore of the bay. For many years the bay has been the site of studies by biologists from area universities, and particularly from the University of the Pacific which operates the marine station at Dillon Beach near the mouth of the bay. The White Gulch area is of particular scientific interest because in a relatively small area there is a wide variety of depth and substrate conditions and years of studies by marine scientists have established a history and baseline for further scientific studies.

**Estuarine Sanctuary.** Because of the biological diversity and richness of Tomales Bay and because of its relatively well-documented scientific history, it would appear that the bay is appropriate for designation as an estuarine sanctuary under the federally sponsored Estuarine Sanctuary Program. This program provides authority and funds to create along the coastline of the nation a very few specially protected locations that would be maintained as centers for marine research. The act provides that regulation of onshore activities should be such that onshore activity will not degrade the sanctuary. Very limited funds are provided for acquisition of lands to protect sensitive areas. While the research objectives of the act are supported, any proposal that would involve significant funding for acquisitions or extensive new regulatory mechanisms, should be the subject of public hearings and commission review.

The Coastal Plan supports the concept of developing an estuarine sanctuary at Tomales Bay, including the important estero areas just to the north, but reserves its final judgment on this matter until such time as a proposal for estuarine sanctuary status has been developed, public hearings have been held and the impacts of the proposal on the Tomales Bay area have been adequately studied. Any proposal developed should make full provision for continued commercial fishing, pleasure boating, and aquaculture.

**Oceana Marin.** At Dillon Beach, development of the already subdivided lots (250) in Oceana Marin would be permitted, subject to the overall conditions established by the Commission, but the undeveloped northerly units proposed for the subdivision should be maintained as an agricultural or public use area. Some of the existing lots may be unbuildable because of the extreme geological instability of this area. Detailed soils investigations will be required before construction is permitted on lots with problems. Further development of the village of Dillon Beach would be limited to existing lots.

**Lawson's Landing.** Lawson's Landing, down a toll road south of town, should remain as a center for weekend fishing and swimming and clamming. The landing has a potential for expansion of boating facilities and perhaps for the expansion of visitor-serving development. A thorough planning study and sanitation improvements are essential before permits should be granted to legitimize the present informal collection of trailer homes scattered around the site or to permit its expansion. This would include a consideration of design qualities in developing planning requirements for this area. However, every attempt should be made to maintain the present moderate-cost vacation housing. The popularity of the sand dune area behind Lawson's Landing for hang-gliding and the reported presence of the rare dune tansy vegetation suggest that the development plan for the area include a component that would identify dune areas where hang-gliding is most appropriate and other areas where it would be restricted.

**The East Shore.** Audubon Canyon Ranch, Inc., a private organization of conservationists, has acquired extensive properties around the perimeter of Tomales Bay with the objective of maintaining these lands for the purposes of environmental conservation and scientific study. Programs by Audubon Canyon Ranch are available to the general public and it appears that its management objectives and procedures are wholly consistent with the objectives of the Coastal Plan. Attention should be given to proposed trading of land with the Department of Parks and Recreation to insure that those areas where higher levels of public use are appropriate are made available, and effective management and su-

pervision of activities is provided. Lands now owned by Audubon Canyon Ranch that are included in areas for acquisition by the Department of Parks and Recreation, such as the Caroline Livermore Marsh or the neighboring Cypress Grove area, should be dropped from the present proposal for Tomales Bay parklands acquisition. Recommended acquisitions along the east shore of Tomales Bay include Toms Point, the Angress Parcel, Millerton and Tomasini Points. The plan indicates a continuation of agricultural uses on most of the lands on the east side of Tomales Bay. Exceptions to this would include lands presently used for grazing that are within the urban expansion boundaries of existing communities or lands that have a high recreational use potential.

**Recreational Development.** There are numerous small canyons around the bay where suitably scaled campground development could be accommodated without changing the visual character of the landscape or decreasing its agricultural use potential. While the Plan supports the establishment of additional campgrounds in the vicinity of Tomales Bay, individual proposals would have to be tested against the environmental constraints related to individual sites, including the availability of water, aesthetic and visual effects, impacts on neighboring agricultural lands and evidence of significant unmet demand for such facilities. Areas suggested as appropriate for such development include lands along Walker Creek, the lands behind Marconi Cove and portions of Tomales Bay State Park. There are a number of locations along Tomales Bay, such as Marconi Cove, where boat launching areas and boat slips can and should be provided under Coastal Plan policies; care, however, should be exercised in selecting locations so that environmental damage is avoided.

**Small Lots Between Bay and Highway.** There are presently a number of undeveloped small lots between Highway 1 and Tomales Bay. Not all of these should be built upon; in many cases the lots themselves are unbuildable because it would be impossible to develop them and meet county standards. The future of these lands should be determined by detailed planning studies guided by the following criteria: (1) no construction should take place on public tidelands or on lots where fill would be required to meet existing governmental standards, (2) development should take place only on lots where construction would represent an infilling of previously developed areas, (3) exceptions to this would include situations where the construction would not significantly detract from views from the highway toward the bay; and (4) buildable properties judged to be in critical viewshed areas or which would significantly adversely affect habitat values should be publicly acquired.

**Synanon.** No further intensification of use at the Synanon complex near Marconi Cove should be permitted. Prior to any rearrangement of existing facilities at the Synanon Bay Farm complex, a master plan should be developed by Synanon and approved by the coastal agency.

**Point Reyes Station.** The village of Point Reyes Station is appropriate for moderately scaled commercial visitor facilities related to the Golden Gate National Recreation Area (GGNRA). Village expansion boundaries developed by the community as portrayed in the Marin County General Plan appear to be consistent with Coastal Plan policies, and the population would grow from the present 400 to 1,100. A sewage treatment facility to serve the town may be needed. If it is demonstrated that existing septic tank systems pose a public health hazard, further development should be permitted only when corrective programs are in force.



**Resource Production Lands.** Development on lands outside village expansion areas would probably not exceed 70 dwellings by 1995, with the exact number determined by the rate of permissible conversion of agricultural lands.

**The West Shore.** Inverness and Inverness Park should be allowed to gradually increase in population, but developments on lots of less than one acre or on steeply sloping lots (above 30 per cent slope) where septic tank failures might be anticipated should be suspended. While there is no present indication of pollution in local streams, the cumulative effect of continued reliance on septic tank systems in this area should be reviewed by the Regional Water Quality Control Board. Assuming no cumulative septic tank problems are established in this review, development on the remaining lots would be permitted along with limited expansion of visitor-serving facilities inside the village area (there are estimated 500 undeveloped lots in the two communities).

Because of the existence of supply problems for basic public facilities and because of the current congestion that af-

fects visitor access to recreation areas, very little further lot splitting or subdivision of lands is appropriate. Property division should be permitted only in cases which would serve a public purpose or where no intensification of the utilization of land would occur.

**Water Supply.** Water supply is a problem in most of the coastal area and especially around Tomales Bay. A distinction should be made between "system improvements" which represent modernizations or expansion of the capacity of delivery equipment, and "source improvements" which would involve the tapping of new water sources or the diversion of additional stream flows. Generally, all forms of system improvements, provided these are made in an environmentally sensitive manner, would be consistent with Plan policies; however, development of new sources of water that would involve substantial alterations of drainage patterns or significantly affect the water table would be approved only as a part of an over-all watershed management program, reviewed and approved by the coastal agency.

## SUBREGION 4: POINT REYES NATIONAL SEASHORE TO THE GOLDEN GATE

[See Plan Maps 17-19]

In southern Marin County, more than 75,000 acres of Federal, State, and county parklands surround the small villages of Olema, Bolinas, Stinson Beach, and Muir Beach. The 55-mile Marin shoreline includes beaches and sandspits, windswept headlands of coastal sage, redwood groves in deep sheltered canyons, evergreen forests along the ridgelines and coastal oak and grasses within the valleys. The San Andreas Fault has left its impression on the land, forming the Olema Valley and Bolinas Lagoon before disappearing from view under the ocean.

At the Point Reyes National Seashore, ocean surf pounds at the exposed western beaches of Point Reyes; however, at Drakes Estero and Limantour Spit, the sea is gentle and the sands inviting. Grazing and dairy operations continue under long-term agreements with the National Park Service. Along the southern shoreline of the park, access is limited to those willing or able to hike, bike, or horseback ride in from the trailhead at Bear Valley.

Further south, the tidepools of Duxbury Reef are an area of special interest, all too accessible to abuse by over-enthusiastic students of intertidal life. At Bolinas, the beach is intensively used by surfers, fishermen, equestrians, and sunbathers. Bolinas Lagoon is a rich wetland area, a feeding ground for migratory waterfowl and shorebirds, and a habitat for a wide variety of burrowing clams.

The Marin Headlands, approaching the Golden Gate, are dotted with the remnants of military fortifications constructed over the years for the defense of San Francisco Bay. These old forts and bunkers have outlived their usefulness

and have now become part of the Golden Gate National Recreation Area (GGNRA). Nature is slowly recapturing this land from the effects of years of military occupation.

**Federal and State Parklands.** With the large area of parkland, one of West Marin's major problems is how to accommodate (or properly manage) visitors to the area. Residents of the tiny islands of privately owned land left in the sea of parklands are worried that they will be overwhelmed by a tide of visitors and tacky commercial development. Even now, tourist traffic clogs local streets and parked cars use all available spaces on holiday weekends. Some feel that the Federal parklands should be a place of wilderness and solitude and oppose any concept that would encourage "development" within park boundaries. On the other hand, it is apparent that this vast recreation area has a substantial use potential. Existing public recreational facilities and campgrounds in nearby parks are heavily used—to the point of abuse. The question is one of balance: how to provide for the needs of visitors without destroying either the value of the park or the character of coastal villages.

The National Park Service, assisted by an official Citizens Advisory Committee as well as other citizen organizations and government agencies, is beginning work on a parkwide plan for the use and development of the GGNRA and the Point Reyes National Seashore. This master plan will be completed in late 1976. Therefore, the Coastal Plan proposals should be seen as illustrative of the specific application of Plan Policies to these Federal parklands, subject to review upon the completion of the more detailed, comprehensive parkwide Plan.



Drakes Bay, Point Reyes National Seashore

**Seashore Use.** The Coastal Plan's basic thrust, however, is that the use within the Point Reyes National Seashore should generally remain low. The wilderness values of Point Reyes National Seashore should be designated and protected to the maximum extent feasible. Designation as a Federal wilderness area, however, should not interfere with existing recreational and agricultural uses.

A few additional hike-in wilderness campgrounds should be developed. High-use areas should be located at Drakes Beach, the two main Point Reyes Beaches, and Santa Maria Beach (south of Limantour Spit). Vehicle access to Point Reyes and Tomales Point should not be developed above present levels. Access should be limited to the Double Point area to protect its fragile and valuable marine environment.

The Plan strongly supports continued expansion of the Seashore's interpretive programs, particularly as they relate to increasing public awareness and appreciation of the seashore's wetlands. Agricultural use in portions of the Seashore is wholly consistent with Coastal Plan objectives for productive multiple use of recreation lands and its continuance is encouraged. A southern entrance to the Seashore should be minimally improved at Palomarin; a supplementary trailhead with expanded parking lot and visitor facilities should be established in the vicinity of the Five Brooks area.

**Recreational Development.** The recently established Golden Gate National Recreation Area should provide generally moderate recreational development within its boundaries. High-use areas, including the development of some overnight facilities, is recommended for the former military lands on the Marin Headlands. The two Federal parks

should jointly establish several hundred rustic walk-in and drive-in campsites and tent cabins in clusters within the Olema Valley. The camp areas should be constructed in stages, with the need, use and impact of the facilities carefully monitored. The provision of a variety of recreational opportunities, consistent with resource protection, is encouraged. For the near future, as much compatible agricultural use as possible should be continued.

**Stinson and Seadrift Beach Access.** The usable beach areas of Stinson Beach, including the Seadrift Beach, should continue to provide guaranteed public recreation and enjoyment. Dedication of the dry sand areas seaward of the dunes should continue to be pursued, even though a "gentlemen's agreement" with Seadrift homeowners currently permits such use. The possibility of exchanging public right-of-way property along Mira Vista for privately held undeveloped parcels westward of the roadway should be investigated by Marin County. This entire beach area should eventually be included within the boundaries of the Golden Gate National Recreation Area.

**Seadrift Recreational Development.** Development of a limited parking area (20-30 spaces) and small restroom facilities are proposed near the Seadrift entrance gate. Such facilities should be designed to serve and accommodate the three levels of use at Stinson Beach: intensive use at the State Park, moderate use opposite the Patios, and low-use strolling and beachcombing along the Seadrift spit. Reconstruction of a causeway crossing at the lagoon inlet near the Seadrift gate would provide pedestrian and emergency vehicle access to this end of Stinson Beach. No acquisition of Seadrift parcels or trail easements along the lagoon edge is proposed.

Because the Stinson Beach community experiences heavy traffic congestion on weekends (much of which is attributable to the State Beach), a study on the most practical method of solving this problem, including careful consideration to the development of a southern entrance to the State Beach, is needed.

**State Parklands.** The present State parklands at Stinson Beach, Mount Tamalpais, Muir Beach, and the Marin Headlands should be transferred to the Golden Gate National Recreation Area as soon as practicable. Although no campsite development should take place at the expense of day-use facilities, some modest development might be appropriate at the south end of Stinson Beach State Park. At Muir Beach there is potential for only the most modest expansion and a need to better locate existing facilities. The existing cabins at Steep Ravine should be utilized for public recreation and/or educational purposes following a determination of their suitability. Such use, however, should not be limited to "membership only" organizations at the expense of general public use. The Slide Ranch area should retain its present low-use level.

**Tennessee Cove—Fort Cronkhite.** While Tennessee Cove is a highly attractive spot, the dangerous surf, the fragile natural environment, and the uncluttered natural setting recommend it as a low-use area. No private vehicle access or parking should be provided at the cove, and access should continue to be hike-in. The Fort Cronkhite area adjacent to Rodeo Lagoon could tolerate relatively high levels of use and some of the existing military barracks and structures would be suitable for visitor-serving facilities and hotels. The existing campground at Kirby Cove should remain at about its present size.

**Trail Connections.** There is an immediate need to provide trail connections between the existing trails systems on Mount Tamalpais and those within the Point Reyes National Seashore. Connections should also be established across the Marin Headlands to the Golden Gate Bridge. Given the low levels of auto access to much of the shoreline of the Marin

Headlands, these trails would provide the only oceanside access between activity centers at Fort Cronkhite, Muir Beach, Stinson Beach/Bolinas, and the Point Reyes beaches.

**Natural Areas.** Several natural areas of the subregion require special protection. Both Redwood Creek and Pine Gulch Creek have been identified as important resource areas deserving of special protection. Water quality and quantity must be maintained to assure the fishery resource of these streams. Pine Gulch Creek is particularly important as it provides the major freshwater source to Bolinas Lagoon. Streamside vegetation provides feeding and habitat areas for land animals and birds as well as maintaining optimum water temperatures for fish reproduction. These stream areas should be maintained and enhanced.

Several groves of trees provide special habitat values that must be protected. In its yearly migration, the monarch butterfly uses stands of trees at both Muir Beach and Bolinas Lagoon as stopping-off areas. Both the canyons opposite Bolinas Lagoon and the stands along the lagoon at Bolinas Village provide valuable roosting areas for many water birds. These tree areas should also be protected. Bolinas Lagoon, despite decades of watershed mismanagement and continuing water pollution, represents a vital and diverse resource area.

**Bolinas Mudflats.** The mudflats of Bolinas Lagoon once were a spot for clam digging, and oysters were raised in the lagoon waters. The clams are still there, but sewage pollution of the lagoon has led to a State-imposed quarantine. Much of the lagoon and shore area is protected by public ownership, simplifying continued resource management and possible restoration of this resource. A coordinated environmental management study including local, county, State, and Federal representation should be undertaken for the lagoon. The study should stress the areas of special environmental concern and importance and appropriate restoration measures as well as the identification of the appropriate recreational values of the lagoon.

Bolinas Lagoon



**Coastal Streams.** Although coastal streams within the sub-region experience periodic flooding, this is a natural occurrence and important in maintaining natural stream functions. No channelization, flood control works, or water diversion projects shall be permitted on these streams other than routine removal of sediment, slash and undergrowth from their lower reaches. Streamside developments that would interfere with normal highwater flows or intensify pressure for flood control works shall not be permitted.

**Bolinas.** Bolinas represents the largest potential for community growth within the subregion. Over 500 vacant (buildable) lots exist in the community, and given adequate water supplies, the community could double its present size. The Coastal Plan proposes, however, that the community maintain its historic residential growth rate and that no new subdivision be permitted. Modestly scaled visitor facilities should be added to the community, keeping pace with the increase in private residences. Preference in allocating development rights should be given to structures available for public use. As development densities increase, the community sewer system should be extended to the Bolinas Mesa. In the interim, septic system monitoring and maintenance programs should be continued and enforced.

The Bolinas beaches are narrow, capable of little additional use and consequently should remain unadvertised and no beach facilities developed. Properties along the lower Olema-Bolinas Road should be limited to existing lot sizes and agricultural uses encouraged. In most cases, lot sizes along Horseshoe Hill Road should be limited to five acres (the predominant existing size) in accordance with the draft Bolinas Community Plan. The agricultural lands of Paradise Valley Produce, however, should not be subdivided. The properties north of Poplar Road (RCA, Holter) should be considered by the National Park Service for inclusion in the Point Reyes National Seashore.

Community attempts to develop additional water sources must respect the sensitive resources of Pine Gulch Creek.

Shoreline retreat at the Bolinas Mesa is an issue requiring additional information and study. Present information suggests that new construction should be set back at least 150 feet from the top of the bluff. Until the conclusion of further study, which should, among other things, evaluate the effect of erosion upon the siltation of Bolinas Lagoon, shoreline protective works should generally be prohibited. On a case-by-case basis, however, permits may be granted upon a definite showing of imminent hazard to existing major structures. Authorization to construct protective works shall consider the impact upon public recreation and visual resources as well as engineering data relating to such projects.

**Stinson Beach.** For years Stinson Beach has been a favorite with Bay Area residents, who annually flock to the site for a day or more of sand and sun. The community, with a State Beach on its doorstep, continues to be a major visitor attraction, and on sunny holiday weekends, Stinson Beach's normal offseason population of 1,000 can be tripled because of the visitor influx. As in Bolinas, the Plan advocates that Stinson Beach should retain its historic rate of growth, resulting in a potential additional 300-400 people in each community by 1990. Moderately scaled visitor-serving facilities should also be located in Stinson Beach.

No additional development shall be permitted, however, until a satisfactory solution is found to one of the community's more pressing problems — inadequate septic system disposal. Stinson Beach has been attempting for the past 10 years to resolve this issue; however, as yet it has been unable to do so. In the meantime, the pollution of Bolinas Lagoon and nearby ocean waters continues. Studies are presently underway to determine the most satisfactory methods of resolving the problem and will be completed by early 1976. While the completion of this study is endorsed, it should be considered the end product of the many studies completed to date. The objective of these studies — the design and construction of adequate waste water disposal facilities — should begin by June 1976.

Should Stinson Beach be unable to undertake corrective measures, the Bay Area Sewer Services Agency should proceed with the necessary action leading to construction of an appropriate wastewater treatment system. Any solution to the Stinson Beach pollution problem should be planned in accordance with the growth objectives proposed in the Coastal Plan.

**Muir Beach.** Development at Muir Beach should be limited to an infilling of the remaining lots at Muir Beach and the Seascape subdivision (50 lots) coupled with a small, compatibly designed, commercial, visitor-serving facility. Development must be designed to protect the resources of Redwood Creek, its alder grove, and the lagoon area at its mouth. Studies of the Muir Beach Community Services District's water supply should be undertaken to confirm existing service capacities. Priority for limited water sources should go to visitor-serving facilities, both public and private.

Many of the lots in Muir Beach and Seascape have shallow soils and steep slopes. Use of septic systems on these lots should be closely regulated. Some existing lots may well be inappropriate for septic tank use and are, therefore, unbuildable. The Muir Beach Community Services District should establish a septic system maintenance and monitoring program to assure continued adequate functioning of septic systems within the community.

## SUBREGION 5: SAN FRANCISCO

[See Plan Map 19]

Western San Francisco was originally mostly sand dunes, from sea level almost to the 900-foot elevation of Twin Peaks. But the city is so completely developed — covered over with pavement, row houses and apartments — that the

dunes are completely hidden. The only visible remnant of sand dunes to be seen is at Fort Funston, in the far southwest corner of the city.

**Quality of Coastal Neighborhoods.** The Coastal Plan proposes that very little of California's undeveloped coastline be subdivided for new urban development. Thus, an increasing demand for a limited supply of housing could, if otherwise uncontrolled, make the price of developable coastal property even higher than it is today. Without land use controls, California's coastal neighborhoods would eventually become dominated by structures which provide the most return on investment, such as condominiums and apartments. While the details of zoning and precise community planning should properly be left to the initiative of local government, the Coastal Plan recognizes that limits on residential density will be required in many cases to protect the existing resources of moderate-income, family-oriented housing.

The San Francisco Residential Zoning Study, to be completed in 1976, is expected to review prior commitments included in the city's Improvement Plan for Residence (which calls for increased residential-apartment development along the Great Highway). This review must take into account San Francisco's severe city-wide housing shortage. It will not be desirable or appropriate to zone all lands within the Sunset and Richmond Districts at their present use levels to halt all change. For example, there is an extremely low percentage of low-income public housing located in the coastal zone. The relatively few units of scattered-site public housing built in recent years in the Sunset have been well designed, and have contributed to the stock of family housing. However, much rezoning in the Richmond and Sunset is called for, particularly along 48th Avenue and the Lower Great Highway, within the coastal permit zone. In these areas the existing higher density zoning forms a threat to the maintenance of existing neighborhoods.

**Design Review.** Where new development is to be permitted by city zoning, much more attention should be devoted to design review. The manner in which blank-sided, multi-story apartments have been allowed to intrude into neighborhoods of single-family homes is testimony to the lack of a formal design review process for medium-sized structures. In order to assure compatibility of new development within existing neighborhoods, San Francisco should establish an architectural design review process. The scale, height,

bulk, and color of building proposals should be reviewed, imposing design criteria in addition to the arbitrary, uniform requirements of the zoning height limit and the Uniform Building Code. All development (larger than duplex construction) within the coastal zone of San Francisco should be subject to local design review in order to assure consistency with the Coastal Plan.

**The Presidio and GGNRA Lands.** The San Francisco portion of the Golden Gate National Recreational Area, as a high-use zone, will provide more active, intense recreation opportunities than the open space uses provided in Marin County. While a relatively high level of use of the San Francisco shoreline should be planned for the GGNRA operational program, the Coastal Plan recommends that very little facility construction take place in the area.

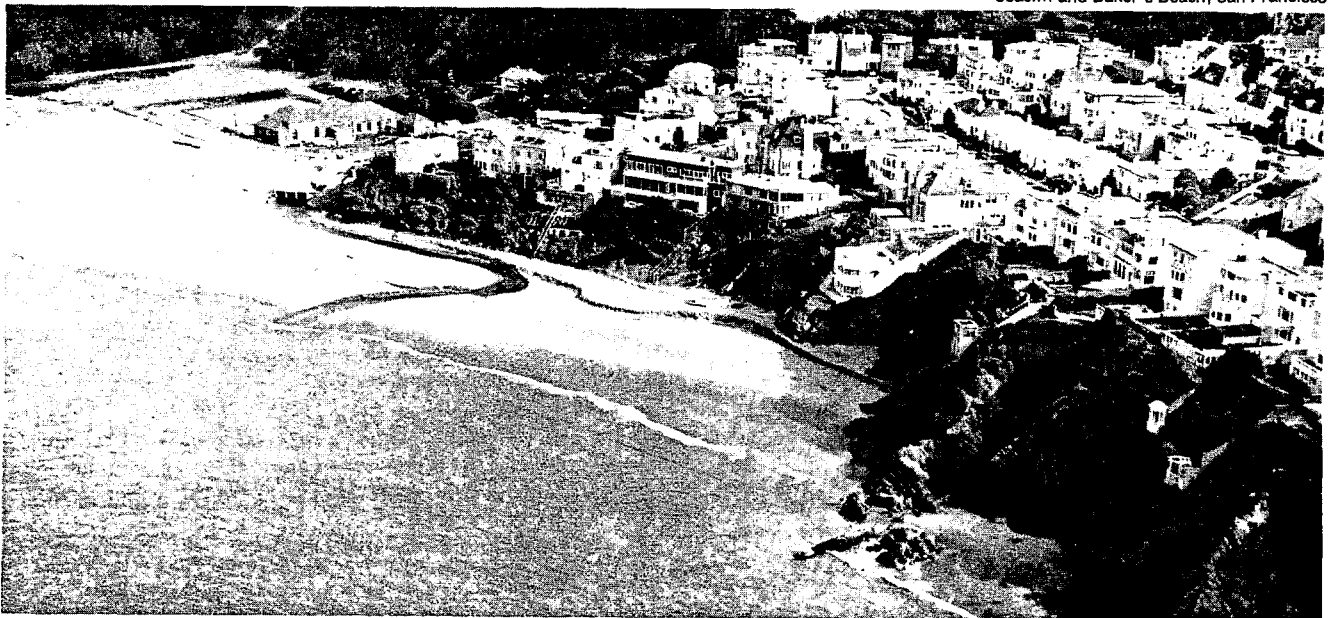
In the Presidio, non-essential industrial-type military uses (e.g., motor pool for the maintenance of heavy equipment, laundry, ammunition storage) should be phased out and relocated as other military lands become available for such uses. The headquarters command and Letterman Hospital, of course, should remain here permanently.

Open areas of the Presidio should not be developed. When existing military structures are no longer needed for the Army — such as those at Fort Winfield Scott — they should be used for urban recreational programs.

**Lobos Creek Marsh.** Though there were once several small freshwater marshes at the northern end of the San Francisco peninsula, all have been destroyed except for a small marsh at the mouth of Lobos Creek. This marsh should be protected from destruction. The serpentine slopes near the Presidio, north of Baker's Beach, support several rare plant species that grow nowhere else and other rare plants grow on the sandy slopes above Point Lobos. Use plans for these areas should include special precautions against trampling and resulting erosion that could lead to the loss of these rare plants.

**Fort Miley.** At Fort Miley, the current expansion program of the Veterans Administration Hospital should represent the ultimate size of this facility; the remainder of the fort's bunkers and headlands should be opened to public access.

Seacliff and Baker's Beach, San Francisco



A trail and internal park transit route should be established on the bluff below the fort.

**Cliff House Area.** At Seal Rock and Land's End, the historic commercial use at the Cliff House site should be continued under concession to the National Park Service. Further construction along the bluff north and east of the Cliff House should not be permitted, except for a modest non-commercial National Park Service visitor center, located below the line of sight from the roadway. Both because of the hazardous cliff and surf, as well as to avoid disturbing the seals and sea lions which use Seal Rocks, public access to these nearshore rocks should be prohibited.

**Playland.** The old Playland-at-the-Beach site, located on the outer edge of the Richmond District, provides the only location in the North Central Region appropriate for intense, urban, commercial recreational development. Any multiple-use development plan for this site should give emphasis to coastal-related commercial recreation facilities.

**Ocean Beach — Great Highway.** Three things are essential to restore the high urban-beach potential of San Francisco's Pacific shore: maintenance, supervision, and the implementation of the city's Great Highway Improvement Plan. An adequate maintenance force — supplied with mechanical sandcleaning machines — will be a minimum requirement of the National Park Service operation. On high-use days, extensive ranger and park police supervision will be required to prevent such incompatible current activities as motorcycle-riding and galloping of horses.

The city's creative plan for the Great Highway calls for the transformation of the existing eight-lane, freeway-like highway into a four-lane, gently curving recreation road. More frequent pedestrian undercrossings would be constructed. Even though the road right-of-way is not included within the boundary of the GGNRA, the recreational improvement of this roadway should be included in the capital budget of the Park Service, at least on a 50-50 matching basis.

**Fort Funston.** Fort Funston, at the southern end of the GGNRA, is already suffering from overuse. The sand dunes here are a favorite place for hang-gliding (an appropriate use, though dangerous) and off-road vehicles (an inappropriate use), but continued indiscriminate use has damaged sand dune vegetation and caused extensive erosion. While some portion of the fort might be made available to hang-gliding, this part of the GGNRA should be made available primarily for historic and nature interpretive programs.

Once largely surrounded by Water Department lands and golf courses, much of the open area around Lake Merced has, in recent years, been developed. Except for a sewage treatment plant that would be mostly underground, additional structural facilities should not be located on open lands around Lake Merced. These should be retained and development limited to non-structural, water-oriented picnicking, fishing, boating, or trail use. Structural facilities that exclude the general public (such as the National Guard, police facilities, and the public shooting range) should be phased out or relocated.

San Francisco's massive sewage problem clearly needs correction. Coastal Plan policies make it clear that, given a choice, primary or low-level secondary treated sewage effluent is better discharged from deep open-ocean outfalls than into bays or estuaries where less dilution is possible and where pollution can affect a greater variety of shallow-water and wetland marine life. Prior to making a permanent commitment to the Lake Merced sewage treatment site, the City should demonstrate that: (1) the reclamation and reuse of San Francisco's waste water is unnecessary or unfeasible, and that the plant and pipeline design will facilitate a future reclamation option should it become feasible; (2) there is no superior alternate site in San Francisco or northern San Mateo County for the plant location; (3) the plant and its outfall are designed to withstand potential seismic forces without undue risk of massive pollution; (4) the plant, if located at Lake Merced, is primarily underground and landscaped and is accessible for outdoor recreational, open-space use, or Zoo expansion; and (5) the treatment level and outfall design assure that the effect of the effluent upon the receiving waters will not significantly affect marine life. The related system of storage reservoirs that are proposed to be constructed under the streets of coastal neighborhoods appears compatible with Coastal Plan policies and is an integral part of the correction of San Francisco's wastewater treatment problems.

**Coastal Zone Boundary in San Francisco.** Proposition 20 required that the coastal zone boundary follow the "highest elevation of the nearest coastal mountain range." In San Francisco, such a line traverses Twin Peaks, in the center of the city, and includes many districts and neighborhoods which are distant or invisible from the coastline or which have very little access or relationship to "coastal" neighborhoods. Development of distant urban hills does not dominate the visual character of the coastal zone.

The Coastal Plan thus recommends that the coastal resource management area boundary in San Francisco follow the Golden Gate Bridge, Park Presidio Boulevard and 19th Avenue. This would provide a management area approximately two miles deep, would include all coastal portions of the GGNRA and almost all of the neighborhoods which view themselves (by tradition and the boundaries of census tracts and civic organizations) as entire coastal neighborhoods. However, beyond walking distance to the shoreline (about Sunset Boulevard), the character of urban development is of much less statewide significance to Coastal Plan policies. Virtually the only connection which areas to the east of 19th Avenue have with the coast is a view of the sunset (when it's not foggy). And that connection is too tenuous to require permanent inclusion within the coastal zone.

**Farallon Islands.** Given the remote and barren character of the Farallon Islands and the important wildlife habitat they provide, the Coastal Plan provides for the retention of the wildlife refuge status of the islands, with no facilities to be constructed and no visitor program to be provided (other than the limited research efforts of the Point Reyes Bird Observatory).



# NORTH CENTRAL COAST APPENDIX

## TRANSPORTATION

Adopted Coastal Plan policies emphasize both the desirability of maintaining coastal Highway 1 as a two-lane rural road without significant capacity improvements, and the related need to consider the traffic-producing potential of additional coastal developments. Generally, the present width and alignment would be retained, with improvements limited to correction of specific safety problems. Every effort should be taken to maintain and enhance the scenic qualities of the roadway with turnouts and overlooks provided. Private developments west of Highway 1 shall be encouraged to provide peripheral frontage roads allowing views and access to the coast or suitable parking for trail access, consistent with access levels suggested in the section below.

**A Coastal Traffic Budget.** The existing or planned capacity of the road system would act as the limit of a traffic "budget." Beginning with this capacity budget, which represents the remaining traffic carrying ability of Highway 1, the traffic-inducing impacts or capacity "spending" associated with public or private developments along the coast is calculated to make sure that traffic does not exceed the capabilities of the planned road system.

The Coastal Plan identifies weekend traffic congestion as a major problem area requiring future study. The traffic projections given here are based on fragmentary information and are provisional pending the collection of data tailored to the needs of a coastal traffic study. The figure reproduced here, drawn from California Department of Transportation data, portrays the current capacity budget situation along coastal Highway 1 in Sonoma and Marin Counties.

**Sonoma County.** The projections suggest a high probability of future traffic congestion along Highway 1 in Sonoma County through much of its length with special problems in the section from Bodega Bay to Fort Ross. This provisional analysis indicates that it would be prudent to minimize additional commitments to coastal subdivisions (which account for as much as half of the projected traffic) during the time a more detailed and reliable study of coastal transportation problems is conducted.

A recent study of transit potential on the Sonoma Coast indicated that there was insufficient demand to justify development of regularly scheduled bus service but that there were persons being "trapped and isolated" by the present auto-dependent system. The study recommended further investigation of a small-scale shuttle and parcel delivery system as an alternative to regularly scheduled bus service — a suggestion that should receive further refinement in the proposed study of weekend transportation needs.

**Marin County.** In Marin County there is little likelihood of traffic problems along the segment of Highway 1 from the Sonoma County line to Point Reyes Station, but south of this point the projected congestion becomes formidable. Simple projections of auto use (as shown on the graph) have to be tempered with assumptions concerning the extent of transit use.

The Plan places heavy reliance on public transit as an alternative to expanded auto travel. Present transit service to the coast is now limited to the southern portions of Marin

County and to coastal neighborhoods in San Francisco. At Point Reyes, during the summer months, a shuttlebus operates between Park Headquarters and the beach at Limantour Spit. It is estimated that about one per cent of coastal travelers make use of the existing transit services to the Marin coast.

The proposals for relieving future congestion in West Marin depend on two strategies, balancing auto travel among existing routes and increasing transit patronage. Neither Highway 1 or any lateral connecting route should be expanded beyond a two-lane roadway.

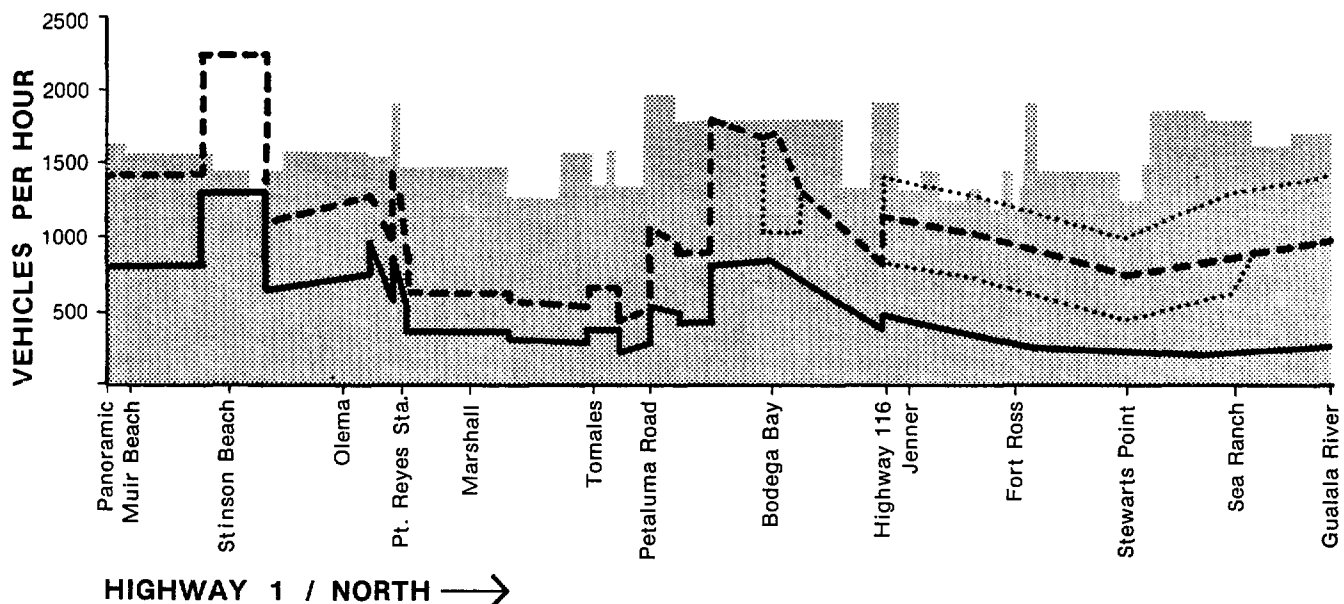
Five east-west routes provide access from Highway 101 to the coast: the southern portion of Highway 1; Panoramic Highway; Sir Francis Drake Boulevard; Lucas Valley Road-Nicasio Valley Road; Novato Boulevard-Petaluma-Point Reyes Road. The traffic burden should be spread as evenly as possible among these routes, utilizing signing and mapping devices.

**Transit in Marin.** Because of constraints of alignment and grade, none of these routes is adequate for a bus system that can provide sufficient passenger comfort to compete successfully with the private automobile. Unless one or another of them is improved, it will be difficult to achieve the transit goals of the Plan. The Marin countywide plan shows Panoramic and Lucas Valley Road as the "transit routes" to the Point Reyes area. The Coastal Commission should work with Marin County and CalTrans to bring about the road improvements to the minimum extent necessary to provide an adequate bus system to West Marin. Planning efforts should be coordinated with planning for the parks and with the Golden Gate Recreational Travel Study.

Transit has a high potential as a capacity budget stretcher but the extent to which transit can be made a viable alternative to private auto use is unknown. The Golden Gate Recreational Travel Study is seeking to develop information on ways of maximizing transit use to West Marin park destinations. However, the study is still underway and major program recommendations have yet to be tested and evaluated. It seems safe to conclude, however, that providing good recreational transit to the coast will require continued subsidies, just as present weekday commuter transit systems require subsidizing.

It may be necessary to create auto "disincentives" in order to generate significant levels of transit use. Disincentives would be in the form of restrictions on access, with certain park areas accessible only by transit, by giving priority access to transit over existing routes, or limiting the availability of parking at coastal destinations. Any of these schemes requires careful scrutiny since there is a risk that efforts to discourage auto use and encourage use of transit may result only in a discouragement of coastal visitation. Transit service must be improved to the point that it becomes an attractive substitute to auto travel. The general guidelines in current Coastal Plan policies on transportation will have to be refined as better information on coastal travel is developed — both by Commission studies and by the continuing Golden Gate Recreational Travel Study.

## Capacity Budget: Highway 1 in Marin and Sonoma Counties



The length of the diagram represents the length of the coastal road system south to north, and the labels below the chart indicate various locations along the highway. The vertical dimension indicates vehicles per hour. The solid line on the chart shows hourly traffic volume counts recorded for the summer of 1974 during the peak hours of use, which usually occurred on Sunday afternoons. The upper edge of the shaded area indicates the capacity limit of the coast highway — the point of traffic flow breakdown [beginning of "level F" as defined in the Highway Capacity Manual, H.R.B. Special Report No. 87]. The dashed line on the diagram indicates estimates of future traffic to the year 1995. For the Marin coastline the estimate is based on trends in historic traffic increase projected for 20 years; for the Sonoma coast the traffic estimate reflects the level and pattern of development assumed in the Coastal Plan [had a trends projection been used, the future traffic estimates would have indicated an approximate doubling from existing traffic levels rather than the tripling indicated using Plan assumptions — i.e., buildout of coastal subdivisions with

2000 units at Sea Ranch, construction of campsites, development of commercial visitor facilities, and park acquisition]. It was assumed that only minor intersection improvements would be made in the existing roadway and that it would retain its present alignment and grades. The effects of several alternative assumptions is also shown: the dotted line above the basic traffic projection indicates the effect of construction of 4000 rather than 2000 homes at Sea Ranch, while the dotted lines below indicate the effects of construction of several alternative routes for Highway 1 traffic. The lower dotted line at Bodega Bay indicates traffic remaining on Highway 1 with construction of the bypass route [recommended by the Plan]. The lower dotted line between Highway 116 and Sea Ranch represents the effects of construction of a lateral connector route along the alignment of Annapolis-Skagg's Springs Road [that provides a quicker access to Sea Ranch and Southern Mendocino County [this alternative assumes a 2000 unit buildout at Sea Ranch]].

## ACCESS LEVELS

**Access Levels.** Much of the appeal of this region's coastline is that so much of it is in its natural state; but as ever-increasing numbers of people learn to enjoy the coastline, they can begin to threaten the attractions they seek. Some of these resources are fragile and cannot be replaced.

It is important that in proposing specific coastal activities, the impact upon the coast's resources be determined. The establishment of these "carrying capacities" is a complex process and involves determining the physical, social and designed capacity of the area (see Controlling Recreation to Protect Resources findings, and Policies 142-144 in Recreation chapter, Part II). Although more research will untangle many of the complexities involved, present information and techniques permit a general level of use to be identified. This is particularly true where identified natural resources are so fragile that almost any use would threaten their continued existence.

The selected areas evaluated (listed below), were grouped in four general categories: controlled use, low use, moderate use and intensive use. The descriptions below relate only to the patterns and intensities of access and use typical to the North Central Region. A high-use area here, for example, would serve many fewer people than a high-use beach in Southern California. A general definition of categories is listed below.

- **Controlled Use** - Areas of controlled use almost always reflect significant natural resources that are in need of protection. Controlled use areas would normally have some level of restriction on their use, either almost entirely, as in a few areas reserved for scientific use, or partial, depending on the resource involved. Developments would be restricted to minor observation areas and foot paths. No parking areas or other support facilities would be permitted. Access in or through would not be encouraged. In some sites restrictions would be temporary with access controlled during breeding seasons.
- **Low Use** - Areas that contain important, although not critical natural resources, provide exceptionally scenic or "natural" beauty, or possess limited necessary support facilities would be identified as low use. Low use development would include hiking trails, limited hike-in campsites and observation areas. Only very limited parking facilities or interpretive areas would be permitted, although perhaps regulated. Resource values would be protected.
- **Moderate Use** - Moderate use areas could support public use without endangering resources; public support facilities would be permitted (e.g., water supply, restrooms, picnic tables, tent campgrounds, horse/hiking trails, parking areas and interpretive centers) but in limited



numbers. Construction techniques must conform to natural features of land and be limited in scale.

- **Intensive use** - Areas that have historically supported intensive levels of use; are physically quite tolerant of heavy use; and have adequate public facilities (or they can be easily provided), are classified in this category. Construction of parking areas, campgrounds, visitor service facilities and other major construction projects may be permitted. Public use is encouraged.

## PROPOSED USE LEVELS FOR SELECTED AREAS WITHIN NORTH CENTRAL REGION

**Controlled Use Areas:** Del Mar Landing Ecological Reserve, Seaview-Highlands Coastal Frontage, Lower Lake (Plantation, Sonoma County), Stillwater Cove Expansion, Russian River Marsh (southwest of Penny Island), Penny Island, Jenner Pond (Junction of Highways 1 and 116), Duncans Mills (Orr's Creek) Marsh, Willow Creek Marsh Area, Salmon Creek, Bodega Marine Laboratory Lands\*, Bodega Bay Salt Marshes, Estero Americano Lagoon and Marsh areas, Estero de San Antonio Lagoon and Marsh Areas, Hog Island, White Gulch\*, Tomales Bay Marsh Areas (Walker Creek Marsh, Millerton Marsh\*, Olema Creek Marsh, Livermore Marsh, Shields' Marsh, Tomasini Point Marsh, and several other small marshes around bay), Point Reyes National Seashore (Ledum Swamp—upstream from Schooner Lagoon, Bolsa Beach at Double Point, Point Reyes and Estero de Limantour Reserves, and Point Reyes Headland Uplands), Rodeo Lagoon Marsh and slope areas, Golden Gate Bridge to Cliff House (steep slopes), Seal Rocks\*, Farallon Islands\*, and all offshore rocks and seastacks\*. (\*Restricted to scientific use.)

**Low Use Areas:** Gualala River Mouth Marsh, Black Point Headland, Point Reyes National Seashore (Pastoral Zone, Tomales Point, Abbotts Lagoon Area, Drakes Estero, Estero de Limantour, and Limantour Spit), Kruse Rhododendron Reserve, Russian River Mouth, Bodega Head, shoreline between Doran Spit and Dillon Beach, Tom's Point, Bolinas Lagoon, Duxbury Reef, Slide Ranch (Rocky Point to Muir Beach), and Tennessee Cove.

**Moderate Use Areas:** Gualala Point County Park, Stillwater Cove Beach, Russian Gulch, East and West Shores of Tomales Bay (except as identified elsewhere), Olema Valley, Seadrift Spit (ocean side), Muir Beach, Kirby Cove, Fort Funston, and Lake Merced.

**Intensive Use Areas:** Salt Point State Park, Fort Ross State Historic Park, Sonoma Coast State Beach, Doran Spit (ocean side), Dillon Beach, Lawson's Landing, Tomales Bay State Park, Point Reyes National Seashore (Drakes Beach, Santa Maria Beach, and Park Headquarters Area), Stinson Beach State Beach, and Ocean Beach/Cliff House.

It is also recommended that standards be established for control of dogs. Generally, dogs should be required to be leashed or, in some cases, excluded from intensive use areas or from agricultural areas where free roaming dogs could harm livestock.

## TRAILS

To maximize the recreation potential of the coast as well as to provide alternative means of access, Coastal Plan policies recommend the establishment of a coastal trail system. The

system proposed for the North Central region would combine existing trail systems with new trail proposals, emphasizing urban and near-urban areas in construction priority. The trail system will emphasize its coastal nature, but routes should also incorporate natural features, existing rights of way, scenic and recreation areas, and should include short, loop routes in high use areas. Where the main trail leaves the immediate coastline, short lateral access spurs to the coast should be constructed where appropriate. Trailheads would be established near existing coastal attractions, easing construction impacts on undeveloped areas. Small camp and/or hostel sites may be established along longer stretches of the trail.

**Trail Description.** Precise planning for trail location must fully respect sensitive natural areas, the rights of coastal residents to security and privacy and the requirements of adjacent ranches. Bluff-edge trails must be carefully located or hardened to avoid erosion, for example. Proceeding from north to south, the proposed main trunk-line coast trail would enter the North Central Region at Gualala County Park and proceed south along the first coastal ridgeline to Annapolis Road, and then along Highway 1 through Sea Ranch. This is one of the few areas in the region where the trail would pass through forested lands. An alternate loop trail for the northerly two-mile stretch would provide both a bluffedge trail linking Gualala Point Park with the Del Mar Landing marine reserve as well as a short segment along the Gualala Riverway.

Continuing south of Black Point, the trail would move away from the highway into the coastal terrace, where it would follow the top of the bluff to Timber Cove. At Timber Cove the trail would join Highway 1 through the subdivision before returning to the bluff top. At Fort Ross, the trail would again work up to the first ridge line, following the old Russian road and Seaview-Plantation road down to Russian Gulch.

Going along Highway 1 from Russian Gulch, the trail would pass through Jenner and cross the Russian River at Bridgehaven. From the Russian River, the trail proceeds south along the bluff and beach of the Sonoma Coast State Beach, running from Arched Rock to Salmon Creek. Crossing back to the highway and continuing to Bodega Bay, the trail would leave Highway 1 and skirt the east side of the community before joining Highway 1 again at Cheney Creek. Spur trails would lead to Cypress Dunes, Bodega Head, and Doran Spit.

Following Highway 1 up Cheney Gulch, the trail would then cut across country to Valley Ford where it would cross the Estero Americano. From there the trail would follow the Valley Ford-Franklin School Road, pass Dillon Beach and travel cross-country, circling the beaches and dunes of Sand Point to pick up an old railroad grade above Preston Point. Again, several spur trails could lead from the trail to the coastal bluffs along this section.

A trail bridge across Walker Creek would reconnect the old railroad right-of-way and, by using alternate sections of that right-of-way and portions of Highway 1, the trail would continue south to Point Reyes Station. Few segments of the old railway exist; precise study would be required to determine how much of this right-of-way could be used.

From Point Reyes Station, the trail moves west of Highway 1, following Olema Creek and portions of Pine Gulch Creek to Bolinas Lagoon. Trail spurs would connect with the existing trails within the Point Reyes National Seashore and

Samuel P. Taylor State Park as well as future trails within the Golden Gate National Recreation Area. In this area, it would intersect with the east-west Cross-Marin Trail, which is to originate at the Larkspur ferry terminal.

Continuing south, the trail would follow Highway 1 past Stinson Beach to Muir Beach where, leaving the highway, the trail continues south following the bluffs around Tennessee Cove, over old Fort Cronkhite and drops down to Rodeo Lagoon. In this segment, the trail would provide loop connections with existing trails in Mount Tamalpais State Park, the GGNRA and the Marin Municipal Water District lands.

The final portion of the trail would follow the road along the headlands of the Golden Gate, across the Golden Gate Bridge and up to the bluff top through Fort Winfield Scott. Continuing along the bluff top, the trail would proceed around Lands End and eventually drop down and parallel the Great Highway along Ocean Beach. At Lake Merced, the trail would climb the bluffs again and continue southward along the coastline and into San Mateo County.

Trail systems, some quite extensive, have been developed in the Point Reyes National Seashore, Samuel P. Taylor State Park, and Mount Tamalpais State Park. First priority for future coastal trail development should concentrate on providing connecting links between the existing systems in these parks, as close to the metropolitan population.

**RESTORATION**

Every effort should be made to restore habitat values where they have been degraded. Consideration of restoration actions shall be routinely considered as part of each decision regarding future coastal development. Where appropriate, restoration actions will be made a condition of development and activities which degrade the environment will be declared "nonconforming" and abated (phased out) over time.

A number of areas in the region appear to be appropriate for restoration efforts. Restoration plans for each of these

areas would have to be carefully tailored to individual situations. Restoration might include such actions as fencing grazing lands adjacent to streambeds to permit growth of streamside vegetation, removal or redesign of structures that inhibit stream-flows or tidal exchanges, and dredging to reduce the buildup of sedimentation. Further studies might indicate that some areas listed are inappropriate for restoration. In all cases, however, a consideration of restoration options would be a required component of any private or public development proposals affecting these areas.

Restoration Area	Study Issues
Marshes at north end of Bodega Bay	Tidal circulation
Airport Area at Bodega Bay	Visual concerns and increasing water surface area
"Golf Course" marsh at Bodega Bay	Remove golf course, enhance tidal circulation
Esteros Americano and San Antonio	Cattle grazing in marshes
Marsh areas near Point Reyes Station	Removal of dikes
Bolinas Lagoon	Sedimentation, public use
Rodeo Lagoon	Pollution

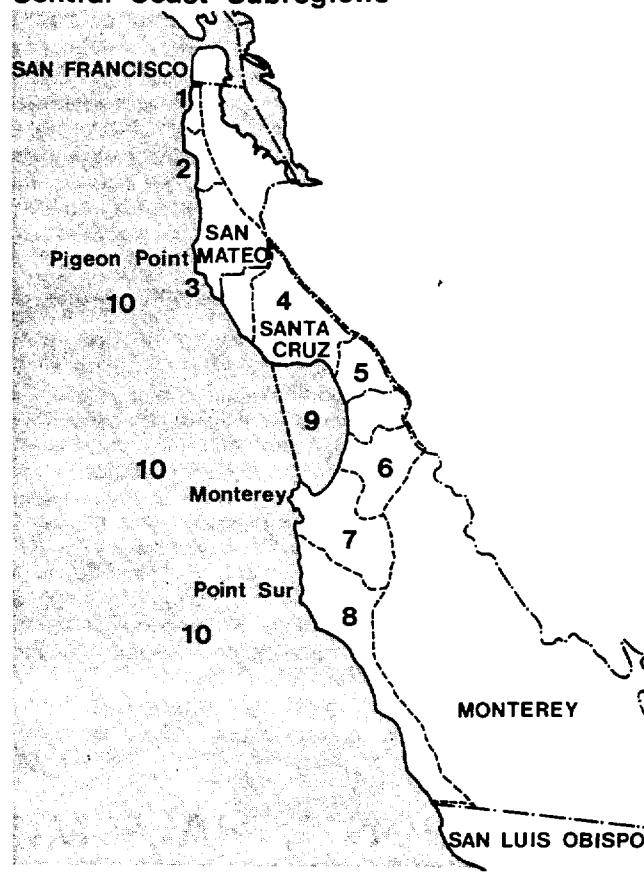
In addition to the above listed areas, stream restoration to enhance vegetative cover and the potential for spawning runs should be considered in Salmon, Walker, Pine Gulch, Olema, Papermill, and Redwood Creeks, and the Gualala and Russian Rivers.

# CENTRAL COAST

The Central Coast Region extends 209 miles south of the densely populated hills of San Francisco to the rugged back-country of Big Sur. The fertile Salinas and Pajaro Valleys form the region's heartland, and their produce helps to make agriculture the basis of the regional economy. Tourism, centering on the cities of Santa Cruz and the Monterey Peninsula but relying on the region's wide beaches and spectacular natural beauty for support, also plays a major role. Attractions such as Point Lobos, the Carmel Mission, Pebble Beach, Cannery Row, the Santa Cruz Boardwalk, and Steamer Lane are known far beyond the region's borders.

From the rugged coast of northern San Mateo County, the region stretches south through the fertile Half Moon Bay coastal plain to the rolling hills and terraces of the Ano Nuevo Coast. The terrace widens at Santa Cruz, and the Santa Cruz Mountains form a backdrop for the Pajaro Valley and Watsonville. As the Santa Cruz Mountains march southeast to become the Gabilan Range, the broad Salinas Valley dominates the coast. Between the Pajaro and Salinas, an extensive slough system drains toward Monterey Bay with Moss Landing at its head. The high dunes protect the shoreline for many miles, before giving way to the plains of Monterey. Dominated by the Santa Lucia Mountains, the Monterey Peninsula juts out into the Bay. Carmel perches on the hillside just south overlooking Carmel Bay. South of Point Lobos the coast is again rugged, traversed by scenic Highway 1 through Big Sur.

Central Coast Subregions



## SUBREGION 1: DALY CITY AND PACIFICA

[See Plan Map 20]

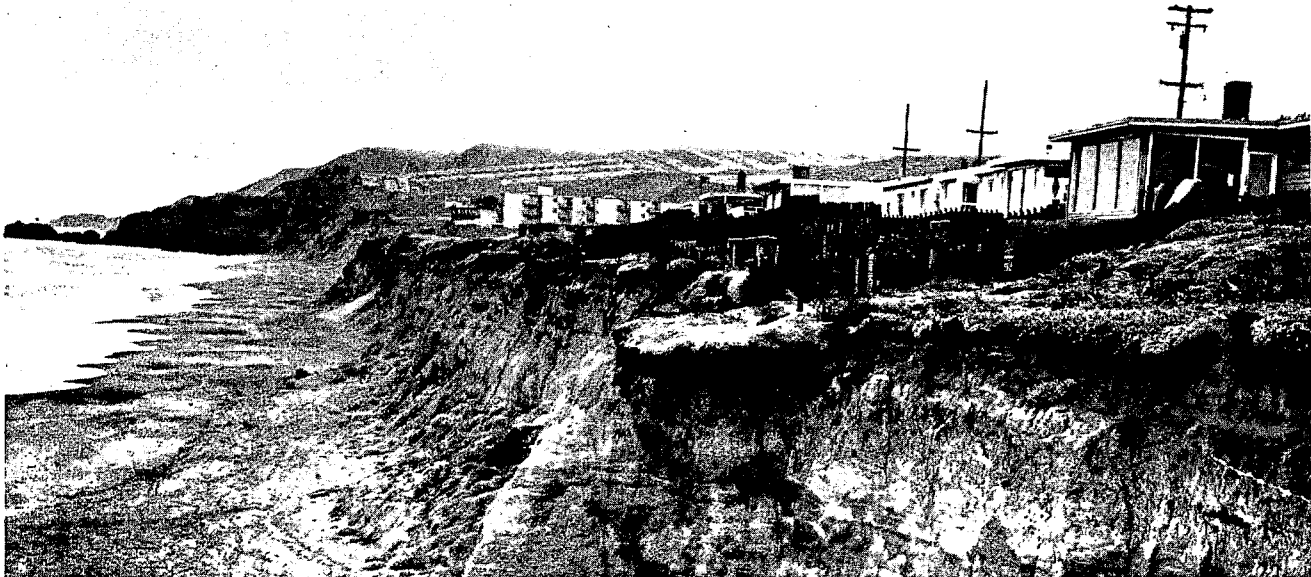
This coastal subregion, dominated by the suburban cities of Daly City and Pacifica, combines high accessibility to population with severe development hazards and important recreation opportunities. Daly City, straddling the San Andreas Fault and rolling terrain which drops off 400 feet at the edge of the coastal bluff, is almost totally developed. Pacifica, which strings together several communities nestled in the coastal valleys, anticipates a substantial increase in population by 1990. Much of the remaining open land in this subregion is on brush-covered hillsides; this feature is a significant scenic resource.

**Recreational Resources.** Both Daly City and Pacifica contain major coastal recreational attractions. Thornton Beach State Park provides the only public access point to the wide beaches below Daly City's cliffs. The beach is the major attraction, but remains of the old Coastal Highway, 150 feet above the beach, offer a spectacular hiking experience. If this route is safe, it would be an ideal location for the coastal trail recommended in the Plan. Additional access to the beach should be sought, since heavy use is now concentrated near the Thornton Beach parking lot. Two possibilities are Avalon Canyon (where a park is proposed) and

the San Andreas Fault trace (now a solid waste disposal site).

Pacifica's beaches and new fishing pier are also heavily used. The need for more convenient access, parking facilities, and aesthetic improvements of the beachfront (all recognized by local and Coastal plans) must be balanced with maintenance of special coastal neighborhoods (West Sharp Park) and with the development of coastal commercial recreation facilities (Rockaway Beach), also advocated by Coastal Plan policies.

**Pacifica Hillside.** Development of the Pacifica hillside will be a major subregional plan issue. Local planned-development zoning and proposals for increased access promise to restrict buildable areas to lesser slopes, but have not yet successfully overcome concerns expressed by local residents and the Coastal Plan policies for potential erosion, public hazards, loss of significant open space, and impact of population. Coastal Plan policies must be translated into operable hillside development standards to meet these concerns.



Pacifica

## SUBREGION 2: HALF MOON BAY

[See Plan Map 20]

The Midcoast side of San Mateo County lies in the shadow of the Coast Range, tied to San Francisco by the precipitous Devil's Slide highway and to the populous Bay side by the winding Highway 92. Much of the fertile coastal terrace was subdivided after the 1906 earthquake, but little developed. The historic agricultural center of Half Moon Bay, now a city of 5,500, projects growth to at least 28,000. Encouraged by a new sewage treatment plant, the large number of existing lots, and an aggressive developer, the city has overseen the conversion of agricultural land into residential subdivisions. Four unincorporated communities (Miramar, Princeton-El Granada, Moss Beach, Montara), separated by agricultural lands, contain 7,000 people, and are building up rapidly on existing lots.

**Agriculture.** The Half Moon Bay area supports a strong floriculture industry, both field- and greenhouse-based. Artichokes, other vegetables, and seasonal specialty crops are grown on subdivided land as well as on larger parcels. Much valuable agricultural land is under-productive because of high taxes and water costs and the fragmented ownership pattern resulting from premature subdivision.

Subregional planning will examine closely the urban and agricultural potentials of such areas as Shore Acres, Surf Beach, Miramontes Tract, and Wave Crest. Protection of agriculture may call for some redevelopment of subdivided but undeveloped agricultural lands, careful applications of policies to deal with the existing checkerboard development pattern, and the establishment of positive programs to support continued agricultural uses of the land.

**Recreational Resources.** State Beaches at Montara and Half Moon Bay, a harbor at Pillar Point, and the tidepools of Moss Beach (Fitzgerald Marine Reserve) attract many day-visitors. Planned State and county purchases will make the public shoreline virtually continuous. Development of expanded beach facilities and a coastal trail called for by Plan policies will thus require little acquisition.

**Public Services.** Transportation, sewer and water services, and the basic community infrastructure are the keys to development in Half Moon Bay. Further study will focus on these public services, establishing key decision points, levels of development, and alternative development patterns

which are consistent with and implement the Coastal Plan. City, county, harbor district, sanitary district, and major landowner (Westinghouse) participation will be crucial to this effort.

**Special Study Area — North Half Moon Bay.** In the north Half Moon Bay area, prime agricultural land, residential subdivisions, and underdeveloped recreational and visitor-

serving commercial areas (Half Moon Bay State Beach, Pillar Point Harbor) are in close proximity. A special study of this area should be undertaken with the goals of encouraging timely development of adequate recreational facilities and coastal access while enhancing agricultural lands and existing residential communities. (Note: See Plan Appendix section on Examples of Subregional Plans for case study involving Half Moon Bay.)

## SUBREGION 3: ANO NUEVO COAST

[See Plan Maps 20-23]

The rural coastline from Half Moon Bay to the northern fringe of Santa Cruz at Majors Creek contains a scenic stretch of Highway 1, gently rolling grazing lands, productive agricultural benchlands, commercial timber resources, several well-used beaches, and a major wetland at Pescadero. The settlements of Davenport and Pescadero are small but historic, and are designated as special coastal communities. Ano Nuevo Island, at roughly the center of the subregion, is an important wildlife habitat within the Big Basin-Ano Nuevo State Park complex. The maintenance of open space and commercial agriculture and provision of beach access compatible with croplands and natural habitats are important Coastal Plan policies for this subregion.

**Recreational Resources.** The beaches in this subregion vary greatly in size and potential. Most beaches in San Mateo County are part of the State Park system, but only minimal permanent parking, and restroom facilities have been developed. Miramontes Point, Franklin Point (magnificent beach-dunes area), and Pigeon Point/Bolsa Point area beaches are the major beaches remaining in private ownership. Most northern Santa Cruz beaches are privately

owned with no facilities. Where public use exists, access often crosses agricultural lands, and vandalism is common. The subregional plan will attempt to provide both improved access and greater protection for agriculture.

Because the coastline of this subregion is irregular, with many small beaches, steep cliffs, and a hazardous tidal area, application of the policies establishing a coastal trail and increasing public use of the shoreline will require special attention. The proposal to extend Golden Gate National Recreation Area through San Mateo and Santa Cruz Counties should be evaluated accordingly.

**Development issues.** Both Davenport and Pescadero would be affected by application of policies which would concentrate development in existing towns. Neither has excess public service capacity, but they might provide the least-impact locations for new visitor-serving facilities or farm-worker housing. A proposed nuclear power plant north of Davenport might be incompatible with increased development. Major changes in the limited land-related economic bases of the towns would have significant impacts on use of surrounding areas, and so would conflict with Plan policies.

## SUBREGION 4: SANTA CRUZ

[See Plan Maps 22-24]

The urban area of northern Monterey Bay occupies terraces and valleys between the Santa Cruz Mountains and eroding coastal bluffs. This subregion contains three cities (Santa Cruz, Capitola, Scotts Valley) and several unincorporated suburbs. Settled originally as agricultural and timber-processing centers and summer-home communities, the Santa Cruz area communities now serve as a major recreational and retirement location for inland residents.

**North Santa Cruz Coast.** Northwest of Santa Cruz, the coastal benchlands and creek valleys produce about 90 per cent of the nation's brussels sprouts, as well as artichokes and other crops. The uplands support grazing and commercial timber. The area southeast of Majors Creek has been designated by the City of Santa Cruz for urban expansion,

but recent and proposed State acquisitions (Wilder Ranch, Terrace Point, Natural Bridges addition) preempt urban development over much of the area. State Park and University of California plans include campgrounds, beach access, and a marine research station. The level of access needed, environmental safeguards for development, and protective measures for valuable coastal agriculture, archaeological resources, and impacted urban neighborhoods will be established by a special study.

**Urbanized Area — Recreational and Development Issues.** The urbanized area between Natural Bridges and New Brighton Beach State Parks contains the bulk of recreational facilities in the subregion as well as several significant coastal open spaces (e.g., Lighthouse Field, Yacht Harbor

uplands) and special coastal neighborhoods (e.g., Beach Hill, Capitola Village). One of the last amusement parks on the California coast, safe beaches, and two fishing wharfs draw millions of visitors each summer. South of Capitola suburban development predominates, and State Beaches are interspersed with exclusive homes and beach cottages below the coastal bluffs.

To encourage increased recreational use with minimum adverse impact, application of policies encouraging coastal trail development, improved public beach management, in-town parking and transit to the beaches will be the main focus of the subregional plan. Policies encouraging orderly development, coastal-dependent uses and protection of agricultural lands will also be important in view of projected area growth.

**Natural Habitat Areas.** Important wetland habitats remain despite urbanization: the San Lorenzo River (an important anadromous fish stream), Younger, Schwan, Corcoran, and

Moran Lagoons (bird habitats), and ponds near La Selva Beach (a home of the endangered Santa Cruz long-toed salamander). Preserving these areas and restoring, where possible, degraded areas (such as Neary's Lagoon, Soquel Creek, and Rodeo Gulch) are important Coastal Plan policies and shall be implemented through appropriate methods.

**Special Study Area — Santa Cruz Harbor.** In the Santa Cruz Harbor area, from Seabright Avenue in Santa Cruz to 17th Avenue in Live Oak, and south of Capitola Road, are focused issues of protecting residential neighborhoods, maximizing access to coastal recreation, protecting remaining open lands and wildlife habitats, and concentrating urban growth. With the assistance of local residents, city, county, and port district, a special study of this area will attempt to improve regional use of the harbor facility, as well as determine appropriate land uses, access patterns, and recreational-commercial balance of harbor use.

## SUBREGION 5: PAJARO-ELKHORN

[See Plan Maps 24-26]

This predominantly rural subregion stretches from the edge of the Santa Cruz urbanized area to Moss Landing in Monterey County. It contains the lower Pajaro River Valley and watershed, and four of the slough drainages that make up the Elkhorn Slough System.

**Pajaro Valley — Agricultural Issues.** The Pajaro Valley, covering 120 square miles, is one of the richest agricultural regions in California. The moderate coastal climate, fertile soils, intensiveness of cultivation, improved fertilizers and technology, and the adoption of multiple cropping methods support a wide variety of food crops and return a high income per acre. But increasing drafts of groundwater, for urban and agricultural use, have had adverse effects; the water supply for 50 square miles of agricultural land between the Pajaro Valley and Marina is currently threatened by saltwater intrusion.

The urban center of the valley, Watsonville (population 17,000), has grown rapidly, sprawling into surrounding farmlands. The healthy economy of the area, based on food production and processing, encourages expansion of Watsonville and its suburbs, Freedom and Pajaro. Substantial growth of these communities would involve the loss of valuable agricultural lands designated for protection under county plans and the Coastal Plan, and would necessitate expensive solutions to the water supply problem. Plan policies call for concentrating development in existing urban areas, such as Watsonville, Pajaro, Castroville, and Moss Landing, rather than allowing continued conversion of agricultural land. The agricultural lands of the Pajaro Valley should be preserved; agricultural zoning and tax program changes could help greatly.

**Elkhorn Slough System.** Elkhorn Slough, one of the largest and most important estuaries and wetland habitats in California, lies between the Pajaro and Salinas Valleys. It is threatened by locally planned expansion of existing industrial and harbor developments, and by residential develop-

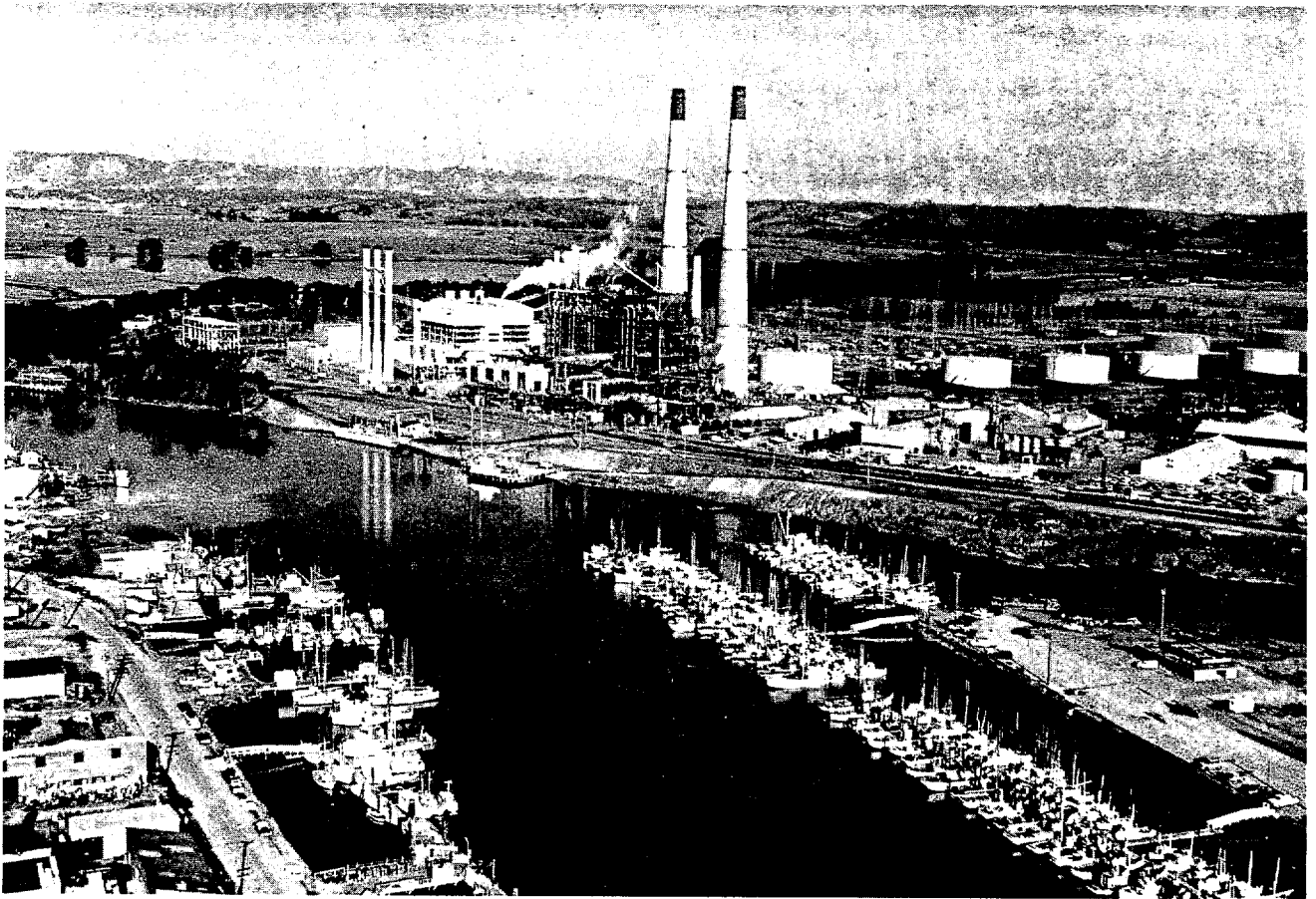
ment of the critical watershed. Location of the largest fossil fuel power plant in California at the mouth of Elkhorn Slough, the potential of a deepwater tanker terminal offshore, and a proposed freeway extension from the Pajaro River to Castroville have raised major issues of oil spillage, air quality protection, and wetland preservation.

Although the major part of Elkhorn Slough is in public ownership, neither the critical watershed nor the wetland resource itself is adequately protected. A special study is proposed to assess the effects of continued residential development in the critical watershed of the entire slough system and to establish priorities for the type and intensity of development in areas affecting the sloughs.

Watershed management and acquisition programs are recommended to properly manage Elkhorn Slough as an estuarine sanctuary and wildlife refuge. Monterey County, the Department of Fish and Game, and the Moss Landing Harbor District, as well as local residents and industries, will participate in identifying other areas of concern, including wetland restoration and recreational facilities.

**Recreation and Development Issues.** Much of the coastline in this subregion is in public ownership, but inadequate public access and a shortage of support facilities hamper recreational use. Second-home development of existing parcels on the oceanfront south of La Selva Beach and the recent completion of Highway 1 freeway from northern Santa Cruz County to the Pajaro Valley could accelerate development pressures on agricultural and potential recreational lands.

Expansion of Moss Landing industrial and harbor facilities to meet new or existing demands, and new recreational and residential concentration, will depend primarily on protection of the wetland and agricultural resources and provision of sewage treatment facilities.



Moss Landing power plant and marina

## SUBREGION 6: LOWER SALINAS VALLEY

[See Plan Maps 26 and 28]

This subregion, like the Pajaro Valley, contains some of coastal California's most productive agricultural lands. Extending from the old Salinas River channels to Fort Ord, the valley is best known for its artichoke and lettuce crops, which enjoy important climatic and market advantages. The lower valley contains three population centers—Castroville, Marina, and Salinas, each of which has grown rapidly in recent years. Because these settlements are largely surrounded by prime agricultural lands, fragile dune and wetland habitats, and a military reservation, their options for growth are severely limited.

**Dune Protection.** Recent developments such as Monterey Dunes Colony and the Marina-Castroville freeway have encroached upon substantial segments of the unique coastal dune complex. Protection of the remaining dunes (few of which are now in public ownership) is an important Plan priority.

**Recreational Facilities.** Recreational facilities in the subregion are minimal. Salinas River State Beach and Toro Regional Park (inland) should be augmented by public acquisition of the Marina Dunes, local or regional park development in Marina, and development of a coastal and Salinas River trail system.

**Water Quality Issues.** Agriculture depends heavily upon maintenance of water quality; seawater intrusion and degradation by agricultural and domestic wastewater are serious threats. A regional wastewater treatment facility to serve Salinas and the majority of the Monterey Peninsula has been proposed for location in this subregion. Disposal options include a large Monterey Bay outfall, streamflow augmentation to the Salinas River, land treatment on the highly porous pre-Flandrian sandhill grasslands north of Marina, injection wells to establish a saltwater intrusion barrier, and possible re-use for irrigation of selected agri-

cultural lands. Several of these disposal options could accommodate growth elsewhere, but would preserve existing land use patterns at the mouth of the Salinas Valley, in accordance with Coastal Plan policies.

The impact of changing land use on groundwater supplies must be carefully investigated before subregional growth can be consistent with agriculture and watershed management policies.



South of Moss Landing

## SUBREGION 7: MONTEREY PENINSULA

[See Plan Maps 27-30]

Fronting on Monterey and Carmel Bays, this subregion contains six cities and a growing military presence and tourist industry. Its resident population numbers about 100,000. From the Victorian homes of Pacific Grove to the redwood groves of the Carmel River watershed, the peninsula offers a wide variety of scenic and recreational attractions.

**Natural and Manmade Features.** Some of the attractions of the subregion are natural features to be protected under Coastal Plan policies: Point Lobos State Reserve, the pines and cypresses of Del Monte Forest, the white sand beaches of Carmel and Asilomar, the high dunes from Marina to Monterey. Remaining agricultural lands in the Carmel Valley area are recommended for preservation. Indian occupation sites, Spanish and Mexican-era adobes, and representative buildings from American historical periods

can be found in close proximity here, and should be integrated into the Monterey State Historic Park. Local implementation programs shall establish appropriate means for restoring and enhancing natural and manmade resources: dune habitats (Asilomar and Sand City), wetlands (Canyon Del Rey), plant communities (17 Mile Drive), and historic sites (Royal Presidio of Monterey).

**Development Issues.** Growth potential, from an influx of personnel to Fort Ord, expanding convention and tourist-commercial facilities, and new subdivisions in Del Monte Forest, must be balanced against the limited water supply and protection of remaining natural areas and special urban communities. The Carmel Valley and Seaside area aquifers have been degraded by overuse, and restoration of water quality underground and water flow in the channels could



have many benefits. A management plan for the Carmel Valley watershed would be one major concern of the sub-regional plan.

**Recreational Opportunities.** Implementation of Coastal Plan policies establishing management areas along the shoreline and a coastal trail system will require special consideration in the Fort Ord-Sand City area, Pebble Beach, and south of Point Lobos. State acquisition of oceanfront meadows is underway, and will preserve a beautiful landscape from Carmel Point to Point Lobos. Another important recreation policy will seek to improve access to excellent diving areas such as Cannery Row and Carmel Bay in a manner consistent with resource protection and public safety.

**Special Study Area — Monterey Bay Dunes.** The Monterey Bay Dunes area is literally a sea of sand. Cattle, begonias,

rare dune plants, vernal ponds, commercial sand mines, Army rifle ranges, three sewage treatment plants, a hotel, a freeway, and residential developments share the sandy environment. A special study of this area is recommended to establish appropriate levels of residential and commercial development, public access and recreational use, and wastewater treatment.

The study will involve residents, local jurisdictions, and the U.S. Army in joint efforts to plan for the housing needs of Fort Ord, orderly community growth and concentration of development, effective management of water resources, avoidance of geologic hazards, and protection of the massive dunes and other natural features in the study area. Recommendations for protection of the scenic bay frontage, and for potential restoration of bay views from the freeway will be made.

## SUBREGION 8: BIG SUR COAST

[See Plan Maps 27 and 29-32]

The scenic Big Sur area is world-famous for its rugged beauty. Highway 1 from Carmel to San Simeon is a recreational area of national significance, visited each year by more than a million people. Existing conventional and wilderness camping facilities are used to capacity, and thousands of visitors are turned away every year.

**Scenic and Recreational Resources.** Grazing remains an important land use, and is a primary factor in the maintenance of vast scenic landscapes. Access to the shoreline is limited to a very few locations; there is no publicly owned access north of the Big Sur River. Thus, the most popular attraction is the recreational motoring experience, enhanced by brief stops at scenic vistas, restaurants, and craft galleries along the highway.

The U.S. Forest Service manages much of the back country, part of which is protected as the Ventana Wilderness. Between the ocean and Los Padres National Forest, the prime scenic corridor and day-use area of Highway 1, development conflicts are most acute. Although the existing Monterey County Coast Master Plan calls for the maintenance of scenic quality through "low-density" residential zoning, its 2½- to 10-acre minimums could permit as many as 10,000 residences to be built within a 100-square mile coastal watershed area. Water supplies may be inadequate for such growth.

Because of inadequate public facilities, the lack of a public information center, and no public agency with overall management authority, the recreational promise of the Big Sur coast is unfulfilled; problems of trespass, litter, vandalism, stream pollution, and overuse often go unchecked. Disastrous forest fires and mudslides in 1970 and 1972 underline the need for improved, unified resource protection. Nevertheless, because of outstanding scenic qualities, unspoiled beaches, old-growth redwood forests, and central location within a few hours drive of both the State's major population centers, the Big Sur coast represents one of the nation's best remaining preservation opportunities.

**Highway 1 Capacity Constraints.** In addition to possible water supply problems, however, the most obvious constraint on future development is the capacity of Highway 1. Expansion of the road would be very costly and cause severe environmental impacts, conflicting with Coastal Plan policies. Peak weekend traffic is already congested, causing competition between residential and recreational users. Virtually a closed system, the 90-mile stretch of Highway 1 along the Big Sur Coast must serve several major purposes, both in response to traditional demands and to meet Coastal Plan policies.

**Special Study Area — Carmel River to Cambria.** A special study of the Big Sur Coast, from Carmel River to Cambria, is required to resolve access issues, particularly the priorities between recreational and residential use of the remaining capacity of Highway 1, and to establish preservation measures for the scenic landscape. Participation by the U.S. Forest Service, Monterey and San Luis Obispo Counties, and coastal property owners will be essential.

The study should consider several options for achieving the objectives of the Coastal Plan: (1) improve service facilities within existing communities such as Big Sur Village and San Simeon Acres; (2) create alternative development patterns, particularly the clustering of permitted uses outside the viewshed; (3) reduce ultimate residential buildup through substantial acquisitions of land (or development rights) by State or Federal agencies; (4) initiate management actions, such as parking restrictions, to improve the quality of the recreational experience while protecting sensitive areas from overuse; (5) provide Yosemite-style public transportation, the use of which could be encouraged through a modest toll on private recreational vehicles; (6) convert the existing highway to a Big Sur State Parkway in order to provide a practical means of controlling automobile access, providing visitor information, improving fire protection, and funding acquisitions and improvements; and (7) create a system of reserves for management of sensitive areas such as the Malpas Beach-Soberanes Point area.

## SUBREGIONS 9 AND 10: MONTEREY BAY AND CENTRAL COAST OCEAN AREA

[See Plan Maps 20-21, 23-24, 26-27, 29, and 31-32]

The Central Coast Region encompasses approximately 600 square miles of offshore waters under State jurisdiction. The narrow continental shelf is penetrated by several submarine canyons, including the mile-deep Monterey Canyon off Moss Landing. Sheltered waters are rare outside the 25-mile-wide Monterey Bay; of four harbors in the region, two were dredged from wetlands and two are protected by large breakwaters. Elkhorn Slough, whose mouth forms Moss Landing Harbor, is a highly productive marine habitat, home of two endangered bird species, and represents a valuable potential aquaculture resource if water quality is improved.

Many important marine biological communities thrive here: The California sea otter, once nearly extinct, now ranges north of its official refuge well into Monterey Bay; the northern elephant seal breeds on Ano Nuevo Island within a State reserve; regulations protect the numerous offshore rocks for sea lions and seals that "haul out" and birds that breed there. Valuable kelp beds support fish, invertebrates, and otters. Rich tidepools are located along much of the rocky shoreline; outstanding examples at Point Lobos and Moss Beach are preserved and provide recreational and educational opportunities.

**Commercial and Recreational Use of the Marine Environment.** Commercial use of marine resources is an important component of the regional economy and includes kelp harvesting, aquaculture, commercial fishing, and sea water magnesium extraction. The Coastal Plan supports coastal-dependent activities such as these, and requires locations and levels of extraction that have minimal impact on biologic systems, scenic and recreational resources.

Popular recreational uses of the coastal waters include diving in Carmel Bay, surfing at Steamer Lane, and sailing on Monterey Bay. Swimming (in warm waters at Santa Cruz), surfing and diving at many other locations, and fishing off piers, breakwaters, and boats are also attractive features of this subregion. Encouragement of recreational use which does not harm the environment is an important policy of the Plan; locating areas for recreational boating expansion

and access and onshore facilities (restrooms) for surfers and divers will be important concerns of the subregional planning effort.

**Water Quality and Resource Management Measures.** Monterey Bay's currents, marine invertebrates, sand supply systems, and mineral resources are the subject of much study. Encouraging the development of information, sub-regional study will attempt to apply Plan policy guidelines to particular problem areas; open-water sewage discharges from local or regional sources, expansion or restriction of the sea otter habitat, assessment of harbor expansion needs on a bay-wide basis, development of new port facilities for Pacific Gas & Electric Company, increasing recreational impact on special underwater areas, and establishment of scenic protection measures for the highly visible bay shoreline.

Protection and improvement of water quality are vital to all uses of coastal waters, and Coastal Plan policies dealing with agricultural, toxic, thermal, sewage, and other discharges. Nearshore and poorly treated sewage discharges (as at Pillar Point, Soquel Point, and Point Pinos) pose severe aesthetic and biologic problems, and must be phased out. Scientific research in marine biology and oceanography, as conducted by Hopkins Marine Station, U.C. Santa Cruz, Moss Landing Marine Labs, U.S. Navy postgraduate school, and the California Department of Fish and Game at Granite Canyon, is strongly supported by the Plan. The data provided by these studies will be especially valuable for the establishment of effective resource management strategies.

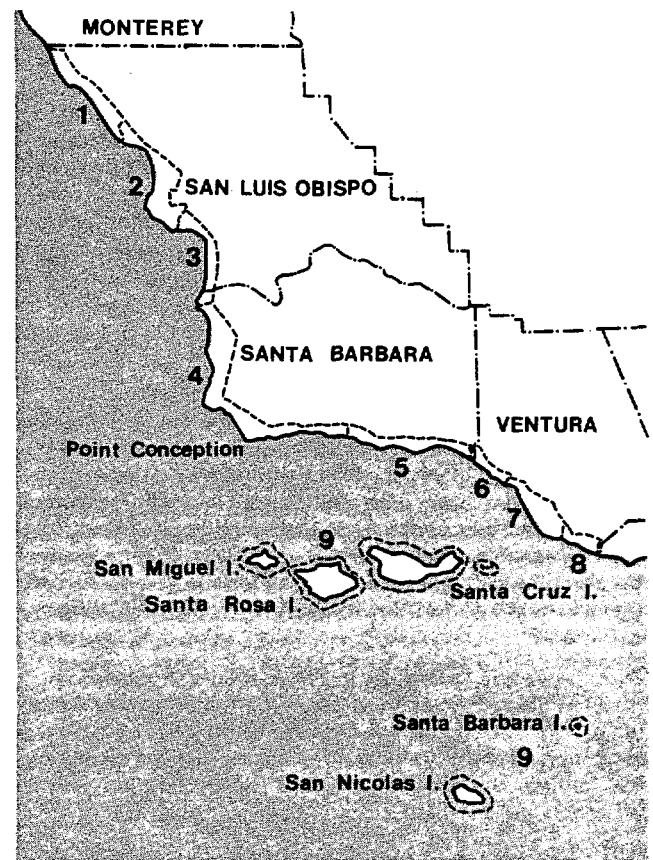
The State sanctuary currently prohibiting oil drilling in Monterey Bay could be extended to cover other sensitive offshore areas of the region, or a Federal Marine Sanctuary could be established, covering a larger area. Important benefits would accrue, particularly in protection of special habitats and beaches from the hazards of oil spillage, and such action would recognize significant hazards and constraints to the establishment of onshore petroleum facilities along most of the Central Coast.

# SOUTH CENTRAL COAST

The South Central Coast Region extends some 250 miles from San Luis Obispo County to Ventura County. The region's landscape changes dramatically, alternating from steeply sloping mountain ranges to broad alluvial plains and rolling foothills. Some parts of the region provide an uninterrupted view of ocean, beach, bluff, grassy terrace, and hillside, through which one can travel for many miles. Attractive coastal communities enhance the experience of the natural landscape of this region, providing necessary services and diverse cultural values. But these natural and manmade coastal resources are in danger of being lost, inundated by inconsistent developments. The continued existence of clean water and air, areas rich in marine life and wildlife, offshore reefs and nesting sites, rare plant communities, rocky and sandy beaches, and sand dunes that have not been altered by development, is vital to the entire State as well as to the social and economic viability of the region.

Because the South Central Coast contains many valuable and relatively unspoiled areas, it presents an almost unparalleled opportunity for coastal resource protection. It also constitutes a major opportunity for meeting increased recreational demand in the future. Simultaneously, however, the region is feeling massive pressures for energy-related developments. In no other location is the challenge for wise balancing of future needs so compelling, nor the value of what is not yet committed so great.

South Central Coast Subregions



## SUBREGION 1: SAN SIMEON-CAMBRIA

[See Plan Maps 33-34]

The San Simeon-Cambria area is the physical transition between the mountainous coast of Big Sur and the oak woodland hillsides, terraces, and bluffs typical of San Luis Obispo County. From Ragged Point south the coastal terrace widens and the hills become more gentle, covered with grass and oaks rather than chaparral. Those traveling southward on the winding scenic road along the Big Sur coast are greeted by the flashing 50-foot signs of San Simeon Acres calling attention to the motels, restaurants, and gas stations. South of San Simeon the coastal highway passes through the village of Cambria and the remnants of the Cambrial Monterey-pine forest. Highway 1 continues southward behind the coastal hills, past grassy slopes scattered with clumps of trees and a few weathered barns along with the recently revived village of Harmony. At the southern

end of the subregion the highway emerges at the mouth of Villa Creek and traverses southeast along the inland edge of an open grassy terrace from which it is possible to see the community of Cayucos (lying ahead across Estero Bay) and, on a clear day, Morro Rock.

**Open Space Values.** The open character of this section of coastline is recognized by the Coastal Plan and in San Luis Obispo County zoning and open space plans, but not in adopted general plans. For example, the old general plan would allow a community of 70,000 on the undeveloped Hearst Ranch. Current agricultural land uses are primarily responsible for the maintenance of the outstanding scenic character of the subregion. This subregion provides grazing for beef cattle with early calves.

The community of Cambria is concerned with the preservation of streams and hillsides, the continued existence of the pine forest, and the loss of views from their homes, as increasingly larger homes are built along the immediate shoreline. Cambria was originally subdivided into 25-foot-wide lots in the 1920s, but only a third of the lots have been built upon. Steep hillside lots that presently form the wooded backdrop of the town would be unbuildable if the trees are to be saved; other lots on the bluffs will probably, in the long run, require retaining walls and riprap on the beaches to protect the houses.

**Natural Habitats.** Anadromous fish streams and numerous small marshes, canyons abundant in biological life forms, and scattered varied habitats for land species are common and important natural coastal resources. Habitats for abalone, lobster, and other nearshore species and their predators, including the sea otter, lie offshore. Kelp beds sustain fisheries and reflect the relatively undisturbed and delicate marine environment of the subregion.

**Recreational Resources.** San Simeon State Park attracted 1.2 million visitors during 1974, and the majority toured Hearst Castle State Historical Monument. Highway turnouts and the State Parks currently provide over 300 day-use spaces, which are used to capacity during the warmer months. Some bluff-front lots in Cambria are State-owned, providing small parks with wild flowers and natural bluffs. The cold and rocky beaches of the subregion are used for walking, photography, fishing, and SCUBA diving. South of Cambria the only coastal access and view of the untouched coastal terrace is provided by the Cambria Air Force Base parking lot.

**Plan Issues and Proposals.** Public comment in the subregion has strongly supported urban limit lines, preservation of agricultural land uses, protection of the existing high water quality of the ocean and streams, restrictions on stream bed mining, and prohibition of electrical generating plants.

Plan policies for this subregion, as detailed in the Map Notes, stress protection of marshes, sand dunes, habitats of rare and endangered species, and valuable marine and land habitat areas. The Plan calls for special protection for the designated special communities of San Simeon and Cambria. Highway 1 is to remain a rural two-lane road. The conflicts between agriculture and recreational uses throughout this subregion will be resolved by establishing a clear demarcation between the two in the special study described below.

**Special Study Area—Monterey County Line to Cayucos.** A special study is proposed for the area from the Monterey County line to Cayucos to (1) resolve conflicts between agricultural uses (primarily grazing) and the residential and recreational uses of Cambria, San Simeon, and Highway 1; and (2) establish a clear demarcation between agricultural uses and the public recreational uses along the coastline. To maintain this subregion as a scenic open space area, the present low-intensity grazing agricultural uses should be encouraged through appropriate zoning, limitations to urban services to serve existing developed areas, and agricultural preserve contracts. The proposed Coastal Trail shall not interfere with agricultural use, but should be established to connect State-owned recreational land and beaches. This would provide another public access to recreational areas, other than the use of automobiles. The trail shall not contribute to the degradation of the environment by passing through sensitive biological areas, such as the estuaries of San Simeon and Santa Rosa Creeks. Urban encroachment will be kept at a minimum by keeping residential development to the subdivided areas of Cambria, but at the same time protecting and maintaining the native Monterey-pine forest. The villages of San Simeon and Harmony shall be kept small and tourist-oriented. The San Simeon Acres commercial area along Highway 1 could provide additional commercial tourist facilities as the demand increases.

## SUBREGION 2: ESTERO/MORRO BAY

[See Plan Maps 34-36]

From Point Estero to Point Buchon the Central California Coastline curves inland to meet two stream valleys that join in Morro Bay, one of the largest estuaries on the coast. South of the bay are high sand dunes, which were trapped in Pleistocene times by the natural groin at Point Buchon and are known today as the Baywood Park-Los Osos Area. The Irish Hills form a mountainous barrier between the northern county coast and the subregions to the south.

Highway 1, running southeast from Point Estero along open agricultural coastal terraces, bends around Cayucos and parallels Atascadero Beach. At Morro Bay it turns inland and follows the string of Morros through agricultural and institutional land to the City of San Luis Obispo. A traveler following the coastline drives southward through the City of Morro Bay and the State Park on the edge of the bay, along suburban roads through Baywood-Los Osos, to Montano de

Oro State Park, which occupies 7,000 acres at the end of the public coastal road near Point Buchon.

**Coastal Communities.** Three distinct coastal communities are found along the shore. Cayucos, formerly an agricultural village, is still small enough to tour on foot. Morro Bay is a tourist town which began as an early fishing settlement. Baywood Park-Los Osos, subdivided in the 1890s and sold to midwesterners through magazine advertisements in the 1920s, has experienced a recent building boom.

These communities provide relatively smog-free retirement spots with small populations and distinct boundaries. Such communities have what respondents to a Regional Commission questionnaire called "a small town atmosphere"—a slow pace and information about local events. They are a safe as well as an economical place in which to retire. In

these communities a few feet of height on a house, a particular tree, a view of a small promontory, or other unmapable features of the physical environment are important to a great many people. At the same time community residents expect government to be close, informed, and flexible, and not to unnecessarily regulate what a person may do with privately owned land.

**Natural Habitats.** The most important natural resources of this subregion are the profuse, complex system of upland streams and valleys, marshes, bays, and nearshore reefs that provide nesting and feeding sites for thousands of fish, migratory birds, and marine animals. Pelagic birds fish in Estero Bay; migratory geese land and herons nest in Morro Bay. Shorebirds, hawks, and falcons rest near the bay and prey on rodents and other birds. The abundance of birdlife is an indication of the quantity of food available in the marshes and offshore in Estero Bay. Fishermen take advantage of the clams and oysters living in the bay mud and of the variety and number of fish in Morro and Estero Bays that feed on plankton or other fish. More than 300 fishing boats of various sizes operate out of Morro Bay; landings of fish caught in nearshore areas in Morro Bay in 1973 were worth \$1.2 million.

Other natural resources include agricultural land, excellent quality groundwater, rare dune plants, and unique combinations of scrub and chaparral that shelter the remaining population of the local endangered species, the kangaroo rat.

In recent years abalone has ceased to be a viable commercial fishery in the subregion; in addition, the increasing siltation of the estuary and the inexplicable dying off of oysters have increased concern for the vulnerability of this subregion's natural resource system.

**Plan Issues and Proposals.** Within the next year major decisions may be made on converting existing small oil terminals to (1) a major supertanker facility to handle immediately 520,000 bbls/day, with an eventual capacity of 1 million bbls; and (2) a major fuel oil terminal for the power plant. The industrialization of the shoreline and the ocean in the area could result in major changes in ambient air

quality, water pollution levels, and numbers and kinds of species found.

Priority Plan policies for this subregion stress protection and restoration of the estuarine and marine resources, with development proposals to be regulated accordingly, and special protection for the coastal communities of Cayucos, Morro Bay, and Baywood Park. Selected acquisitions are designed to protect sensitive habitat areas and rare species and to aid in protection of the designated special communities. A coastal hiking trail advocated for the presently inaccessible stretch south of Montana de Oro will increase public enjoyment of this stretch of the coast.

**Special Study Area--Monterey County Line to Cayucos.** See description above under Subregion 1.

**Special Study Area--Morro Bay Watershed.** Morro Bay, which is listed as one of the top 10 priority wetlands in California by the State Department of Fish and Game and the U.S. Bureau of Sport Fisheries and Wildlife, should be the subject of a special study. The study area boundary should be considered with two objectives in mind: the primary study area would be the natural watershed drainage surrounding Morro Bay; and a secondary study area would include other bay issues such as marine littoral and coastal dynamics. The special study area would make use of the Intergovernmental Comprehensive Morro Bay Watershed Study to include policies on present and future land uses with an emphasis on natural resource conservation.

There should be regulation of land use within the watershed area to protect sensitive biological areas such as Morro Bay estuary, the kangaroo rat, peregrine falcon, great blue heron habitats, and unique and landmark vegetation. The sensitive biological areas would also be protected from recreational overuse by the public. Existing communities should plan for water supply, sewage disposal, urban development and open space. Within the South Bay area, particular attention should be paid to establishing a growth rate that does not adversely impact the existing system of water supply and groundwater recharge. The provision of urban services should be consistent with the demand and the ability of the community to finance them.

## SUBREGION 3: SAN LUIS BAY AND PISMO DUNES

[See Plan Maps 36-37]

From Port San Luis southward extends a string of small towns—Avila Beach, Pismo Beach, Grover City, and Oceano—that have distinct social and geographic identities. Highway 101 emerges from San Luis Obispo valley at Pismo Beach, turning inland again south of town. The presence of this access to sandy beaches has made Avila and Pismo Beach "the beach" for San Luis Obispo County and for communities as far east as Fresno, as well as northern Santa Barbara County.

South of Pismo Beach a pattern of agricultural plains, small creeks, wetlands, and sand dunes begins that continues

through the Nipomo dunes and into Santa Barbara County. The Pismo clam is a valuable and increasingly scarce food resource found in only a few spots along the California coast. At Pirates Cove and Beach, there are 40- to 80-foot bluffs.

**Manmade Features.** Avila is a small commercial fishing village. All the coastal communities provide inexpensive homes and overnight accommodations. Pismo Beach retains some of the original small-town feeling of a beach community. Pismo Beach, Oceano, and Grover City together provide the only widely used off-road recreational vehicle beach in the State.

At Port San Luis a lightly used harbor, little motels, small houses, an amusement park, and the State Park provide the opportunity for access by people of a wide range of incomes and interests.

**Recreation and Natural Resource Issues.** At Pirates Cove beach, one drives out a county road, parks on the bluff top, and scrambles down precipitous narrow paths to the beach. In parts of Shell Beach, tiny paths cross subdivided lots along the brink of the bluffs. The Dinosaur Caves are surrounded by foot paths. Automobiles, dune buggies, and campers drive south from Grover City to enter the dunes. In all cases, access and use is uncontrolled, primitive, unsafe, and possibly damaging to the land, vegetation, and animals. Construction of houses and motels, the conversion of the dunes portion of Pismo State Park, and wear and tear caused by the increase in the numbers of visitors will make necessary restrictions in public access over the next few years.

Between Pismo and Nipomo Dunes are 15 miles of sandy beach and dune coastline essentially dedicated to recreation and limited industrial use. The tall and dramatic dunes are singled out in many reports for their statewide and even national interest and unique vegetation. The beach south of Pismo has historically been used for camping and clamming. The advent of off-road vehicles and the increase in the popularity of recreational vehicles over the last 10 years has heightened conflicts between preservation and recreational use. State ownership of some of the dunes has

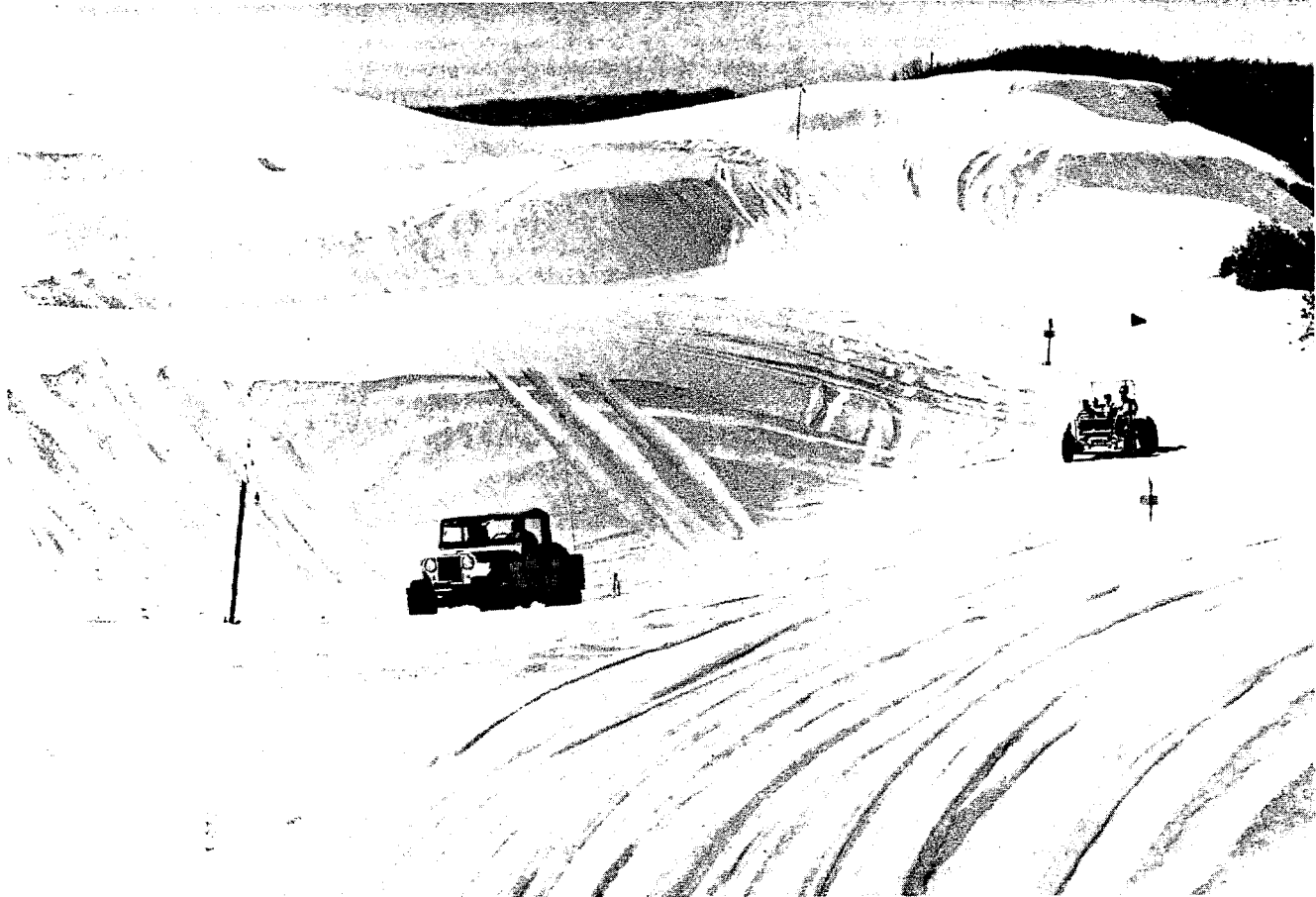
brought use fees and restrictions on camping, reducing the numbers of sites available.

Behind the dunes, freshwater marshes remain relatively untouched. They are listed for preservation in every official conservation document. Proposals under discussion for this area include increased vehicular access to the Dune Lakes and increased development around them, both apparently in conflict with Plan policies that accord them special protection. Coordinated watershed management policies are crucial to the protection of the valuable freshwater habitats of Oso Flaco and the other dune lakes. Communities of special character to be protected include Avila, Pismo Beach, and Oceano.

Other resources of the subregion include prime agricultural land, stabilized dunes planted with eucalyptus trees, and grazing land. Plans to straighten the winding rural section of Highway 1 on Nipomo Mesa are under consideration, but may conflict with Plan policies.

**Plan Proposals.** Plan policies detailed in the Map Notes envisage continued high recreational use for this area, including expansion of recreational and commercial fishing facilities at Port San Luis, and acquisitions of public access and use areas, but with controls as necessary for resource protection. Coordinated watershed management policies are crucial to the protection of the valuable freshwater habitats of Oso Flaco and the other Dune Lakes. Communities of special character to be protected include Avila, Pismo Beach, and Oceano.

Nipomo Dunes, near Pismo Beach, San Luis Obispo County



## SUBREGION 4: NORTH SANTA BARBARA COUNTY

[See Plan Maps 37-40]

The northern part of Santa Barbara County is physiographically part of San Luis Obispo County. Dune complexes continue south to the natural groin at Point Arguello. Rolling hills, a coastal terrace, and bluffs continue east of Point Conception to the Santa Barbara area. Public access is available at only three points (Surf and Jalama Beaches and Point Sal) between Guadalupe and Gaviota, a distance of about 60 miles.

**Natural Resources and Recreational Opportunities.** Presently, the use of the Guadalupe Dunes, Vandenberg, and Bixby and Hollister Ranch properties is low intensity, resulting in the presence of a large variety of plant and animal species, some unique to this undisturbed area. Kelp beds off the coast east of Point Conception provide good fishing for Santa Barbara's commercial fishing fleet. Fishing is restricted off Vandenberg.

The surfing at Hollister Ranch has international renown. Three large properties provide the longest stretch of undeveloped coastline in central California and an unprecedented opportunity for preservation with controlled access and a single coastal trail.

**Plan Issues and Proposals.** There has been some discussion of a liquefied natural gas (LNG) facility at Cojo Bay, just east of Point Conception, on land where Southern California

Edison once considered building a nuclear power plant. Because too little is yet known about the potentially severe hazards of LNG operations, an isolated spot such as this may be considered to protect human safety, although strict controls would be required to prevent further disruption of the pristine environment. In general, the Plan advocates clustering of industrial facilities that must be located outside of urban centers and, where safety to urban populations can be assured, prefers location of industrial facilities within existing developed areas. Coastal agency approval would be required for any major energy installation, as would already-required local government approval for any privately owned facility.

The Plan policies would preserve the open quality of this subregion. Habitat protection, including special protection for the Santa Ynez River, and appropriate increases in controlled public access are also priority policies in this area. The Guadalupe Dunes shall be preserved for wilderness and for low-intensity recreational use. A special study called for in the Santa Barbara Channel area (see Subregion 9 summary) will also affect development decisions along this section of the coast, especially in regard to energy-related facilities.

**Special Study Area--Santa Barbara Channel.** See description below under Subregion 9.

## SUBREGION 5: SOUTH SANTA BARBARA COUNTY/ GAVIOTA-RINCON

[See Plan Maps 41-42]

This subregion contains many urbanized areas, starting from Ellwood on the west and stretching almost continually through Carpinteria to Rincon Creek on the east. Highway 101 is the major and only transportation corridor, serving local as well as intrastate traffic. Where the coastal plain widens in Goleta, development has spread out over agricultural land, leaving only scattered parcels in farming. The Santa Barbara metropolitan area extends east to Rincon Mountain, encompassing Goleta, Santa Barbara, and Carpinteria, and north up to the foothills of the Santa Ynez mountains.

**Natural Resources.** There are well-established kelp beds off the Santa Barbara coast that support many fish. Small coastal streams support some steelhead trout. At the mouth of each little stream is a small lagoon, some large enough to maintain a pair of whitetailed kites. The foothills are covered with abundant chaparral.

The larger estuaries are in the populated valleys and these have suffered from siltation and pollution from storm drain

runoff, conversion of uplands to tree crops, and removal of vegetation cover from the hillsides. The Goleta Slough has an airport in it; what was once the Santa Barbara estuary has warehouses and sewage treatment plants; and El Estero of Carpinteria is kept biologically alive by periodic dredging. In spite of their endangered state, these estuaries supply habitat to a surprising number of birds.

Local agricultural land has been in lemons and avocados as long as 50 years. As flatland orchards age, they are replaced by flowers, greenhouses, or housing, while new tree crops are being planted on hillsides denuded for the purpose. The air, until possible construction of refineries, will remain relatively clean.

**Plan Issues and Proposals.** The subregion's water supply is from local aquifers and reservoirs in the nearby Santa Ynez Mountains. Development is presently very near or over the safe yield level of local aquifers, and plans under discussion include groundwater mining and importation from the State Water Project.

Coastal Plan policies call clearly for resolving substantial conflicts between development pressures and resources in favor of protection of coastal resources. Proposed acquisitions, trails, and support facilities will substantially increase access and recreational opportunities; acquisitions will also help give necessary special protection to Goleta Slough, Devereaux Lagoon, and El Estero. Also slated for protection are the special coastal communities of Isla Vista, downtown Santa Barbara south of Highway 101, Montecito, Summerland, and Carpinteria (from Carpinteria Avenue to the beach).

Resolutions to difficult conflict areas are to be worked out in detailed special studies of the Carpinteria Valley and the Santa Barbara Channel, which will affect decisions about on-shore energy-related facilities in this subregion.

**Special Study Area—Santa Barbara Channel.** See description below under Subregion 9.

**Special Study Area—Carpinteria Valley.** A subregional plan should be prepared for the Carpinteria Valley, with the primary objectives being to (1) resolve the conflict of competing uses (urban, agriculture, and greenhouses) of prime agricultural lands; (2) determine the total available water supply within the coastal watershed; and (3) establish a system of preservation and restoration for El Estero (Carpinteria Slough).

The Carpinteria Valley is unique because it retains a small town atmosphere, even though there are plans for further

large-scale condominium development. Too much development at too fast a pace will hasten the loss of the smaller town community-neighborhood aspect it now has. Also, further urban development would conflict with present land use—agriculture. This area is primarily Class I and II soils, and the coastal climate makes it an ideal area for agriculture, especially lemons and avocados. Flowers are also grown, but the greenhouses often cover Class I and II soil which could be used for food crops. Further development should also be controlled because water is in short supply in the entire Santa Barbara South Coast area. Additional building could cause a water shortage and drive the cost of water up for the farmer. The sewage treatment plant in Carpinteria is nearing full capacity and any extensive development will necessitate large capital outlays for plant improvement and expansion. Access to and within the Carpinteria Valley is by Highway 101, which is also the primary transportation link for the entire State.

Stringent protection of El Estero, otherwise known as the Carpinteria Slough, should be enacted. It is one of the 10 sloughs listed by the Department of Fish and Game for priority acquisition. The biological diversity of the slough has already been reduced due, primarily, to urban encroachment and siltation. Protection can be given the slough by not permitting any further urban encroachment into the slough and by reducing siltation by use of upstream watershed conservation practices that minimize grading on steep slopes and the provision of debris basins.

## SUBREGION 6: RINCON

[See Plan Map 42]

Petroleum processing, surfing, and beach cottages have been the traditional uses on the narrow terraces at the foot of Rincon Mountain in Ventura County. The surfing beaches of the subregion are well known. The subregion also functions as a transportation corridor between the Los Angeles area and Santa Barbara.

**Manmade Features.** Several clusters of cottages are found where the terrace widens. The beach cottages are slowly

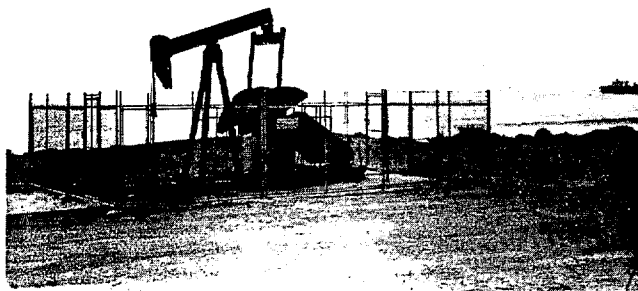
being replaced by large houses, but the clustering that now exists minimizes their impact. Highway construction on the limited beach and into the water has caused loss of sand from some beaches. The old coast highway provides access to the beaches, spots for weekend campers, and a possible site for the coastal trail.

Oil processing takes place alongside the highway and out of view on adjacent terraces. The current oil separation plants serve both onshore and offshore oil production facilities.

**Plan Issues and Proposals.** Pressures exist to intensify uses within this subregion. Plans are being discussed to build a dump in a coastal canyon and to convert agricultural lands to condominiums. Currently the brush on the hilltops is being cleared for avocado production, resulting in some increased erosion. There are several small parcels of agricultural land that afford a textural contrast with the chaparral.

Policies for this subregion, as detailed in the map notes, call for maintaining the scale of existing development, protecting the special character of the Rincon beach communities, protecting natural resources, and increasing appropriate recreational use.

**Special Study Area—Santa Barbara Channel.** See description below under Subregion 9.





## SUBREGION 7: VENTURA AND OXNARD PLAIN

[See Plan Map 43]

The Ventura and Santa Clara Rivers have cut wide floodplains through the coastal mountains. The Ventura and Santa Clara River estuaries, Mugu Lagoon, and McGrath Lake are jeopardized by effluent, fertilizers, and siltation. This area is no longer self-sufficient in terms of water; the Calleguas District imports water from the Los Angeles area. Air pollution levels are the highest in the Region.

**Agricultural Lands.** The most important resource of this subregion is the prime soil on the Oxnard Plain. While these lands provide a statewide agricultural resource, they are relatively cheap potential building sites. On the Oxnard Plain there is an immediate and difficult conflict between the Coastal Plan policy of preserving prime agricultural land and local plans for development, which include the expansion of neighborhoods with self-contained schools and parks.

Subregional study on a parcel-by-parcel basis is necessary to carry out agricultural preservation policies in this subregion and to establish appropriate urban-rural boundaries and agricultural buffer areas.

**Manmade Features.** The subregion's economic base — agriculture, oil, and the military — is reflected in the design of its cities. With the exception of parts of Ventura, the cities do not focus on the coastline.

Different and distinct beach neighborhoods are identified by the Plan for special protection. These are Pierpont Beach in Ventura, Hollywood and Silverstrand Beaches, and Oxnard Beach. The relation of each to the coastline is different, but they are the only neighborhoods that relate directly to the ocean.

**Plan Issues and Proposals.** Loss of sand from rivers and the interruption of littoral drift have contributed to the loss of beachfront houses on Oxnard Shores. The Plan calls for remedial programs and interim control of beachfront develop-

ment. Even with sand loss and previous bulldozing of dunes, there remains a pattern of broad sandy beaches, low dunes, and freshwater lagoons.

Three major intensive uses of the coastline are presently under discussion: Port Hueneme beachfront redevelopment, the Ventura Marina, and an LNG terminal. In all of them, continued public use of the coastline is a major benefit to be protected during more detailed planning. (See also the Subregion 9 discussion regarding special study of energy-related impacts throughout the Santa Barbara Channel.)

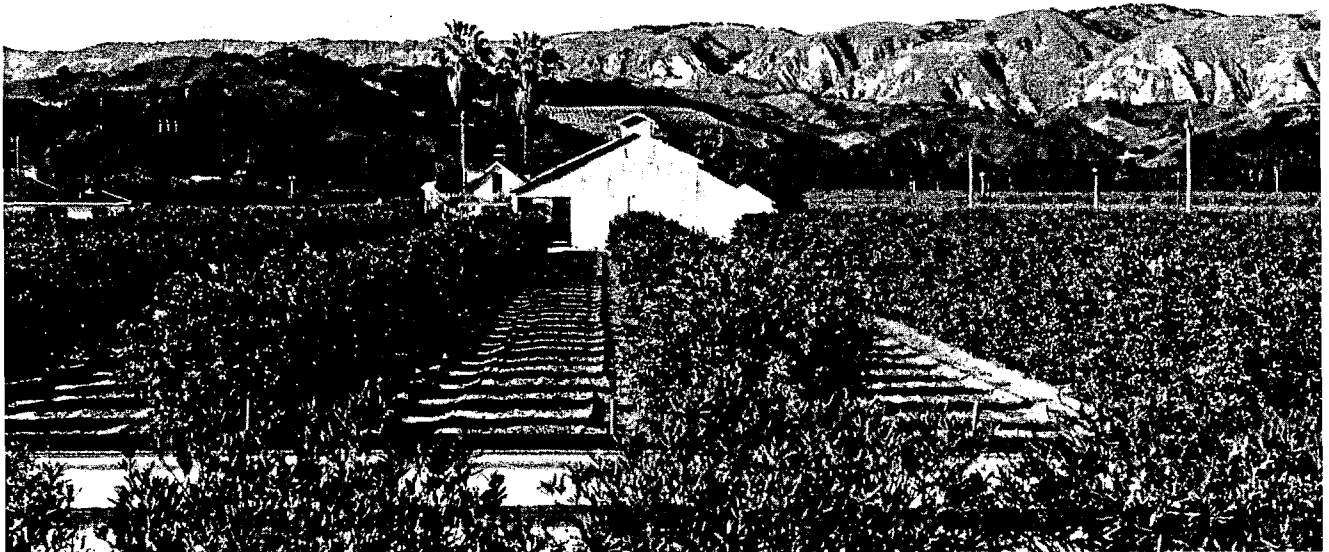
Access to the beaches in the subregion is good, but support facilities and parking are lacking. Plan policies call for improvement of access to the marinas, canals, and ports of the subregion, which is presently inadequate. The proximity to Los Angeles and Thousand Oaks and the large population of Oxnard itself make it necessary to plan for fairly heavy use of the beaches.

Other priority policies included selected acquisitions (primarily for regional recreational use), water quality protection through control of upstream discharges and runoff, and special protection for the Santa Clara River.

**Special Study Area—Ventura-Oxnard Plain.** A special study of the Ventura-Oxnard Plain area is needed to resolve conflicts between projected urban growth and prime agricultural land. The primary objectives will be to (1) determine reasonable conversions of agricultural lands necessary for the logical completion of existing neighborhoods within the Cities of Oxnard and Ventura, in accordance with Coastal Plan policies; (2) ensure that all other prime agricultural lands will remain in agriculture; and (3) develop further programs for tax equity for agricultural lands.

**Special Study Area—Santa Barbara Channel.** See description below under Subregion 9.

Citrus grove, east of Ventura



## SUBREGION 8: POINT MUGU SOUTH

[See Plan Map 44]

South of Point Mugu is an area relatively unchanged by human intrusion. The steepness of the Santa Monica Mountains limits development but encourages recreational use. Within the mountains, Point Mugu State Park preserves much of the beauty of Big Sycamore Canyon and permits recreational use of the mountains.

This subregion functions as a transportation corridor for the Los Angeles area beach users. There are turnouts along Highway 1 that campers, fishermen, and hikers use for outdoor recreation. There is a small cluster of beachfront homes in the southern portion of the region, but the steep hillsides and narrow coastal shelf limit their growth. This area is designated by the Coastal Plan to remain as open space.

The Regional Water Quality Control Board has designated the intertidal and offshore waters as an Area of Special Biological Significance. This also enhances the area for recreational use and limits any further development along the small portions of coastal terrace. Since the mountains are too rugged for further development, the area should remain open for wildlife habitat.

**Plan Proposals.** This area is already heavily used for recreation. More day-use facilities should be accommodated by starting a bus line along Highway 1 to keep traffic down. More trails in the Santa Monica Mountains will encourage foot and bicycle travelers, as will a few hostels along those routes accessible only by such modes of transportation. Recommended expansion of Leo Carrillo State Park will further increase recreational opportunities.

## SUBREGION 9: SANTA BARBARA CHANNEL AND THE CHANNEL ISLANDS

[See Plan Maps 45-49]

The Santa Barbara Channel stretches from Point Conception to Point Mugu across from the south Santa Barbara coast to the Channel Islands. The wide stretch of sea is often used by boating enthusiasts as an area for good weekend sailing. The numerous points and reefs are excellent habitats for aquatic species which sport fishermen readily use. Unfortunately, there is a conflict over the channel by recreationists, commercial fishermen, and the oil industry. The conflict has been going on for years and continues to intensify.

The Channel Islands are unique because they provide some of the remaining native plant and animal habitats. Marine-related animal species use the islands for rookeries since they are relatively undisturbed by man and marauding land animals. Also, since the islands have been cut off from the mainland, differences in evolution have occurred; thus unique animal and plant species have developed, such as the Island Fox. The bluffs and relatively barren slopes provide a sequence of linear forms from the sea. The miles of open shoreline offer innumerable habitat areas for all forms of life and the openness offers to man a sense of isolation not available anywhere on the mainland. From the mainland, the islands appear and disappear as the weather changes from crystal clear to fog.

**Access and Resource Protection.** Access to the channel and the islands is by boat. Small pleasure craft cruise the channel and anchor in island coves for a closer look at the islands. Another recreational use is offered by the sport fishing boats with day trips for fishermen without their own boats.

The only islands open to the public are Anacapa and Santa Barbara Islands, comprising the Channel Islands National Monument. However, Santa Barbara Island is not as easy to reach or land on as Anacapa. Legislation now before Congress would establish a Channel Islands National Park that would extend protection to San Miguel, Santa Rosa and Santa Cruz Islands as well.

The Coastal Plan recognizes the ecological value of the Santa Barbara Channel Islands and supports efforts to study them as a preserve. No development shall occur on the Santa Barbara Channel Islands and in the channel waters inconsistent with their status as a fragile resource area. The islands shall not be developed significantly beyond their present levels, with only low-intensity recreational use allowed. Limiting the number of visitors in the future may be necessary to preserve the islands' delicate habitat. Those islands which now are or in the future come to be publicly owned shall be administered on a low-intensity, limited-entry basis.

**Energy Facilities.** The number of oil installations permitted within the channel and the outfalls connected with such installations alter the channel considerably for recreational and commercial fishing uses. At the moment, fishing grounds in the channel are on the Ventura Flats, immediately west of Goleta, and around the islands, where there is little onshore development of any kind. Marine installations, even underwater completions, interfere with commercial fishing operations for a considerable distance around them, depending on the currents.

The Santa Barbara Oil Spill of 1969 has created a great antipathy between the general public and the oil companies. The people want greater restrictions on the methods of drilling so that another spill will not repeat the tragedies of the 1969 oil spill. Also, stricter laws for drilling and waste disposal would stop the amount of excess tar along the beaches.

No additional industrial development shall be allowed within the continental shelf, on onshore island areas, or where the fragile island resource area would be adversely affected. Completion of operations on existing leases shall be reviewed for consistency with relevant Coastal Plan policies. The necessary detailed evaluations of any extensive energy development proposals shall stress the goal of protecting valuable natural coastal resources.

**Special Study Area—Santa Barbara Channel.** The Santa Barbara Channel and the adjacent onshore areas on both the islands and the mainland are under pressure for increased use. A special study of this area should be undertaken, with the primary objectives to determine (1) the offshore and onshore impacts of State and Federal Outer Continental Shelf (OCS) oil and gas development; (2) the impacts on the social and economic structure of the South Coast Area of Santa Barbara County (Ellwood to Carpinteria); (3) the cumulative impact of all existing and proposed energy production and distribution facilities (such as two proposed LNG facilities, a proposed oil and gas separation facility, and additional oil production platforms on Federal OCS lands); and (4) the impact and safety of increased tanker traffic within channel waters. Other objectives will be established at the time the study is initiated.

## SOUTH CENTRAL COAST APPENDIX

### SPECIAL PLAN CONCERNS IN THE SOUTH CENTRAL REGION.

In addition to the general guidelines contained within the Part II policies, the following detailed provisions shall apply to development within the South Central Coast Region.

**Agriculture.** Protection of threatened prime agricultural lands, especially in the Oxnard Plain, Ventura, Carpinteria, Goleta, and Oceano, are a prime concern of the Plan in this region, as are shifts to greenhouse agriculture and to non-food production. Use changes on other agricultural lands, including grazing lands, on coastal terraces and hillsides between Ragged Point and Morro Bay, south of Montana de Oro State Park, and intermittently through Santa Barbara County to Ventura, such as erosion-prone conversions to avocados or development of energy-related facilities, shall be given special consideration by the coastal agency.

**Ocean Views from Subdivisions.** Houses built in existing subdivisions will be required to provide views of the blue water from the street. This may be achieved by side setbacks, by not planting tall tree species, and not building fences more than four feet high.

**Bluff Stairways.** Stairways over bluffs shall be limited, and only wooden stairways may be constructed without a full engineering study. No stairway may be built over a bluff more than 25 feet high without engineering and geological justification that it will be safe and not increase erosion. No stairway may be built over the face of a bluff more than 25 feet high without allowing public access from the beach to the nearest public way. Any stairway to be built on a bluff must be approved as to design. It may not overwhelm the face of the bluff and may not come so close to another stairway that it adds clutter to the environment. A proliferation of stairways should be avoided, and each stairway used by many owners. No bluff may be cut, faced, paved, or walled to allow a stairway to be built except for necessary footings.

**Bluff Protection Structures.** The visual impact of any permitted bluff protection structure shall be minimized in the following ways: (1) no structure may be more than eight feet in height without proof from a qualified engineer or geologist that a larger structure is needed; (2) walls shall not be of rubble, sandbags, or unfinished concrete; (3) walls shall be of natural materials, or of colors and textures compatible with the colors found in the rocks and sand at the site; (4) no retaining wall or seawall shall extend more than 100 feet in length without a change in direction and/or wall texture; and (5) any wall over 8 feet tall or 10 feet in length shall be approved by a qualified landscape architect.

**Bluffs and Public Access.** The public access provided in accordance with Plan policies shall reflect the density of the community and the type of use expected, and the current use by the public of the site. The access shall take into account the erosion rate of the bluffs so that it can continue for the life of the project. Where possible, access along the top of the bluff shall be provided. Maintenance and liability shall be assumed by an appropriate State agency.

**Engineering of Blufftop Development.** Any significant changes in loading, grading or filling in a bluff area, as determined, if possible, by a local planning agency in consultation with qualified engineers, shall require justification by a qualified engineer or geologist. Before any construction is permitted in a bluff area, an adequate drainage plan must be presented. In projects involving 3,000 square feet or more of floor area together with paved areas, said plan shall be prepared by an engineer. All surface runoff, including streets and paved areas, shall be drained away from the bluff face, or ample conduit capacity provided to carry this water to the toe of the bluff. No septic tank shall be allowed closer than 50 feet from the 2:1 plane of the equilibrium slope. Landscaping shall consist of plant species that will tend to limit the possibility of percolation deep into the soils of the bluffs.

# SOUTH COAST

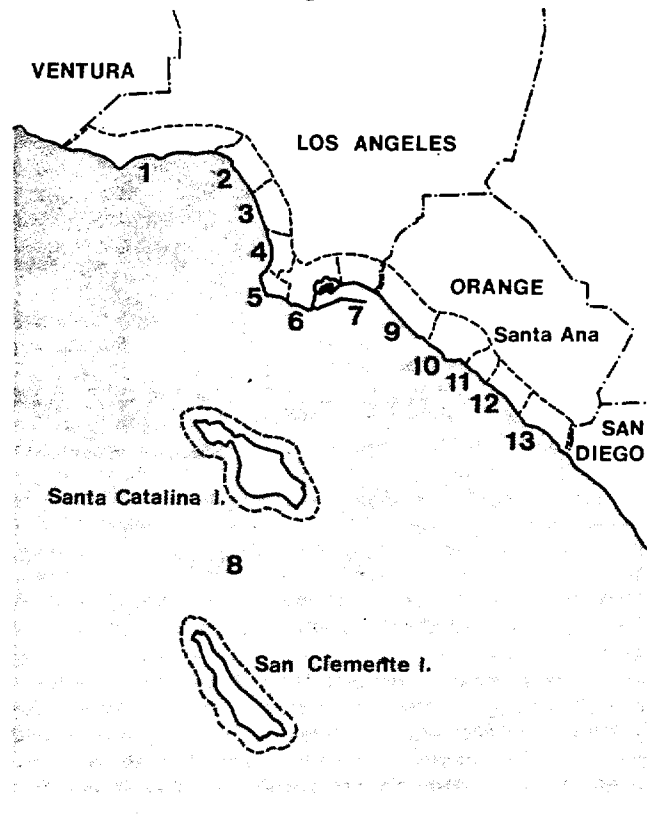
The South Coast Region—Los Angeles and Orange Counties—is essentially urbanized, but a few key areas still remain in a natural or nearly natural state. These remaining cliffs, hills, mountains, estuaries, and wetlands create dramatic contrasts to the region's urban character. Traveling along the coast by land, air, or sea, one is vividly aware of waterfront urban areas, punctuated by natural preserves. This considerable variation in topography and character of physical development is matched by substantial variations in social structure, economic and financial well-being, land ownership patterns, and jurisdictional control.

Coastal recreational and resource areas have come under severe and increasing pressures in recent years. Population growth in Orange County continues to increase rapidly. In Los Angeles, though, the population of seven million has stabilized, tremendous shifts of population and job locations within the region to the west and southwest (especially along the coast, to the airport and Marina del Rey areas, the Palos Verdes Peninsula, east Long Beach, and southern Orange County) are combining with increased recreational demands to create severe access and use conflicts. The general level of congestion has increased tremendously; historically congested areas such as Malibu and Laguna are increasingly impassable. Beach usage regularly numbers in the millions, although physical access to many areas remains poor or nonexistent. Severe degradation of the once-flourishing South Coast marine life has accompanied this growth; present watershed and water quality regulations are not effectively protecting or restoring this major resource. Current conditions promise to worsen since the South Coast will bear the burden of much of the energy production and distribution demanded in the future.

**Key Planning Issues.** Given this situation, and the projections of continued growth in the Los Angeles and Orange Counties coastal areas, pressure for new urbanization and utility facilities to meet energy demands, certain Plan policies must be regarded as vital to effective coastal planning within Los Angeles and Orange Counties:

- **Meeting Vast Recreational Demands.** The Coastal Plan advocates that substantial improvements in public access to existing beaches be made. Proposed acquisitions will provide new beach and view areas, and almost as important, the campsites, trails, bike paths, and parking to make these fully usable. The Plan stresses meeting the bulk of the future southern California recreational demand within the region, thus reducing dependence on parks, campsites, and commercial recreation facilities in distant locations, traveling to which consumes energy.
- **Protection and Restoration of Marine Resources and Water Quality.** The Plan strongly advocates concerted private and public action to restore water quality and the marine resources dependent upon it. This will demand (1) strict enforcement of present water quality standards; (2) improved siting practices for major pollution sources; (3) stricter development controls and wastewater practices within upstream watersheds; (4) reversal of the historic trend of destruction of wetlands; and (5) such additional remedial measures as stocking and stricter regula-

## South Coast Subregions



tion of consumption. These actions will yield, over the long run, vastly increased benefits from the naturally productive southern California coast.

- **Energy Conservation.** Because all of the major proposals for meeting future energy demands can substantially harm the South Coast's priceless recreation, natural, and productive resource values, a third key policy focus of the Plan must be the conservation of energy. Siting and design standards can only slow the degradation of the State's resources, both coastal and inland; only complete devotion to energy conservation will adequately reflect the true value of the coast.

Other policies are very important to the South Coast as well, and they are highlighted in each of the following sub-regional discussions. However, these three key areas form the core of the Coastal Plan's proposals in the region. It is an ambitious undertaking—to reverse simultaneously a dependence upon continued urban and industrial expansion, much directly affecting the coast, as a base for economic activity, and along with it, a tremendous surge of residential and recreational activity toward the shore as more and more people come to view it as one of the few available refuges. But any lesser goal would be unworthy of the splendor which the coast once represented, and which it can offer to sustain human needs and the human spirit.

## SUBREGION 1: MALIBU

[See Plan Maps 50-51]

This subregion extends some 25 miles from the Ventura County line to Sunset Boulevard and includes unincorporated Los Angeles County territory and a small section of the City of Los Angeles; the rugged Santa Monica Mountains backdrop is cut by deep, narrow canyons perpendicular to the coast. Malibu Creek is the largest watershed in the subregion, draining some 67,000 acres; it terminates at the Malibu estuarine lagoon. This lagoon and many of the canyons are prime habitat for birds and other wildlife. Fire, floods, and landslides periodically threaten development in these areas. The marine environment of this subregion from Malibu Point westward to the Ventura-Los Angeles County line is essentially in a natural state. Kelp beds extend intermittently in this area, providing habitat for many species of sea life. The marine environment from Malibu Point eastward to Topanga Canyon has suffered some biological impairment; kelp beds have disappeared, but reef and rocky zones still provide habitat for many fish species.

Broad sandy beaches at Leo Carillo, Zuma, Westward and Surfrider beaches provide excellent sun bathing and swimming opportunities for the public. Access to these beaches and the entire Malibu Coast is provided by Pacific Coast Highway. Its road capacity is exceeded regularly on summer weekends as recreationalists attempt to reach the beach or enjoy a scenic drive. Newly opened Dume-Kanan Road, Malibu Canyon Road, Encinal Canyon Road, and To-

panga Canyon Road link the San Fernando Valley with the beaches. The Civic Center area, located at the mouth of Malibu Canyon, is the major urban node.

Canyon residential development occurs most notably in Topanga, Tuna, and Malibu Canyons. Both commercial and residential strip development flank Pacific Coast Highway from Point Dume to Sunset Boulevard. Residential development seaward of Pacific Coast Highway has blocked access along some 13 miles of the Malibu Coast.

**Development Issues.** The key issue is how to retain the natural and scenic coastal resources responsible for Malibu's popularity in the face of persistent development pressures that threaten to suburbanize the area. In the permit zone alone, more than 2,300 dwelling units have been approved or are pending, and the South Winter Mesa area (77 acres) is zoned for an additional 1,694 units. Other major proposals include a community shopping center and a 140-room hotel-and-condominium tennis club in the Civic Center area. Development approved between February 1973 and August 1974 represented a four-fold increase over the Southern California Association of Governments' population allocations for the area. Based on the 2,300 dwellings approved and pending, the 1990 Master Plan population of 23,000 persons will be reached before 1980. Adverse impacts on coastal resources are evident: much of the ocean

Malibu



view along Highway 1 is already blocked and the road is severely congested (the California Department of Transportation says "it cannot be expected the Route 1 can adequately handle the anticipated future traffic"); public access to coastal resources has deteriorated; and failing septic tanks threaten to pollute streams and offshore waters (Malibu is not served by a sanitary sewer system).

**Plan Proposals.** Key Plan proposals in Malibu will preserve its historic function as a resort and recreation area, especially through improving public access to beaches. The Plan designates Malibu as nonurban, with priorities focused on open space, recreation and agriculture.

No major employment centers such as industrial facilities or shopping centers should be permitted except for tourist commercial facilities to be accommodated primarily east of Point Dume; commercial facilities for residents should be clustered inland of Pacific Coast Highway.

Very low-density residential use on the low rolling hills inland of Pacific Coast Highway may be appropriate after full consideration of Plan watershed, design, and development policies. Maximum open space within each development shall be retained. Public buildings might also be situated here.

Existing natural watersheds should be protected from intensive development; growth-inducing projects such as dams should not be allowed within the natural watershed. Both the Santa Monica Mountains and the Pacific Palisades should be designated as areas of high geologic risk; development in these areas should meet stringent safety standards without major alteration of the landform. Higher hills should be limited only to possibly very low density residential uses.

Major public service expansion proposals should be limited as necessary to protect key habitat and recreation resources. A sewer system should be restricted to coastal

shelf properties east of the Civic Center, and new point-source discharges prohibited. A master plan for the Civic Center area shall afford full protection to the lagoon. Widening of Pacific Coast Highway should be avoided and new access through the Santa Monica Mountains discouraged; recreation shall be given priority for the remaining existing capacity of the highway. Greater utilization of public transit for recreational and nonrecreational trips should be promoted; parking shuttle systems should be instituted. Private development on the beaches should be prohibited; land used for semi-public recreation should be retained in this use for public recreation.

Other important policies in this area include creating a marine park and reserve from the Ventura-Los Angeles County line to Malibu Point; planning for such a park should stress protection of water quality and should be coordinated with the Santa Monica Mountain Park plans. Canyon recreation trails should connect upland parks with beach areas; these trails could serve as spurs off an upland coastal trail, and should be included in a State coastal trails system. Trams from mountain parks to the beach should also be considered. A coastal scenic route should be established with special directional signs, vista points, and rest stops. To increase beach access, a State agency should be given the authority to bring suit on behalf of the public to enforce existing access rights; additional easements for both physical and visual access should be acquired.

Other acquisition proposals identified in the Map Notes will further increase public access and enjoyment, and help protect valuable natural areas. The county and State should jointly explore how further development could be phased to relate to improved transit and parkland acquisition and development.

The mooring capacity of Paradise Cove should be increased by approximately 100 boats for overnight use as a harbor of refuge. The possibility of establishing an interpretive center adjacent to Malibu Lagoon should be investigated.

## SUBREGION 2: SANTA MONICA, VENICE, AND MARINA DEL REY

[See Plan Map 51]

This subregion is bounded by Sunset Boulevard and the Ballona Creek Channel and includes the City of Santa Monica and its neighborhood of Ocean Park, part of the City of Los Angeles, including the communities of Pacific Palisades, Venice, and Palms-Mar Vista, Culver City, and the unincorporated community of Marina del Rey. Development in this subregion varies from single-family residences on the unstable hills of Pacific Palisades to concentrations of high-density and high-rise residential and commercial uses along the bluffs in Santa Monica and in the vicinity of Marina del Rey; generally, residential densities are high in the strip of land directly abutting the coast.

**Development Issues.** The marine environment of the entire Santa Monica Bay has suffered significant biological im-

pairment. Both domestic and industrial wastes have adversely affected water quality throughout the bay. The Ballona Creek area, once an extensive wetland, has been artificially modified to accommodate the canal community of Venice and the more recent development of Marina del Rey. Nevertheless, the marina, good surf, wide beaches, and fishing piers provide outstanding ocean-oriented recreation of regional significance; inland access is provided by the Santa Monica Freeway.

South Santa Monica and North Venice seek to regain and restore the character they once knew as pleasant resort villages beside the sea. The high level of recent urban development has made parking and access to the shoreline difficult. Old oil derricks, utility lines, fences, and walls of

structures that block views of the ocean and marina detract from the scenic qualities of the subregion.

**Plan Proposals.** A priority Plan proposal throughout this subregion is to increase beach and shoreline utilization, especially south of the Santa Monica Freeway. One major means will be by developing a pedestrian and bike path system linking existing public beaches, remote parking, and Marina del Rey. Also important will be restoring the original development concept of the Marina as a public recreation area, increasing access to existing recreation areas in Venice and the Marina, and increasing the amount of public recreation area in Ocean Park, Venice, and the Marina.

Access to the currently underutilized beaches, especially in the Venice-Marina del Rey areas, should be improved. A coastal access plan should include a possible remote parking-transit shuttle operation to serve the Marina, Venice Beach, and possibly the Santa Monica Beach area. Development shall not exceed recreational access capacity, particularly in Venice and the Marina.

To increase coastal recreation and viewing opportunities, the bicycle trail along the beach should be completed. Wintertime-use plans should be prepared to utilize beach resources efficiently.

Acquisitions and possible restoration will complement the access goals of the Plan, and will also supplement the Plan's water quality policies in attempting to restore the subregion's naturally high productivity. Acquisition of a park adjacent to the east side of Ballona Lagoon and the north side of the main channel is proposed. Additionally, an interagency study should be carried out to determine the potential for wetland restoration and maintenance in the Ballona Creek and Ballona Lagoon area.

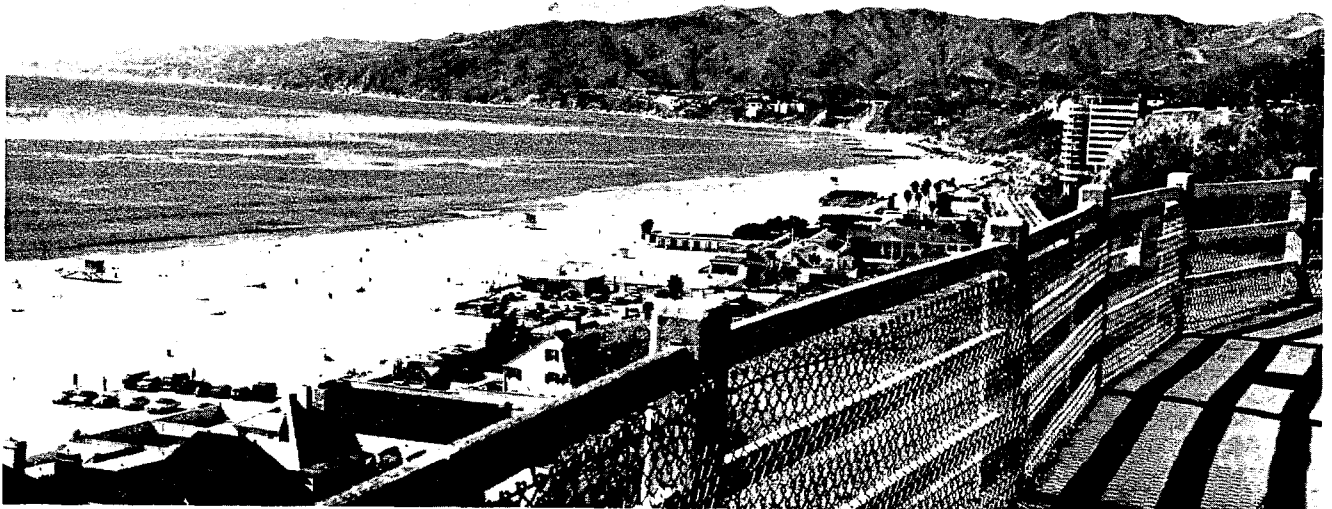
The Plan's development proposals for this subregion are designed to support the primary goal of improving public access and enjoyment. The Plan calls for concentration of high-density development in downtown Santa Monica to encourage mass transit improvement. No intensification of land uses in the Venice, Marina del Rey, and Venice

Peninsula areas should be permitted until the following problems are solved through local and State agency coordination; adequate public access and open space, traffic congestion, and land use priorities, and appropriate on-site facilities and open space requirements.

The old Venice area, including the Canal and South Beach areas of Santa Monica, should be protected and preserved. Preservation and, where necessary, restoration of remaining older structures characteristic of Venice and Ocean Park beachfront should be encouraged. Plan policies call for protecting and rehabilitating existing moderate-price housing in Venice and Ocean Park and obtaining additional such units wherever possible. Joint planning should (1) work with the county to develop "second generation" development policies for the Marina that would return significant areas to public use when existing leases expire (remaining development should be concentrated to promote transit use; priority sites for hotel-motel use should be related to an internal transit system); (2) explore with the city and the county the eventual transfer of residential density from the Marina peninsula to the eastern portion of the Marina; (3) explore with the City of Los Angeles the possibility of using city-owned lots in Venice for subsidized housing and to absorb development that would occur on unbuilt lots in the Marina peninsula (perhaps through a transfer of development rights); (4) work with the City of Los Angeles in down-zoning the Venice area and implementing low-cost housing programs. Commercial recreation sites near the Venice peninsula and the Santa Monica beach should be designated. The amount and location of commercial office development in the Marina should be limited, with the bulk of new office space relocated to areas with better mass transit potential such as downtown Santa Monica and the Los Angeles International Airport area.

Other policies for this area include the acquisition of private lands seaward of Palisades Beach Road. The entire Pacific Palisades area is one of high geologic hazard and no development in this area should be allowed unless stringent safety standards are met.

Santa Monica



## SUBREGION 3: PLAYA DEL REY TO EL SEGUNDO

[See Plan Map 51]

This subregion extends from the Ballona Creek Channel to the southern boundary of El Segundo. It includes the City of El Segundo, portions of the City of Los Angeles, the communities of Playa del Rey and Westchester, Inglewood, Hawthorne and unincorporated Los Angeles County territory. It is characterized by intensive commercial and industrial activities. Los Angeles International Airport, the Hyperion sewage treatment plant, the Scattergood power plant, the Southern California Edison power plant, and the Standard Oil refinery dominate the nearshore.

The marine environment has suffered significant biological impairment resulting primarily from the discharge of waste water and sludge from the Hyperion plant. The subregion is heavily urbanized and includes high-rise hotels, offices, and intense commercial development in the vicinity of the Los Angeles Airport. However, major undeveloped open space remains adjacent to Ballona Creek with potential for wetland restoration. Wide sandy beaches are heavily used by inland public. Dockweiler Beach is especially popular with minorities. The Airport Sand Dunes, the major surviving dune formation in the South Coast Region, lie between the airport proper and Dockweiler Beach.

**Development Issues.** The expansion and modification of industrial and commercial facilities is being planned. Presures also exist for offshore oil development. Both shall be

carefully reviewed to determine their appropriateness under Coastal Plan policies. The neighboring communities are facing the problems of open space preservation, traffic congestion, noise, smoke, and odors due to the intensification of land use.

**Plan Proposals.** The Plan's long-term goal for this subregion stresses improving the desirability and accessibility of this potentially major public use area. The recycling of non-coastal industries as they become obsolete to more coastal-dependent land uses shall be considered. No new non-coastal-dependent industry shall be permitted in the oceanfront area. Water quality improvements and consistent application of the Plan's energy conservation proposals will also be important in moving towards this goal.

Other relevant policies include maintenance of adequate buffers between incompatible uses and provision of recreational uses in these buffer areas. The Plan advocates allowing the Airport Dunes to revert to their natural state, to serve as habitat, and for use for educational purposes and compatible recreation. A proposed golf course does not appear consistent with Plan policies. To increase public visual access and to preserve natural landforms, the acquisition of bluffs is recommended as a long-range objective. Stable single-family neighborhoods should be preserved and protected from pressures for recycling to higher densities

## SUBREGION 4: SOUTH BAY

[See Plan Map 52]

This subregion extends from the northern limit of El Porto to the southern limit of Torrance. It includes the unincorporated community of El Porto, the cities of Manhattan Beach, Hermosa Beach, Redondo Beach, Torrance, Lawndale, and portions of Hawthorne and Gardena. The sea and the wide sandy beaches are the only remaining natural elements in this area; coastal-related commercial activities attract intensive public use. El Porto, Manhattan Beach, and Hermosa Beach are old beach communities with typical small-lot subdivision. The characteristic straightlined medium-rise apartments of Redondo Beach, King Harbor, the commercial pier, and the power generating plant are the visually dominant points along the shoreline. Strip commercial development flanks the north-south road-net and includes several high-intensity commercial districts; inadequate public parking results in severe traffic and parking problems during summer months, and effectively excludes non-residents in some areas.

**Development Issues.** High-rise development is occurring in the subregion; single-family development is recycling to higher densities. More tourist commercial development and redevelopment is proposed for the King Harbor area. De-

Redondo Beach





velopment pressures in Torrance may adversely affect Madrona Marsh, an important freshwater habitat.

**Plan Proposals.** The Plan calls for improving access from inland areas to increase utilization of beach areas as a major regional recreation asset and developing local transit and remote parking to take pressure off Pacific Coast Highway and to connect shoreline facilities. No development, whether private or public, shall be permitted to inhibit free access to the shoreline; the Plan stresses improving access from inland areas to increase utilization of beach areas as a major regional recreation asset. The potential for local transit and remote parking to relieve the pressure on Pacific Coast Highway and to connect shoreline facilities should be evaluated. To improve public accessibility of the South Bay's fine beaches, the Plan would limit further increases in housing density until there are major improvements in beach access, traffic circulation, and the amount of open space.

Residential recycling and rehabilitation should be encouraged at existing densities, retaining opportunities for social diversity. No intensification of residential uses which are incompatible with the existing character, or ability of the transportation, water, and sewer systems to provide an adequate level of service, shall be permitted. The Plan encourages concentration of commercial uses in inland centers incorporating pedestrian circulation and coastal access.

Other relevant Plan policies call for encouragement of private groups and property owners to participate and contribute to the beautification and enhancement of the visual character of these coastal communities; and for replacement of non-coastal-dependent industries, as they become obsolete, with more coastal-dependent land uses. Plan policies also strongly support the City of Torrance's proposal for preserving Madrona Marsh.

## SUBREGION 5: PALOS VERDES PENINSULA

[See Plan Map 52]

This subregion includes the City of Palos Verdes Estates, Rancho Palos Verdes, Rolling Hills Estates, Rolling Hills, and portions of unincorporated Los Angeles County territory. The Palos Verdes Peninsula, with its hills, cliffs, and rocky shoreline, has significant open space, some agricultural uses, and coastal sage scrub and chaparral habitat intertwined with development which has resulted in very pleasant residential communities. Harmony without monotony has been a goal of these communities. The marine environment, however, has suffered significant biological impairment; minor kelp beds in poor health remain.

**Development Issues.** High-value land is creating pressure for increased urbanization and high-density uses. There is a demand for public access to the bluffs at the edge of the water and for preservation of scenic resources, including the rocky shore.

**Plan Proposals.** High-priority Plan policies in this area include increased recreational usage, and protection and restoration of coastal resources, especially water quality, marine life, and unstable coastal bluffs. The Plan proposes expanding public shoreline access (where appropriate) and recreational opportunities by establishing a perimeter coastal trail seaward of Palos Verdes Drive West and South, linking existing and proposed recreation areas and proposed acquisitions, and by retaining a substantial portion of the remaining capacity of Palos Verdes Drive for scenic drive use.

Lighthouse property in public ownership should be retained for historic, scenic, and recreational purposes and adjacent properties acquired for compatible recreational and open space use. Acquisition of an easement along the bluffs at the edge of the water and on Federal land to increase the public's access to the coastal scenic experience and for

hiking trails, equestrian trails, and bicycle paths is also advocated.

Marine restoration, including upgrading of existing discharges, is of high priority. A rocky shore reserve should be established between Resort Point and Point Vicente. The protection of bluffs, rocky beaches, and important wildlife habitats are also major Plan priorities. The sand supply in pocket beaches should be studied to aid in developing and implementing appropriate preservation methods.

The Plan further seeks to assure that development intensities and locations will protect scenic and recreation opportunities, valuable habitats, and productive resource areas, and avoid natural hazard areas. The Palos Verdes Hills are considered high geologic hazard areas and development should not be permitted without a report evaluating faults, landslides, slumps, soil and rock creep, mudflows, drainage, erosion, and other factors affecting safety and stability.

Most of the remaining undeveloped areas seaward of Palos Verdes Drive West and South might be used for very low-density residential projects meeting Coastal Plan design criteria and providing substantial permanent open space for recreational and view corridor purposes, the preservation of agricultural lands, the protection of valuable habitat areas, and protection from geologic hazards. Plan policies will discourage ridge and canyon development. No new major employment centers, such as industry and service facilities which would encourage significant increases in population growth or traffic generation, should be permitted. Clustering residential and commercial uses will assure maximum retention of open space. Commercial uses should be generally limited to neighborhood and community uses; regional shopping centers should be prohibited unless the transportation system can adequately support their needs.

## SUBREGION 6: SAN PEDRO HARBOR AREA

[See Plan Map 52]

This subregion includes the communities of San Pedro, Wilmington, and Harbor City, the cities of Lomita and Carson, the Ports of Los Angeles and Long Beach, and unincorporated Los Angeles County territory. Housing covers the hills of San Pedro and along with undistinguished commercial areas overlooks a major urban renewal project, intensive harbor activities, oil extraction sites, a freeway, heavy industries, and major public utility plants (sewer and power). Military reservations provide magnificent views and open space opportunities adjacent to the ocean in this highly urbanized and industrialized area. A breakwater approximately eight miles long protects the twin harbors of Long Beach and Los Angeles; dredging and filling of the harbor area have had significant environmental impacts on the area's marine environment.

**Development Issues.** Planned harbor development includes major filling and dredging to accommodate increased shipping traffic and related development, and the construction of small-craft marina facilities at Fish Harbor. In the residential areas there is a trend to recycle from low- and medium-income housing to costlier multiple-family developments, resulting in the relocation of a portion of the resident population.

**Plan Proposals.** The Plan clearly contemplates some expansion of existing port facilities, but gives priority to industrial, energy, and shipping uses which are dependent on a port location, and to tourist commercial marina developments that would not conflict with other recreational needs. It also requires efficient use of existing land and water areas to minimize the need for additional landfill or dredging. Bay-wide economic and port facilities studies shall be conducted on a continuing basis for San Pedro Bay, taking into account regional, national, and international economic factors as well as social and environmental impacts. Such studies shall guide future expansion and renewal programs.

Water quality improvements and appropriate restoration measures will also be important aspects of further harbor development under Coastal Plan policies. Major oil-related and LNG development proposals shall be reviewed for conformance with the Coastal Plan. Terminals for petroleum

should meet all Coastal Plan policies, including not being larger than needed to accommodate tankers of about 150,000 dead weight tons (dwt) of conventional design or larger capacity wide-beam tankers of comparable draft.

Where recreation use does not interfere with public health and safety, port operations, and security, public access shall be permitted. Public information programs shall be expanded to encourage public participation in port planning. Scenic access, bicycle routes, and ferry service in the South Coast areas shall be developed for recreational purposes as part of the general plans of the ports, consistent with public safety and non-interference with cargo activities. Recreational water travel along the entire South Coast Region shall be encouraged.

Public recreational use is an important coastal asset to be safeguarded in future planning for development in the San Pedro area, as is the community's present diversity and function as a recreational destination for low-income and minority group persons. Harbor area shoreline access should be increased by bike routes, walkways and public ferries for educational and recreational purposes. Existing recreation areas, such as Cabrillo Beach and the Marine Museum, should be expanded and linked by trails to other parts of the harbor, to major visitor destinations, and to the Palos Verdes Peninsula. Fort MacArthur should be retained in public ownership as a major public park, and linked with a regional trail, campsite and hostel system. Water access by ferry should link the harbor with Alamitos Bay; boat tours of harbor activities should be provided consistent with public safety and port security; dry storage, efficient marina development and utilization, and tourist-commercial uses in suitable areas of the harbor should be encouraged.

To preserve the unique character of San Pedro, the general plan and the downtown redevelopment plan should be updated stressing maintenance of the social and economic diversity and taking into account the community's close ties with the harbor, and its residential-recreational use by low- and moderate-income families. Additional commercial development and most new residential development should be channeled to the downtown area.

## SUBREGION 7: LONG BEACH

[See Plan Map 53]

This subregion is bounded by the Port of Long Beach and the Los Angeles River on the west and the Los Angeles-Orange County line on the east. It includes the cities of Long Beach and Signal Hill, and sections of Lakewood, Hawaiian Gardens, and unincorporated Los Angeles County territory. The Long Beach city profile, which varies from

single-family to high-rise development, typifies the great diversity of lifestyle that exists in this city. Downtown structures are high-rise, medium-rise, and massive— a mixture of old and new. Gradual redevelopment is changing the city's character as old buildings are replaced by new office, residential, and civic structures. The eastern part of

Long Beach to Alamitos Bay is generally stable and well maintained; however, unique single-family development along the shore is being replaced by multi-storied high-density development. The Queen Mary, the Arena, Belmont Pier, and the Long Beach Marina attract recreationists from inland and surrounding cities.

**Development Issues.** The City of Long Beach is planning redevelopment projects for the downtown area, coastal areas, and industrial areas. Pressures exist for a major marina at Pier J, tourist commercial complexes, high rises in the vicinity of the central business district, and major development on vacant land in the vicinity of Alamitos Bay.

**Plan Proposals.** While the Pier J and downtown proposals may be compatible with Plan policies, the latter must be carefully evaluated in terms of Plan policies. The Plan calls for protection of both recreational and marine resources in considering development proposals for this area. Energy conservation goals will also be important in evaluating future development patterns. Further Alamitos Bay development, particularly adjacent to Pacific Coast Highway, should depend upon circulation and access improvements, including transit and trail linkages between Alamitos Bay and the Pacific Terrace area of Long Beach. The Plan also stresses water quality protection and substantially improved beach and recreational access at Alamitos Bay, Belmont Shore, Naples, and the Marina. Protected waters, a real recreational asset, are also protected by the Plan.

Increased public access to beaches and linkages between the central business district and the harbor and Alamitos Bay should be provided. Intensification of land uses around Alamitos Bay should be permitted only if adequate and en-

vironmentally acceptable concurrent measures to handle traffic are provided and appropriate measures are implemented to safeguard the water quality of the bay and to protect Cerritos Lagoon. Residential recycling in Long Beach should be primarily at existing densities, with future high-rise development concentrated and limited to the immediate downtown area, west of Alamitos Avenue. Design of new development shall stress maintenance of pedestrian access to the shore.

Residential development should include units designed for a wide range of income and age groups; recycling and rehabilitation of residential areas at the same densities should be encouraged. Development in the special communities of Naples and Belmont Shore should be regulated to enhance coastal views, improve public access to the beach, and protect the lifestyle and character of these areas.

Other relevant policies include restoration and enhancement of historical character as a beach community, and the enhancement of view points and view corridors by appropriate acquisition. If found to be consistent with Plan policies, a potential regional marina site at Pier J should include development of a major tourist and commercial recreation project and require joint utilization of existing downtown and shoreline parking facilities tied in with a local shuttle system. The Plan supports the Long Beach policy to convert oil islands to recreation use after resource depletion, and the establishment of a coastal trail for biking and hiking. Major open space vista points should be incorporated into recycled land uses on Signal Hill. Existing historic structures should be maintained.

## SUBREGION 8: SANTA CATALINA AND SAN CLEMENTE ISLANDS

[See Plan Maps 56-57]

The offshore islands of San Clemente and Santa Catalina make up this subregion. San Clemente, the more remote of the two islands, is currently restricted to military use. Unique natural habitats flourish on San Clemente Island, and the marine life offshore is in a healthy state.

**Development Issues.** The nearshore island of Santa Catalina remains almost entirely open and undeveloped except for the City of Avalon and a small developed enclave at the Isthmus. As a result of a recently signed agreement between the Santa Catalina Island Company and the County of Los Angeles, 41,000 acres of company property will be maintained for conservation, soil reclamation, and recreation and education uses. Additionally, a soon-to-be-completed agreement between the company and the Santa Catalina Conservancy will provide for the transfer of open space easement lands, White's Landing, and Parson's Landing to the Conservancy for permanent conservation. Once the agreement is effected, these lands will be conserved in perpetuity.

Camping and picnicking are now permitted at many of the coves which indent the shoreline and at designated interior locations. Skin diving is a popular underwater recreation activity frequently carried out from charter boats moored offshore.

The City of Avalon is the major entrance and destination point of visitors crossing from the mainland either by boat or airplane; it is also the major residential and commercial area providing a variety of tourist commercial, cultural, and recreational facilities. Residential development is proceeding slowly and will be contained by the extent of the open space easement, and the capacity to expand existing utilities and water supply.

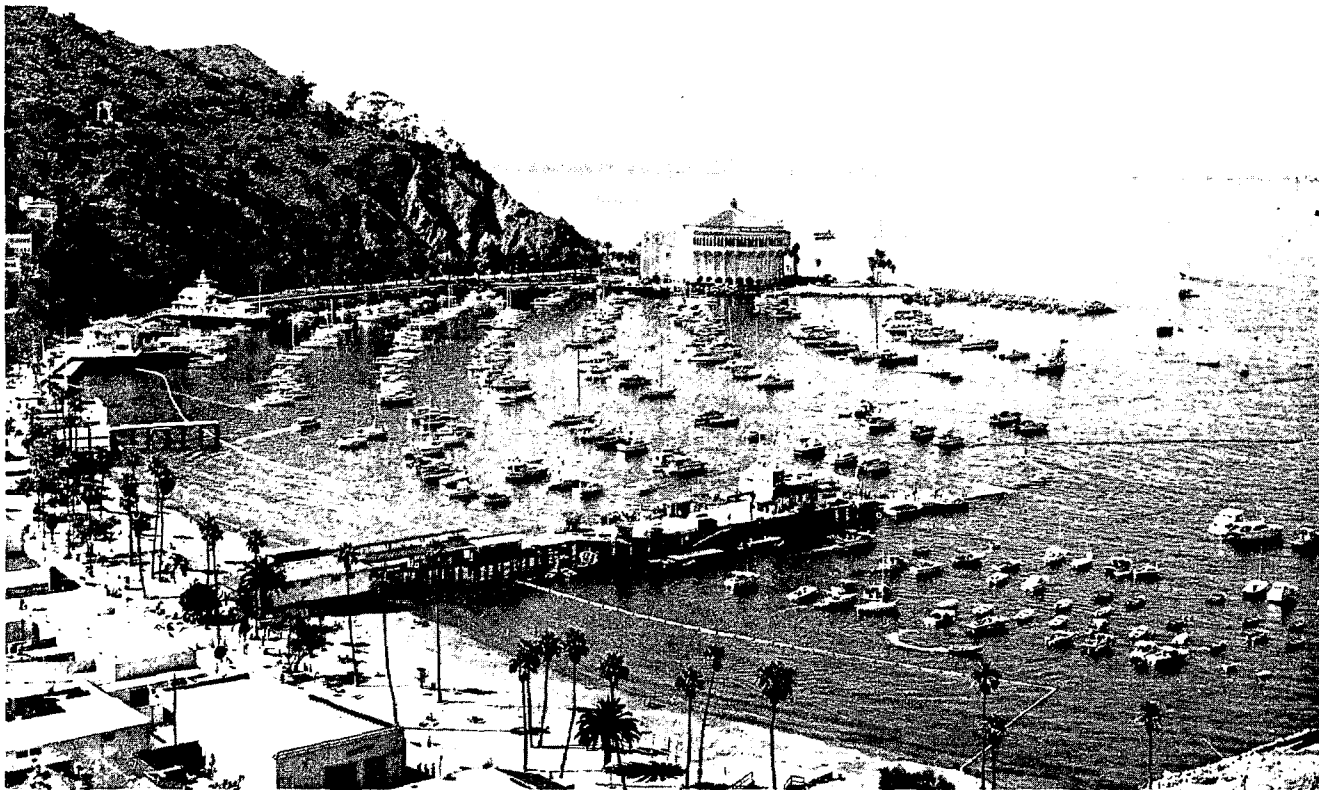
**Plan Proposals.** The Plan strongly stresses maintaining the natural productivity of the intertidal and nearshore environment around Catalina and San Clemente, along with developing a complementary fisheries management program.

Kelp beds and reefs are proposed to be designated as natural reserves, and all islets protected as sanctuaries for sea birds and marine mammals. Research and educational opportunities shall be encouraged and access to currently restricted areas should be permitted for such uses.

Coastal hill areas should be retained in permanent open space for recreational purposes to the maximum extent possible. In the unincorporated areas residential uses might be permitted only in a few clustered, planned communities, primarily for the resident population.

Other relevant policies include the prohibition of medium- and high-rise development. Wherever construction does oc-

cur, it shall be designed to be compatible with the existing character of the special community of Avalon and other settlements on the island. Plan policies also state that development should allow the profile of the islands to dominate (hence ridgetop development should not be permitted), and that it should not exceed that limit that can be supported by the local natural resources (such as water) on Santa Catalina. Design standards should strongly emphasize pedestrian and transit circulation and prohibit or discourage automobile usage; the distinctive character of Avalon and other settlements on Catalina shall be maintained. Riding trails and other public recreational facilities should be incorporated in permanent open space areas.



Avalon, Santa Catalina Island

## SUBREGION 9: NORTH ORANGE COUNTY

[See Plan Map 53]

The 12.5 miles extending from the San Gabriel River channel to the Santa Ana River channel constitutes the Orange County north coast. This area encompasses Seal Beach, Huntington Beach, and portions of Los Alamitos, Cypress, Garden Grove, Westminster, Fountain Valley, and unincorporated areas including the Sunset Beach community.

The highly valuable and extensive nearshore tidal and alluvial wetland system has become increasingly characterized by residential, recreational, and both onshore and offshore oil field development in recent years. Coastal Seal Beach has become partially isolated as it is wedged between the San Gabriel River and the Seal Beach National Wildlife Refuge. The two beach communities of Surfside and Sunset

Beach form a continuous strip just south of the Refuge. Just east of these beach communities lies Huntington Harbour, which was created by the dredging and filling of Sunset Bay. It is a high-income, boating-oriented development in which public access to Harbour waters is extremely limited except for the county-maintained boating facility at Sunset Aquatic Regional Park.

To the southeast of Huntington Harbour is the subregion's largest city, Huntington Beach, which has grown from a truck-farming community of 5,200 to a city of 150,000 in only 25 years. The area overlays large oil reserves, and most of the rich agricultural soil of the Santa Ana River floodplain within the city limits has been converted to residential or commercial use.

This subregion possesses outstanding recreational and environmental resources. The wide sandy beaches are almost entirely in public ownership and are popular for both swimming and surfing. Two excellent fishing spots are the Seal Beach and Huntington Beach piers which also function as fine viewing areas for coastal activities. The extensive wetland system serves as a valuable habitat for both flora and fauna.

**Plan Proposals.** Increasing public recreational access and use are key Plan policies for this subregion. This will mean providing new commercial recreation facilities at Huntington Harbour and downtown Huntington Beach, a buffer area and low intensity parks around Bolsa Chica, and upland support facilities and trail linkages in the central park corridor to increase use of the publicly owned beach. Supporting measures provided for in the Plan call for reserving much of the remaining Pacific Coast Highway capacity for recreational use as a scenic drive, but stressing trails, transit, and upland parking areas to remove day-use autos from congested immediate shoreline areas.

Additional Plan proposals include maintaining the nine-acre Department of Water and Power parcel in Seal Beach in public ownership primarily used for open space and recreational use, and providing beach access from the nearest public right-of-way in Surfside. Visitor serving facilities uses shall have priority on the remaining undeveloped acreage in Huntington Harbour. Monitoring water quality and boating capacity in this area is important as well, to insure

that water quality is maintained and boating capacity is not exceeded.

This subregion offers an important opportunity to fulfill the restoration goals of the Coastal Plan through the Bolsa Chica restoration project. These restorable wetlands in the Bolsa Bay area should be protected both from encroaching residential development (which should be redirected to other areas that already have urban services) and from intensive recreational proposals (marinas). The Plan calls for prohibition of development of Bolsa or Anaheim Bays or surrounding lands which would seriously impact the ecological reserves. Open space for wildlife habitat and recreational uses should be restored and maintained in the vicinity of the Santa Ana River mouth; and at Anaheim Bay, existing and restorable wetlands should be protected by directing residential growth to other locations and by instituting coordinated watershed and floodplain management.

Development patterns should support the major goals of the Plan in this subregion. Strip commercial uses along Pacific Coast Highway should be redeveloped into planned commercial clusters; a portion of the remaining capacity of the highway should be reserved for recreational use and as a scenic drive, and trails should be stressed. No more parking lots should be built on the beaches; transit and upland parking areas should be used to relieve shoreline congestion. The bluffs should be protected; vista points should be preserved and acquired. Agricultural uses should be evaluated and, where appropriate, preserved and protected. The Plan also supports the anadromous fish "put and take" program and provides public access consistent with protection of the national wildlife refuge. Recycling and rehabilitation of residential areas at the same densities should be encouraged in most areas.

Opportunities for low- and moderate-income families and minorities to reside in the area and enjoy recreational facilities should be protected and expanded. Oil-related structures in the Huntington oil fields should be removed as the resource becomes depleted. The proposed 1,400-megawatt expansion of Southern California Edison's Huntington Beach plant may not meet Coastal Plan siting criteria. (Note: See Appendix section on Examples of Subregional Plans for an illustrative case study on Huntington Beach.)

## SUBREGION 10: NEWPORT BEACH/COSTA MESA

[See Plan Map 54]

The Newport Beach-Costa Mesa subregion extends some 6.5 miles from the Santa Ana River mouth south to the southerly limits of Newport Beach. Newport Beach, Costa Mesa, and portions of Santa Ana, Tustin, Irvine, and unincorporated Orange County territory are within the subregion, and important natural areas include Upper and Lower Newport Bay and the San Joaquin freshwater marsh.

Lower Newport Bay serves as a major marina resource with a public and private berthing capacity of some 7,000 boats. The lower bay is the focus of a water-oriented lifestyle for

those who reside on the small isles within the bay and on the Balboa Peninsula. Visitors can enjoy ocean and bay vistas from the beach walk and two city piers, or from restaurants which line the perimeter of the Bay. Extensive swimming and bathing opportunities are available in this subregion, but traffic congestion and lack of parking are major barriers to beach access. Wildlife observation opportunities are available in Upper Newport Bay and the San Joaquin Marsh. Current plans call for an interpretive center and bike path along the recently acquired Upper Bay edge, and opportunities still exist to acquire bluffs above the

bay for viewing and wildlife observation. The Upper Bay area which was purchased by the State is plagued by major runoff and siltation problems.

Major employment centers are located at Newport Center, a recently developed regional shopping and office complex, and inland at the Irvine Industrial complex adjoining the Orange County Airport. The University of California at Irvine also provides a significant employment and cultural resource.

**Development Issues.** This subregion offers significant opportunities for implementing Plan policies on resource restoration and protection. Key issues include protecting and restoring the water quality of Newport Bay for habitat and low-use recreation, and preparing a waste discharge plan for the watershed (including non-point source effluent). Also important will be protecting productive agricultural lands from encroaching residential, commercial, and industrial land uses; encouraging the concentration of these uses in areas already committed; and limiting development as necessary to protect recreational travel capacity.

**Plan Proposals.** Policies applying specifically to the subregion or especially appropriate for implementation here include acquiring undeveloped land from the Santa Ana River mouth to Victoria Street as a regional park for public recreation and wildlife habitat. Significant agricultural lands should be protected by concentrating development in areas

already committed. Undeveloped upland areas adjoining Upper Newport Bay should be publicly acquired as a buffer for the bay's habitat and for compatible recreational uses; all necessary measures shall be undertaken to protect and enhance the water quality of the bay.

To preserve vestiges of historic Newport, the character of the area surrounding the Balboa Pavilion, as well as the pavilion itself, should be preserved. New structures should retain the character and density of the surrounding environment.

Another key issue for this subregion involves improving public access to existing shoreline recreation facilities; the Plan gives access by trails, trams, and transit priority over automobile access. No intensification of uses should be permitted in areas severely impacted by traffic congestion. A portion of the capacity of Pacific Coast Highway should be reserved for recreational use; resort and recreational development shall have priority over other commercial developments on the highway and the Newport Peninsula. The marine repair industry should be protected from displacement.

The Plan also calls for connecting the coastal trail network to the Santa Ana Corridor; and for improving visual and physical access to Lower Newport Bay by providing inland parking areas linked by trails and public transportation to the beaches and shoreline recreation facilities.

## SUBREGION 11: IRVINE COAST

[See Plan Map 54]

This little-developed subregion, extending some 3.5 miles between the city limits of Newport Beach and Laguna Beach, is owned primarily by The Irvine Company. The offshore is characterized by sand and mud bottoms and submerged rocks and reefs; kelp beds provide habitat for many marine species. The landforms are relatively unaltered physically, with coastal bluffs and marine terraces backing sandy beaches and rocky tidepools. The back shore is characterized by ridge and canyon topography, with coastal sagebrush, grassland, and riparian vegetation; grazing activity is presently supported on these uplands. Although there are no incorporated cities, residential development exists at Irvine Cove, Crystal Cove, and the El Moro trailer park development located on the beach just north of Abalone Point; an equestrian center exists on the marine terrace seaward of Pacific Coast Highway. This subregion is almost entirely undeveloped and remains the major opportunity for open space preservation along the Orange County coast.

**Development Issues.** Most of this subregion is owned by The Irvine Company. It has recently proposed a coastal community of 30,000-50,000 persons, with a major shoreline resort at Crystal Cove. The Irvine plans, in cooperation with the county, anticipate the completion of a six-lane extension of Highway 73 through the hills to connect with Interstate 5 behind San Juan Capistrano. Four roads through the hills would connect inland areas with Highway 1.

These very substantial development proposals could severely harm the area's coastal resources. Substantial residential growth could destroy valuable natural areas, diminish public access to recreation and commercial facilities along the coast, and create a substantial increase in vehicle miles traveled, placing further stress on already poor air quality.

**Plan Proposals.** The overall subregional growth should be restricted based on air quality, habitat and productive resource protection, and recreational use and circulation constraints. Land between the Pacific Coast Highway and the shore should be limited to permanent open space for active and passive public recreation, highway view corridors, and planned clusters of water-oriented resort, recreational and tourist uses (such as restaurants, hotels, and boating facilities) which serve the general public. A large acreage east of the highway shall be designated for a low-cost family-oriented camping facility available to the general public (such as Camp Curry in Yosemite); this might be provided through private means or it might be a further public acquisition and publicly provided facility.

In the hillside area above the coastal shelf, the steep slopes, deep canyons, and very narrow ridges should be primarily limited to open space uses. Some portions of the gentle slopes, elevated terraces, and broad ridges may be utilized for low-density residential communities including related commercial and institutional uses, provided these

uses are located and designed in a way to protect the sensitive natural resources. No commercial use abutting Pacific Coast Highway should be permitted; all commercial uses should be restricted to carefully selected sites to serve residents and visitors as appropriate.

Of primary concern is the retention of the immediate shoreline (and the access routes necessary to serve it) as a major public recreation resource. Primary concerns focus on establishing recreation access by systematically coordinating trail, overlook, and recreation areas. To this end: (1) the shoreline and area west of the highway should be reserved for public recreation and visitor serving uses; (2) significant terrace areas immediately east of the highway should be reserved as support areas for beaches; (3) key ridges and promontories, especially in the southern portion, should be reserved as public overlooks and as habitat and recreational

corridors linking canyon bottoms; and (4) canyon bottoms should be retained in a natural condition.

Allocation of highway capacity is a major concern of the Plan. Vista points of special aesthetic significance should be developed for coastal parks and coastal trails for hiking, biking, and equestrian uses by the public. Los Trancos, Moro, Emerald, Boat, Shady, and Willow Canyons should be preserved as natural areas. A marine reserve and underwater park should be established from Cameo Shores to Abalone Point, and watershed policies especially relevant here include acquiring upland areas for camping and habitat preservation (coastal canyons) and linking them with the coast by transit, trails, and bikepaths. A coastal trail through Irvine, Laguna, and Laguna Canyon should be established.

## SUBREGION 12: LAGUNAS

[See Plan Map 55]

The Laguna-South Laguna subregion extends along some 10 miles of shoreline from the northern limits of Laguna Beach to the southern boundary of the planned community of Laguna Niguel. The subregion includes the City of Laguna

Beach and the unincorporated community of South Laguna. Rising behind these developed areas, the rugged hillsides are largely covered with coastal scrub and chaparral which enhances the setting of these coastal communities. Major

Laguna Beach



canyons leading to the coast include Laguna, Aliso, and Salt Creek. Aliso Creek and watershed provide riparian woodland, coastal sage scrub, chaparral and grassland habitat. Many water-associated bird species frequent the lower creek. A private golf course is situated at the mouth of the canyon. Other prime habitat areas include the Laguna Lakes in Laguna Canyon and Niguel Lake, now part of Laguna Niguel Regional Park.

**Development Issues.** The offshore marine habitat of the subregion is extremely sensitive. Significant offshore areas are now protected as part of the Laguna, South Laguna, and Niguel Marine Life Refuges; increased public education programs should be established at these sites to aid in their preservation.

Access to the coast from the inland areas is limited to Laguna Canyon Road and Crown Valley Parkway; access to the beach in areas such as Emerald Bay and Three Arch Bay is blocked by private development. Pacific Coast Highway is highly congested, and this congestion is likely to increase with development pressures currently being experienced (especially in Laguna Niguel, in the hillsides above Laguna and South Laguna, and in other sections of southern Orange County). Local citizens are advocating a greenbelt concept to control hillside development and protect habitat.

**Plan Proposals.** Important Plan policies in this subregion will protect watershed, habitat and open space values in the San Joaquin Hills, and endorse the local government supported Laguna greenbelt concept for preservation of open space, natural land contours, habitat, and recreational use. Establishing hiking and equestrian trails in the hills will provide scenic vistas; public transit should be employed to take people from inland parking areas to the beach. The Plan also advocates acquiring the mouth of Aliso Canyon

for recreational use, and linking with the coastal trail system and Laguna greenbelt. Pedestrian access to tideland areas should be provided through private communities including opening existing public easements now blocked by private roads. An observation center should be established at Crescent Bay Point to increase visual access and enjoyment of marine resources. Recreation shall be given priority for the remaining Pacific Coast Highway capacity, and undeveloped lands seaward of the highway which could provide significant open space recreational opportunities, vistas, or view corridors and/or commercial recreation facilities, such as resorts, hotels, and campgrounds, which serve the general public should be reserved for public recreational use.

The undeveloped headland overlooking the county's beach in Laguna Niguel should be acquired for public recreation; if this is not feasible, it should be reserved for visitor-serving uses (resort and recreation). Development policies should also keep in mind the Plan goals of improving public use opportunities and maintaining coastal resources.

Policies applying specifically to the subregion or especially appropriate for implementation here include the maintaining of the higher hills for open space use, with probably only very limited low-density residential uses in selected locations. Watershed management should stress improvement of water quality. Residential uses permitted in the lower hill areas would require maximum retention of open space. New commercial uses should be limited to planned clusters inland of Pacific Coast Highway; no major commercial centers, industry or service facilities, which would generate significant increases in traffic congestion and change the existing scale and character of such special coastal communities as Laguna and South Laguna, should be permitted.

## SUBREGION 13: SOUTH ORANGE COUNTY

[See Plan Map 55]

This subregion extends along approximately 9.5 miles of southern Orange County shoreline from the southern boundary of Laguna Niguel, to the San Diego County Line. It includes the cities of San Clemente and San Juan Capistrano, and the unincorporated communities of Dana Point and Capistrano Beach. The offshore area is characterized by submerged reefs, rocks, and kelp beds, some of which are protected within the Doheny and Dana Point Marine Life Refuges. A major marina serving southern Orange County is located below the bluffs at Dana Point; associated with the marina development are tourist facilities as well as a picnic and temporary camping area. South of the marina, Doheny and San Clemente City and State Beaches provide swimming, bathing, and camping. Between Doheny and San Clement City Beach, a strip of private single-family dwellings and trailers are located directly on the beach.

**Development Issues.** Access to the subregion is provided by the San Diego Freeway which cuts through the Capistrano Valley to parallel the coast about one mile inland. The

A.T.&S.F. railroad also passes through the valley and operates over a seven-mile section of beach. The railway represents a major opportunity to provide mass transit service to the beach from major urban areas in Los Angeles and Orange Counties; however, its present alignment acts as a barrier to beach access.

Intensive residential development is taking place in the subregion. The Capistrano Valley is rapidly developing with tract housing. Planned residential development just north of Dana Point, if approved, will eliminate one of the few remaining opportunities to provide recreation opportunities where access is relatively good and so would conflict strongly with Plan policies.

**Plan Proposals.** A substantial portion of the remaining road capacity on Pacific Coast Highway shall be preserved for recreational use. Major new recreation facilities accessible to the public should be added at Dana Point, and existing



access and use throughout the subregion should be expanded. The eastern portion of the Lantern Bay property is proposed for acquisition as upland support for the harbor and State Beach with tourist commercial uses having priority; recreational vehicle camping use should be provided if possible.

The Plan proposes acquisition of the other major undeveloped holding on the Dana Point headland, the Chandler Sherman property, and maintenance in a natural condition as a low-intensity public recreation area. The feasibility of relocating the railroad abutting the beaches from San Clemente to Dana Point should be studied. Removal of housing and trailers from beach sand should be undertaken through public acquisition; prior to this action, public access to the beach should be sought through negotiation. A public overlook should be established at San Mateo Point.

Faithfully meeting Plan goals in the crucial areas of air quality, wildlife habitat, protection of productive resources, recreational needs (including adequate traffic circulation), energy conservation, and concentrated urban development will necessitate severely limiting residential growth in this

subregion. Appropriate policies include maintaining substantial open space with very limited low-density residential uses in designated locations in the higher hills. Existing natural watersheds should be protected from intensive development; growth-inducing structures such as dams should not be permitted to block streams in undeveloped watersheds. Sand supply should be studied in pocket beaches. Productive and potentially productive agricultural land should be protected from urban encroachment; public service improvements should be expanded only if consistent with resource protection. Lower elevations might be appropriate to accommodate residential and commercial uses in planned clusters retaining maximum open space. Undeveloped land above and immediately adjoining coastal bluffs should be limited in accordance with Plan policies and where possible, to open space uses for public recreation and view corridors. Grading should be allowed only in accordance with Coastal Plan design guidelines; new structures should not eliminate or reduce coastal views from lateral roads or remaining vista points. No major employment centers or other population generators should be permitted until traffic congestion can be resolved.

# SAN DIEGO COAST

The San Diego coastline is 76 miles long. It includes areas of eight cities and the unincorporated county, State-owned lands and tidelands, and substantial Federal, mostly military, holdings.

The San Diego coastline is varied in natural physical characteristics and in the patterns of use by man. It is characterized by the scenic but fragile bluffs of Camp Pendleton, the San Dieguito area, La Jolla, and Point Loma; the industrialized and urban waterfront of San Diego Bay; and the highly urbanized communities from Oceanside to the Mexican border. Some of these communities possess physical and social qualities, or serve functional purposes enhanced by their coastal location, which render them manmade resources worthy of protection, much the same as the protection of the natural resources.

The San Diego coast is also characterized by large open spaces which provide contrast to its urbanization. Such open spaces are typically large Federal holdings, such as Camp Pendleton and Point Loma, and agricultural and floricultural lands, which are important productive resources of statewide and even national significance.

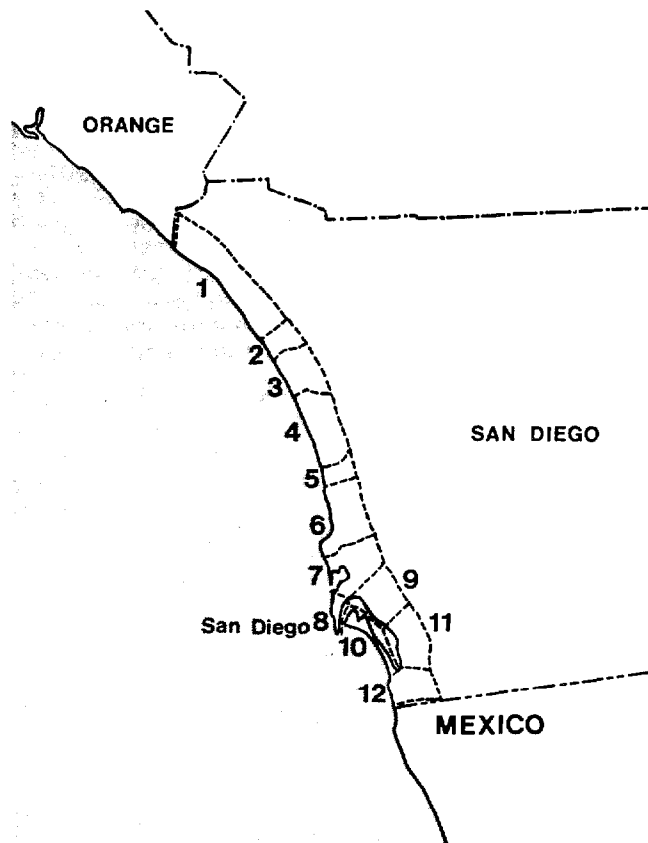
Another important distinguishing characteristic of San Diego's shoreline are the lagoons and estuaries, and marshes and mud flats, many of which are still biologically productive or capable of restoration. All are in need of careful and consistent management. San Elijo Lagoon and the Tijuana Estuary have received state and national recognition for their resource qualities. The lagoons also act as open spaces lending more distinct geographic identity to some of the region's coastal communities.

Because of its exceptional climate, San Diego has become an important national and international tourist center. Its recreational resources including Mission Bay and its beaches, draw millions from within and without the region. Tourism is a major regional industry which between Oceanside and Imperial Beach promises to grow.

While the region's beaches have been and will continue to be in growing demand, offering a variety of recreational experiences, they have, over the last several decades, been gradually eroding largely because of the damming of coastal streams as well as the construction of some shoreline structures. Beach sand along the San Diego shoreline moves in the Oceanside littoral cell from Orange County to La Jolla, terminating in the "sand sink" of the La Jolla Scripps Submarine Canyon. Along the Silver Strand, littoral flow is from the Tijuana River mouth north to Coronado where the sand has also been depleting and is being lost off the Zuniga jetty. Sand depletion problems also exist in the Ocean Beach littoral cell. In Oceanside, where the beach was 300 feet wide 15 years ago, shorefront houses must now be protected from wave action in the winter-time by seawalls. San Diego is in dire need of a sound beach sand management and replenishment program to protect shoreline development as well as its critical recreational resources.

The increased demand for shoreline access and the resi-

## San Diego Coast Subregions



dential market demands in coastal communities have led to several problems. Traffic congestion in coastal communities near the region's population centers is particularly severe in the summer months. In some areas it is virtually impossible for the non-residents to have access to the beaches. The need for alternative modes of transportation is thus highlighted in such areas.

Overly intense development on some coastal bluffs such as in Solana Beach, and on Mission Bay's Crescent Bay Shore, have not only created access problems, but have detracted from the openness and visual qualities one often associates with the coast. However, a drive along the coastline does reveal much of the beauty that remains. Such is particularly true driving on the Pacific Coast Highway from Oceanside to Mission Bay. The Plan recommends the designation of that route as a scenic highway.

Historically, the region's power plants, including the South Bay, Broadway, Encina and the San Onofre nuclear power plant, have been sited along the coastline.

With the larger power plants utilizing ocean water for cooling, and with the growing amounts of sewage being discharged into the ocean, came the growing concerns with the impacts of sewage and thermal discharges on the re-

gion's marine resources. Such resources include the abundant kelp beds and associated sport and commercial fishing, which are major basic industries in the Region. The following discussion focuses on each of the 12 subregions identified for the San Diego Region for purposes of this Plan. It is designed to focus on the problems and op-

portunities for each coastal area as a first step toward delineating what the implementation of the Coastal Plan may mean in the San Diego Region. The special studies frequently called for in the following narrative are expected to be undertaken largely by local government in cooperation with the coastal agency.

## SUBREGION 1: PENDLETON COAST

[See Plan Map 59]

**Camp Pendleton.** Camp Pendleton is a U.S. Marine Corps base characterized by vast open areas. It serves as an open space buffer between the developed coasts of Orange-Los Angeles and San Diego Counties, and includes some 17 miles of coastline.

Most of the coastal viewshed in Camp Pendleton is undeveloped. With the exception of 24,000 feet of beach frontage that is under a 50-year lease to the California Department of Parks and Recreation and is open to public use, the entire shoreline is controlled by the military. On the immediate shoreline in northern Camp Pendleton is the San Onofre nuclear power plant; unit 1 has been built and the second and third of the projected units are under construction. At the Camp's southern end are agriculture lands under lease to private growers.

The open scenery of Camp Pendleton contrasts with southern California's urbanization. The chaparral which covers its hillsides east of I-5 is a rich wildlife habitat. The most prominent physical features of the Camp Pendleton shoreline are the uniquely scenic coastal Torrey sandstone and Del Mar bluffs and barrancas, shaped partially by natural and man-induced drainage patterns. Some of the sand on the beaches below is supplied by the eroding bluffs and transported along the coast by wave action (littoral drift).

The Marine Corps manages Camp Pendleton's three wetlands as part of its nationally acclaimed natural resource conservation program. The San Mateo and Las Flores Marshes are non-tidal. Santa Margarita Marsh, the largest, is subject to tidal action. As late as 1958, steelhead trout were observed near the mouth of the Santa Margarita River. Because of their natural resource qualities, all three marshes have been designated as special study areas.

**San Onofre State Beach.** The State Department of Parks and Recreation has expressed interest in obtaining more of the Camp Pendleton shoreline for public use. Of particular interest is the beach frontage from the San Onofre State Beach north to the county line, and the beach frontage

south from the State Beach to the roadside rest. Both areas could be acquired by the State through a transfer of public lands. With the exception of San Onofre State Beach, which has been designated as an intensive use zone, the Plan tentatively designates the Pendleton beaches for low intensity day and/or overnight recreational use. Additionally, several classic surfing areas—Trestles, Church, and San Onofre—should be reserved for this coastal-dependent activity.

**Plan Proposals.** The greatest existing pressures for development within Camp Pendleton are around Basilone Road and east of I-5, where a recently constructed shopping complex serves military families residing to the east. To comply with the Plan's development policies, any further development in the area shall conform to existing landforms, be designed to enhance the scenic qualities of the area, and should be located inland (east of I-5) where alternative sites exist.

Upon the certification of the State Coast Plan by the Federal Government under the Coastal Zone Management Act of 1972, all construction activity proposed by the military should be required to be consistent with the Plan to the maximum extent practicable. Present cooperation between State and Federal agencies should continue.

Any coastal areas of Camp Pendleton declared to be surplus land should be retained in public ownership with first priority given to public recreation with careful control and management stressed. Additional shoreline that is open to the public should be reserved for low-intensity recreation. The wetlands shall be preserved with only minimal alterations as necessary to carry out a coastal agency-approved watershed management plan. Restoration of the mouth of the Santa Margarita River as spawning habitat should be explored. Any alterations to existing landforms and habitat shall include specific provision for rehabilitation of cuts and restoration of vegetation. The Camp Pendleton coastal area shall continue to serve as a non-urbanized buffer between Orange-Los Angeles and San Diego Counties.

## SUBREGION 2: OCEANSIDE

[See Plan Map 59]

The Oceanside/San Luis Rey subregion extends from Camp Pendleton to Oceanside's southern boundary. It does not

include Buena Vista Lagoon. The inland boundary encompasses the coastal-related agricultural and potential agricul-

tural lands of the San Luis Rey River Valley east to the coastal zone, line, then west along Highway 76 to Interstate 5, south on Interstate 5 to Highway 78, and east to El Camino Real.

A major natural resource of the subregion, the relatively undeveloped San Luis Rey River floodplain, is mainly used for strawberry and tomato production. The important wild-life areas of the San Luis Rey River are the river mouth and narrows (east of I-5). Another wetland area is the Loma Alta Slough. The ocean shoreline and sandy beach areas of Oceanside are also significant regional and statewide resources.

In addition, the Oceanside Pier, which is a popular fishing spot for tourists as well as residents, is one of the few areas in the region open to ocean fishing without a fee or license.

**Sand Transport Disrupted.** Construction of the Del Mar Boat Basin and Oceanside Small Craft Harbor has disrupted longshore sand transport in the Oceanside littoral cell. The harbor has become a sand trap for an estimated 2.5 million cubic yards of sand which must be dredged out periodically and deposited on the beaches to the south. The winter tides have washed away the beach, once 200-300 feet wide, and have created the need for shoreline structures to protect the South Pacific Street beachfront homes. Replenishment of the lost beach sand and the institution of a program for sand maintenance and bypass around the harbor entrance are of high priority.

**Scenic Roadways.** Pacific Street, which runs along a coastal bluff parallel to the beach, is a scenic roadway. Another important vista designated for protection by the San Diego Comprehensive Planning Organization is the view of the ocean and San Luis Rey River from I-5 at the point where the freeway crosses the river. The height of development along the Strand should be controlled so as to maintain the ocean views along the open sections of Pacific Street for drivers, pedestrians, and cyclists. Although suffering from

erosion in the south, the beaches of Oceanside are of good quality and can support intense recreational use. With additional access facilities, and non-auto transportation systems, the Oceanside beaches could easily accommodate more use. The Plan designates Oceanside as an intensive recreational use zone.

**San Luis Rey River Valley.** To eliminate or mitigate adverse effects upon the San Luis Rey River Valley, its floodplain and agricultural areas, the following development proposals should be carefully evaluated for consistency with the Coastal Plan: (1) the proposed relocation of a freeway (new Route 76) through part of the valley and its agricultural areas; (2) a major flood control channel improvement project proposed by the Corps of Engineers; and (3) continued scattered residential development in the floodplain which may result in the conversion of coastal agricultural areas and the inducement of a costly flood control project.

**Harbor/Strand Area.** The Harbor/Strand area felt considerable development pressure prior to the passage of Proposition 20, resulting in a 17-story condominium near the harbor, a 550-unit apartment project on the beach, and a proposed nine-story hotel, also in the harbor area. Continuing pressures have resulted in some fragmented development along the Strand area.

**Development Proposals.** The two most significant development proposals are expansion of the small craft harbor to a proposed 2,000 slips by the Army Corps of Engineers, and the redevelopment of the Harbor/Strand area. Both can and should have a positive influence on the immediate area and the region. Expansion of Oceanside Harbor will relieve the pressure for new marinas elsewhere (e.g., Agua Hedionda Lagoon), and can make a significant contribution to correcting the sand bypass/beach erosion problem. The proposed redevelopment project would revitalize a deteriorating beach area. Along with the harbor expansion is an opportunity to create a beach-oriented tourist commercial resort



area. Both projects should be undertaken only with careful attention to enhancing public access to and enjoyment of the shoreline, and protecting and preserving the habitat areas in the San Luis Rey river mouth. In basic conformance with CPO's Initial Coastline Study and Plan, the Coastal Plan recommends the wetland areas of the San Luis Rey river mouth and narrows for priority acquisition as a wildlife reserve. Planning for the harbor area, the river mouth, and the Strand should be carefully coordinated to ensure that cumulative development enhances coastal resources and access.

**Special Studies.** The Coastal Plan calls for special studies on the lower San Luis Rey River marsh areas and Loma Alta Slough to develop a management plan for their future protection and management. Special study of the Harbor/Strand area should apply appropriate policies on resource preservation and enhancement (especially in the river mouth area), appropriate land use and intensity of use, development standards, landscaping and design themes, transportation alternatives to the automobile (e.g., Amtrak stop, trams), and the potential of the Strand as a pedestrian mall in developing a specific area plan.

## SUBREGION 3: CARLSBAD

[See Plan Map 59]

This subregion extends from the north shore of Buena Vista Lagoon south to the Carlsbad city limit along the north shore of Batiquitos Lagoon. The eastern boundary of the subregion extends generally to El Camino Real.

The coastal area of Carlsbad between Buena Vista Lagoon and Agua Hedionda Lagoon west of I-5, is largely developed. In contrast, the area to the south, consisting largely of areas annexed over the past several years and areas that Carlsbad is in the process of annexing, is mainly undeveloped, the major exception being the San Diego Gas & Electric's power plant and some residential development adjacent to and near the shoreline south of Agua Hedionda Lagoon. The southern and inland portions of the subregion support considerable agricultural use. The Encina Water Pollution Control Facility is also in this subregion as is much of the area's newer industrial development, which is located west of I-5.

**Habitat Areas.** The prime natural resource and habitat areas of the subregion are the two lagoons. Buena Vista Lagoon is a coastal freshwater body which because of its biological significance, has been acquired as a State wildlife preserve. Agua Hedionda Lagoon is subject to tidal action, with the tidal prism maintained by San Diego Gas & Electric. The lagoon supports recreational uses such as boating and water skiing.

**Agricultural lands.** The subregion includes many acres of prime and potentially prime agricultural lands, intensively cultivated for nursery and truck crops and flower and bulb production. Carlsbad floriculture production, enhanced by a coastal location, is of statewide and national importance. The ocean shoreline itself is also a significant resource.

**Visual Qualities.** The Carlsbad area contributes much to the visual qualities of the San Diego Coastal Region. The two lagoons create visual corridors from I-5 to the ocean and to inland areas. The lagoons and surrounding open spaces provide visual relief in contrast with nearby urban areas. Perhaps the most prominent visual features of the subregion are the flower and bulb fields. When in bloom, they provide the passerby and coastal visitors with a veritable

symphony of color. Other distinct architectural and historical landmarks in Carlsbad are the Twin Inns and Royal Palms.

**Beach Access.** Carlsbad possesses some of the finest beach frontage in the entire region, but there are problems of public access along several segments of the shoreline. That area extending southward from Buena Vista Lagoon to Carlsbad State Beach does have parking, but it is insufficient to meet the overall demand and some of the parking is located on the sandy beach. Additionally, the recent rapid transition from single- to multiple-family residential development along the major access routes to the State Beach could have adverse impacts upon public beach access. Farther south, the private beach owned by the San Diego Gas & Electric Company is reserved for the use of its employees.

The other State-owned park, South Carlsbad State Beach, presents another type of access problem. While its primary function is to meet the ever-growing and legitimate demand for shoreline camping facilities, only minimal facilities have been provided for day use.

**Development Pressures.** Of all the areas in the San Diego Region, Carlsbad is experiencing the most severe pressures. A CPO report anticipated that the present population of 17,500 could grow to 46-60,000 by 1985. Of greatest concern as supported by the CPO report, is that most of the new development would occur on new lands, lands now in or suitable for agricultural use, and vacant lands that serve as buffers to the lagoons and agricultural lands. Current property tax assessment practices accelerate the conversion of agricultural lands. Many parcels too small to qualify under the Williamson Act are especially suitable for coastal-dependent floriculture and agriculture. Carlsbad's new Land Use Element of the General Plan recognizes the undesirable impacts of uncontrolled growth and proposes several strategies to manage future growth and preserve open space and resources. These include a growth monitoring plan, an urban reserve program, and the designation of "special treatment areas." Another issue critical to the future of Carlsbad is the redevelopment of its central busi-

ness district, now in its initial stages. This district is designated as a Special Study Area to promote the preparation of a new redevelopment plan that would revitalize the downtown area while simultaneously relieving development pressures on resource areas. Through redevelopment, the positive characteristics of the downtown area can be further enhanced to create a truly distinctive coastal business district.

**Plan Proposals.** Protection of the lagoons and surrounding areas, protection of floriculture and agriculture, and maximum public access to beaches are prime concerns in the Carlsbad subregion. Accordingly, the Coastal Plan designates the lagoons and their buffer and drainage areas as

special study areas, along with the productive and potentially productive agricultural lands. Four sites for priority acquisition of title or public use rights have been identified.

The Plan proposes acquisition of the land area immediately surrounding Buena Vista Lagoon to promote preservation and allow passive recreation. More intensive recreational use should be accommodated in an acquisition surrounding Agua Hedionda Lagoon, and lateral access should be provided along the shoreline.

The proposed acquisition of the Encina Power Plant beachfront and extension of South Carlsbad State Beach to the north and south will provide much needed public beach frontage for the region's fastest growing area.



Batiquitos Lagoon

## SUBREGION 4: SAN DIEGUITO: LEUCADIA, ENCINITAS, CARDIFF, SOLANA BEACH

[See Plan Map 59]

The San Dieguito subregion includes the unincorporated communities of Leucadia, Encinitas, Cardiff, and Solana Beach. The boundaries extend from (and include) Batiquitos Lagoon on the north to the Del Mar City limits in the

south. The inland boundary follows El Camino Real. Most of the land is already developed, although at a very low density, consisting primarily of single-family residences and duplexes.

**Critical Resource Areas.** The most critical and valuable resource areas include Batiquitos and San Elijo Lagoons, and the ocean shoreline and adjacent coastal bluffs. Some kelp harvesting takes place off Leucadia and Encinitas. The San Dieguito communities also contain substantial lands being used for agricultural and floricultural production.

**Batiquitos Lagoon.** Batiquitos Lagoon, rarely open to tidal action in recent years, has been polluted by sewage and runoff from San Marcos Creek. Selective and careful dredging and restoration of tidal flushing along with appropriate controls in areas draining into the lagoon could revitalize the lagoon as a valuable coastal resource for habitat and some recreational activities. The county has designated it as a regional park.

**Sal Elijo Lagoon.** San Elijo Lagoon has been recognized by the local, State and Federal governments as an outstanding coastal resource. However, it has been threatened by development in and around it. The 1973 completion of the Escondido land outfall terminated the daily flow of some 2.5 million gallons of treated sewage effluent into the lagoon from Escondido Creek. This caused substantial drying up of the inner lagoon, which continued into the migratory shorebird nesting season in 1974. This also aggravated problems of water stagnation and closing up of the lagoon mouth. The County of San Diego is preparing a management plan for the lagoon which, when combined with its pending public acquisition, should enhance and protect it. Some of the hillsides around the San Elijo Lagoon have been significantly graded and developed. The remaining natural hillsides should be protected from excessive grading to preserve the visual amenities of the lagoon surroundings and prevent excessive sedimentation.

**Shoreline Bluffs.** The shoreline bluffs of the San Dieguito area are extremely fragile, and are subject to severe erosion and sloughing. In some areas, excessive and ill-designed blufftop developments without adequate public beach access have aggravated bluff erosion and failure induced by water and foot traffic.

**Special Communities.** Based primarily upon their low-density, semi-rural character, the communities of Leucadia, Encinitas, Cardiff, and much of Solana Beach are designated in the Coastal Plan as communities with special qualities of greater than local significance for all users of the San Diego coast. In combination with the lagoons and beaches of northern San Diego County, these communities present an unique opportunity for providing a different type of recreational experience that balances the more intense beach uses in the San Diego city area. Additional reasons for this designation are the small physical scales of the communities which are complementary to coastal landforms, contribute to the area's visual attractiveness, and encourage pedestrian access to the shoreline; the diversity of coastal housing opportunities and beach-oriented commercial uses; and the existence of low-profile blufftop development set back far enough from the edge of the bluff to be visually unobtrusive from the beach. In order to protect the special qualities and pedestrian orientation of the San Dieguito communities, the scale of new residential and commercial development especially west of Interstate 5, should conform to existing community character and needs. Because of the opportunities for low- and moderate-income housing and its low-density character, Eden Gardens is also a community with special qualities of greater than local significance. Downtown and beach sections of Leucadia and Encinitas also offer lower-priced housing, especially rentals.

**Beach Access.** The beaches of the San Dieguito subregion offer substantial recreation potential. Anticipated use may be of low or moderate intensity due to the physical barrier created by the coastal bluffs. Because of the desirability of the San Dieguito beaches, the increased population in the North County, and the lack of improved public beach access facilities, the public has carved out foot paths on some of the bluffs, resulting in accelerated erosion. In response to this increasing problem, the Board of Supervisors directed preparation of a comprehensive beach access plan, approved in May of 1975, that will help meet Coastal Plan access goals. Before the passage of the Coastal Act, portions of the San Dieguito bluffs area experienced extensive condominium development. Unfortunately, some of this was inconsistent with the established character of the San Dieguito communities. It destroyed the previous sense of openness along the coastal bluffs, and failed to provide phased public access to the adjacent beaches. A case in point is the solid wall of condominium developments along the South Sierra Avenue bluffs in Solana Beach erected over the past seven years.

An additional problem in some coastal areas of San Dieguito is the lack of visual access corridors toward the sea because of continuous fences protecting the privacy of the bluff top residents. Accordingly, the Coastal Plan stresses improved physical and visual access to the San Dieguito shoreline and designates them for moderate use with intensive nodes located throughout, with protection of the two "classic" surfing breaks, Sea Cliff County Park and Cardiff Reef.

**Development Pressures.** Other valuable resource areas under development pressure are the lagoon areas and the agricultural lands. To date, the valuable and irreplaceable lagoons have not been privately developed, although residential marina projects have been proposed. As in other coastal subregions, conversion of agricultural lands to urban uses is a continuing and growing problem. Coastal Plan policies are designed to protect both of these valuable resources.

A potential issue or possible difference between the Coastal Plan and the San Dieguito Community Plan is the importance attached to the preservation of agricultural lands. This is a central concern of the Coastal Plan. Although the San Dieguito plan discusses the importance of preserving agricultural lands, the plan recommendations and land use map designations do not reflect this same commitment. The county's recently adopted initial growth policy also calls for the preservation of agricultural lands.

**Special Studies.** Batiquitos and San Elijo Lagoon, the Leucadia/Encinitas business districts, the blufftop areas of the San Dieguito communities, the Cardiff duplex transition area, along the ocean terrace, overlooking Cardiff State Beach, and the Solana Beach business district are designated as special study areas. The intent in so designating the lagoons is to coordinate County and State efforts to develop a management program that will guide their long-term protection. The management plans for San Elijo and Batiquitos should consider the drainage areas of Escondido and San Marcos Creeks, respectively, and the impact of any alteration on the lagoon environment. Both San Elijo and Batiquitos Lagoons are recommended for priority acquisition.

In addition, the Plan proposes acquisition of four beach access points and support facilities throughout the San Dieguito area. Designation of the blufftop areas of San

Dieguito will support the community beach access study, and include it in a comprehensive beach access plan. The other special study area designations should ensure the preparation of specific area development plans that would

protect special manmade and natural qualities. Two other designated priority acquisition sites would create extensions of existing State Beach units.

## SUBREGION 5: DEL MAR

[See Plan Map 60]

The Del Mar subregion includes the City of Del Mar and the Torrey Pines community planning area of the City of San Diego, which is made up of Del Mar Heights and Del Mar Terraces. The boundaries extend from Via De La Valle on the north to Carmel Valley on the south. Its inland boundary extends inland to the coastal zone boundary to include the agricultural lands of the San Dieguito Valley, then south along El Camino Real. The area is characterized by low-density, mostly single-family development. The largest parcels of vacant land include San Dieguito Lagoon and Crest Canyon.

San Dieguito Lagoon, Crest Canyon, and the Ocean shoreline and adjacent coastal bluffs are the prime natural habitat and scenic resource areas. From I-5, San Dieguito Lagoon and the lands immediately surrounding it are especially scenic. The State-owned Torrey Pines Reserve Extension also reaches into the southern portion of the subregion. The coastal bluffs of South Del Mar are geologically unstable and susceptible to erosion and landsliding.

**Special Community.** The City of Del Mar,  $\frac{3}{4}$  square miles in area, is already substantially developed and is one of the most scenic communities in the San Diego Region. Its special mixture of natural and manmade features creates a truly unique visual environment. Development in Del Mar is generally low-profile and small-scale and is located and designed to blend with and complement natural landforms. Because of its small scale and visually attractive village-like character, its historic function as a resort destination, including the race track, and because of the opportunities for pedestrian and bicycle access, beach-oriented commercial uses, and opportunities for moderate-income housing used primarily by students, the Coastal Plan designates Del Mar as a community with special qualities of greater than local significance. In addition, the Del Mar Racetrack, based upon its historic contributions to the community and the region, has also been designated as a manmade resource.

The City of Del Mar has taken steps to retain its existing character. A design review board reviews all construction, other than within some single-family residential areas, for aesthetic quality, height limitation and view preservation. A May 1974 general plan proposal recommends open space preservation and regulation and additional public acquisition of beachfront, blufftop, and other environmentally significant areas, which appear consistent with Coastal Plan policies. The City of Del Mar has already purchased land for two blufftop parks, one of which has been improved, and in conjunction with the City of San Diego, is planning the purchase of Crest Canyon.

**Beach Areas.** The Del Mar beaches, between San Dieguito Lagoon and 15th Street, are wide and sandy. During the summer months they support intensive recreational use. However, due to chronic sand depletion problems and lack of suitable parking facilities and areas for additional parking, present use of the beach sometimes approaches capacity. The beach areas south of 15th Street are suitable only for moderate use because of unstable bluffs over which there is no convenient access. Limited available public parking tends to discourage beach use by non-Del Mar residents, as do the signs posted by the Del Mar Civic Association, reading: "This Beach Is For The Use Of Residents of Del Mar."

**Development Pressures.** Prior to the passage of the Coastal Act of 1972, the Torrey Pines community planning area experienced considerable development pressures, with most obvious being the construction of several large condominium projects on the hills north of Los Penasquitos Lagoon, overlooking the lagoon and the ocean.

Currently, the major development activity in Del Mar Heights and Del Mar Terraces is, with the exception of commercial development on Carmel Valley Road, single-family residences. However, several issues of concern have emerged. Most critical has been the encroachment of development on the Torrey Pines Reserve Extension and Crest Canyon. View blockage by new hillside development is also a concern. The commercial development along Carmel Valley Road has raised issues of appropriate land use, building design, landscaping, and impact on the aesthetic and natural character of Los Penasquitos Lagoon.

**Plan Proposals.** The recently adopted Torrey Pines Community Plan, encompassing the areas of Del Mar Heights and Del Mar Terraces, has as its foundation the retention of the residential character of the community and the preservation of open space. The Plan also recommends the acquisition of Crest Canyon and additional areas to be made part of the Torrey Pines Reserve Extension.

The Coastal Plan designates San Dieguito Lagoon a special study area and a prime acquisition site to protect and enhance its resource and habitat values. A lagoon management plan should be based on the work of the recently established Del Mar Task Force to prepare a management plan for the San Dieguito Lagoon. Other priority acquisition sites are the Del Mar coastal bluffs, Crest Canyon, and several small parcels of land proposed for rounding-off the Torrey Pines Reserve Extension. The Del Mar Terraces are north of Carmel Valley Road and overlooking the Los



Penasquitos Lagoon should have special study to prepare a specific area development plan that will assure that the visual and natural resources of the lagoon and surrounding hillsides are enhanced.

The site of the old Del Mar Hotel and the lands below it to the beach are also designated as a special study area to en-

sure that the special amenities of these valuable building sites are used for coastal-related tourist-commercial development for the use and benefit of the people of the region and State as a whole. The coastal bluffs which parallel Del Mar present an opportunity to create a linear park with a coastal trail as a main feature, to be investigated in another special study.

## SUBREGION 6: TORREY PINES/LA JOLLA

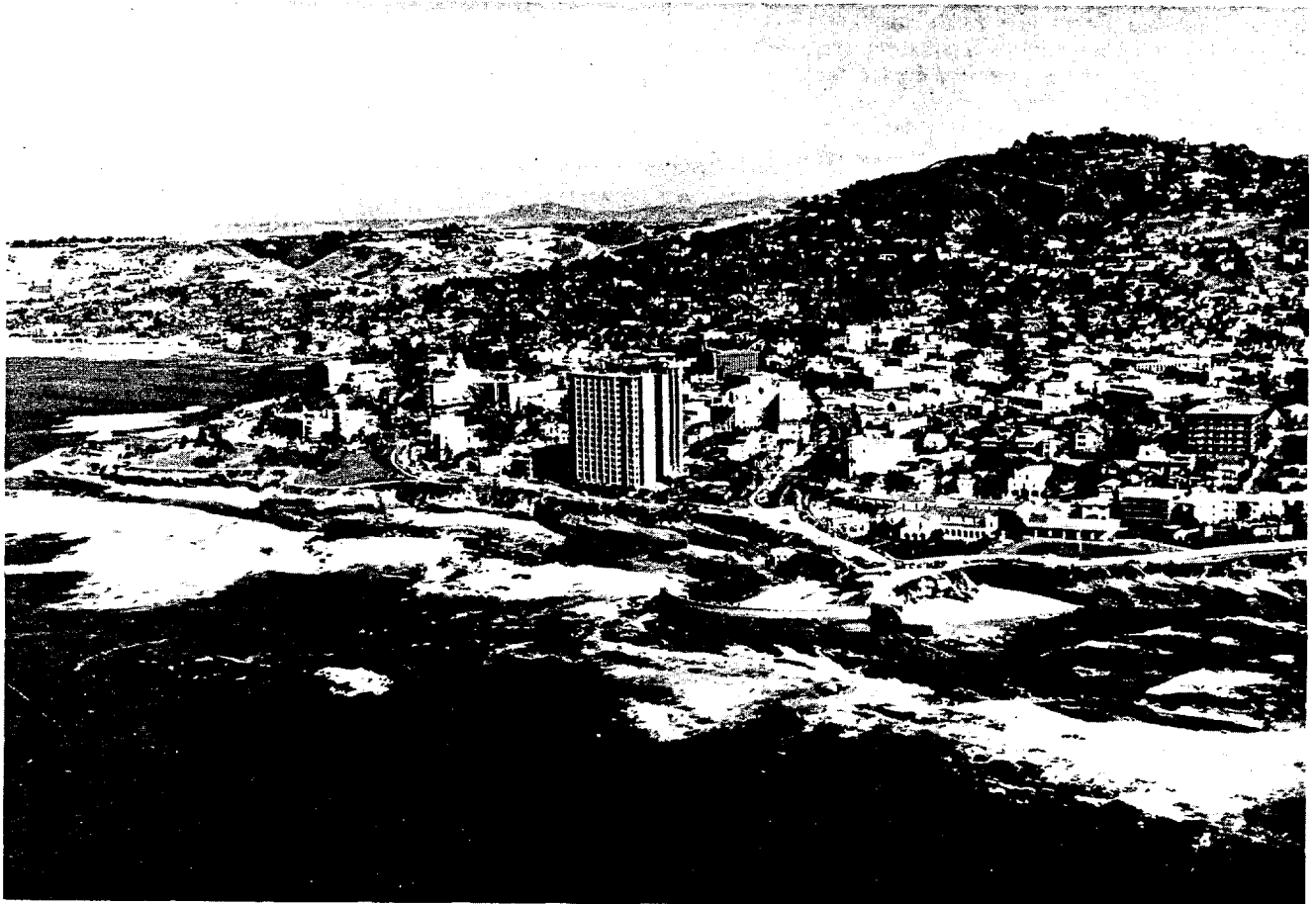
[See Plan Map 60]

The northern boundary of this subregion includes the Los Penasquitos Lagoon and extends to Carmel Valley Road. The southern boundary approximates the line between La Jolla and Pacific Beach. The inland boundary extends east to the coastal zone boundary to include the Carmel Valley and Los Penasquitos Valley areas, then south along El Camino Real. The northern portion of the subregion (Los Penasquitos Lagoon, Torrey Pines Reserve) is undeveloped, while the southern portion (La Jolla) is developed very intensively).

The prime natural resource and habitat areas are Los Penasquitos Lagoon, Torrey Pines State Reserve, the ocean

shoreline, coastal bluffs, numerous tidepools, two marine ecological reserves and kelp beds. Los Penasquitos Lagoon possesses exceptional coastal lagoon qualities, already documented in several studies as having unique educational and research values. Other studies have investigated methods of enhancing the lagoon's tidal prism, thus improving tidal flushing and habitat quality. The Torrey Pines State Reserve protects the very rare Torrey Pine and also includes portions of Los Penasquitos Lagoon. The ocean shoreline includes some of the most beautiful and varied shoreline in the San Diego Region: from the wide, sandy beaches of La Jolla Shores to the rocky headlands and pocket beaches of La Jolla, and the high and precipitous

La Jolla



bluffs and narrow beaches of Black's Beach. The La Jolla area also possesses many excellent tidepools, such as the Bird Rock area. Protection of these valuable resources is a priority concern of the Coastal Plan in the area.

**La Jolla.** La Jolla is a community with special qualities of other than local significance. The visual qualities of the residential and commercial village-like districts, the attractive and important visitor designation centers, and the remaining low and moderate income housing combine to create a coastal community of variety and charm. These attributes attract visitors from San Diego and beyond during all seasons.

A major ingredient of La Jolla's charm is its scenic setting. With hills set back from the shore, many natural promontories exist where the visual amenities of this unique community can be enjoyed. Prime vista areas include Los Penasquitos Lagoon and the ocean from I-5 and old Highway 101. The view of the ocean and downtown area from La Jolla Shores Drive above Scripps Institution and of course from the top of Mt. Soledad, offer unforgettable panoramas. Also, in addition to its value as an open space resource and habitat area, Mt. Soledad itself is one of the highest points along San Diego's coastline and, consequently, an easily identifiable landmark. Plan policies stress careful protection of these scenic resources.

**Beach Use.** An additional attraction of the subregion is recreation. La Jolla Shores, along with Mission and Ocean Beach (in subregion 7), consistently has the highest annual beach attendance figures of the San Diego Region. Wide, sandy beaches, warm and clear water, good surf, and public parking all contribute to their popularity. The pocket beaches of La Jolla offer less intense recreation experiences. Until recently, Black's Beach was sparsely used due to the barrier presented by the high bluffs. Used only by surfers and nude bathers, it offered a relatively remote recreational experience—a truly unique situation considering proximity to La Jolla. However, as a result of the publicity given the "free" beach movement, Black's Beach now experiences intense use during summer weekends.

**Plan Proposals.** Based upon the variety of use levels, the Coastal Plan recommends intense, moderate, and low intensity recreational use zones throughout this subregion. Several "classic" surfing spots have been designated by the Western Surfing Association. Black's Beach, Wind 'n Sea, and Big Rock are best known.

Blufftop areas above Black's Beach and adjacent to the Salk Institute offer coastal wind currents, and here hang-gliders, soarers, and model airplane enthusiasts compete for the

airways. A recently begun planning effort will address major issues for the proposed Torrey Pines City Park on the bluffs above Black's Beach, including improved emergency access to Black's Beach, resolution of use conflicts between hang-gliders, soarers, and model airplanes, and long-term parking solutions.

Like other coastal communities, La Jolla suffers from critical traffic congestion and parking problems. Exacerbating these are pressures to intensify commercial districts and residential neighborhoods. Although most neighborhoods are stable, an existing enclave of older, low-income housing is being replaced by expensive developments at higher densities. The La Jolla community has lost more than 360 low-income units since 1960. If this trend continues, the economic and racial diversity remaining in La Jolla will soon vanish. Also downtown La Jolla has been undergoing a transition that threatened the charm of the community itself, with small specialty shops and restaurants, which contribute so much to La Jolla's character, being replaced by corporate and financial headquarters. The continued loss of low-income housing units or substantial intensification of the commercial district with large office buildings appear contrary to Plan policies on development and manmade resources.

The La Jolla/La Jolla Shores community plan provides a basis, consistent with Coastal Plan policies, upon which to solve many of La Jolla's problems. Included are well-conceived proposals for residential and commercial design circulation (shuttle service) and improved public access to beach areas.

**Special Studies.** Special study areas designated by the Plan are Los Penasquitos Lagoon (where a nuclear power plant is projected by San Diego Gas and Electric Company), Torrey Pines City Park (proposed), and the La Jolla community planning area. A management plan is needed to guide future management and preservation of Los Penasquitos Lagoon. Because of its high resource value, the Plan recommends that the State Department of Parks and Recreation complete the acquisition of the lagoon for inclusion in the Torrey Pines Reserve. The two sites proposed for acquisition are 280 acres of estuarine habitat owned by San Diego Gas and Electric Company and an 18-acre parcel of land lying southeast of the intersection of Camino Del Mar and Carmel Valley Road. For the proposed Torrey Pines City Park and La Jolla, the intent of the Plan's special study area designations is to coordinate the planning of the City of San Diego, La Jollans Inc., other community planning groups, the Regional Commission and successor coastal agency.

## SUBREGION 7: PACIFIC BEACH, MISSION BEACH, OCEAN BEACH, MISSION BAY

[See Plan Map 60]

The land within this subregion is intensively urbanized with predominantly residential and commercial uses. Of the three beach communities, Mission Beach, at 33 dwelling

units per acre, has the highest average density. This is also the highest density in the City of San Diego. Although certain districts of Ocean Beach and Pacific Beach have

equivalent residential densities, other districts are predominantly single-family and bring the average density figures down. Of all the beach communities in the San Diego Region, these three are the most socio-economically balanced.

Mission Bay Park is a multipurpose recreational resource of regional and statewide significance, and contains the major undeveloped parcel of land in the subregion, Fiesta Island. Valuable natural resource areas of the subregion include the ocean beaches and the beaches of Mission Bay. Also of importance are the San Diego rivermouth and floodplain, the Kendall-Frost Preserve in Mission Bay, the very fragile Sunset Cliffs and tidepools, and the Famosa Street Slough.

**Special Communities.** Mission Beach and Ocean Beach are communities with special qualities of greater than local significance to be protected. Mission Beach is identified as such because of its low-profile medium-density housing; owner-occupied and medium-priced rental housing, serving student and young professional housing needs; its commercial/residential mix, which encourages pedestrian and bicycle use; and the existence of Belmont Park as a regional recreational shoreline resource, which complements beach use. Ocean Beach's special qualities include a low-profile scale of existing development and community character; diverse housing opportunities for low- and moderate-income residents, both young and old; a visitor destination of regional significance; a small scale of development, which provides opportunities for pedestrian and bicycle movement; a municipal fishing pier; and numerous beach-oriented commercial uses. As a man-altered environment with substantial recreational value, Mission Bay also has

special coastal qualities, meriting protection, including an important visitor destination center for recreation and other coastal-related commercial activities, and a significant wildlife habitat area. Sea World, Vacation Island, the Ocean Beach Pier, and Belmont Park are identified as man-made resources because of the recreational, tourist, and commercial functions they serve.

**Belmont Park.** The retention of Belmont Park versus its conversion to a passive landscaped park was the source of much controversy during the preparation of the Mission Beach Precise Plan adopted by the San Diego City Council in 1974. Since community consensus whether or not to retain Belmont Park could not be reached, the Community Plan recommended that if the City Council chooses to retain it, physical improvements to it should be required. Belmont Park's roller coaster and carousel have been officially classified by the San Diego Historical Society as historical sites.

**Visual Amenities.** Mission Bay Park is a prime visual resource because of the many vantage points around its perimeter, especially the vistas provided from I-5. Certain sections of Mission Beach, Ocean Beach, and Pacific Beach possess visual amenities to be protected under Coastal Plan policies, as evidenced by Ocean Front Walk and Bay Front Walk in Mission Beach. The undergrounding of overhead power lines and improvements along Mission Boulevard will do much to improve the visual qualities of Mission Beach.

**Beach Access.** The three beach communities of this subregion (along with La Jolla Shores in subregion 6) receive the heaviest beach use of the Region. The wide, sandy beaches are of high quality and could well accommodate

Mission Bay Park, San Diego



more use without significantly lowering the quality of the recreational experience. The factor controlling the level of use of the beaches is the availability of parking or an alternative means of access (given preference by Coastal Plan policies). Parking has always been insufficient during peak summer weekends, although the new city parking lot across from Belmont Park should help. One possible solution to the access problem, mentioned in the Mission Beach precise plan, would be the initiation of a beach shuttle service from inland parking areas. The Plan recognizes the existing and potential use levels of the subregion and designates the beach areas from Diamond Street to the Ocean Beach Pier as intensive use zones. Because of their extremely fragile nature, the Sunset Cliffs of Ocean Beach are designated as a moderate use zone from Ocean Beach pier to Ladera Street, and as a light use zone south of Ladera Street to the Navy Property. The Western Surfing Association has identified 24 "classic" surfing breaks in the Pacific, Mission, Ocean Beach subregion, with the majority in the Sunset Cliffs area; Plan policies call for protection of these areas.

**Mission Bay.** The recreational use of Mission Bay varies widely, from intensely used areas such as Crown Point to the moderate use areas of Fiesta Island. Tourist/commercial recreation is an integral part of the Mission Bay concept. In previous years, commercial development was allowed to restrict lateral public use (access along the beach); however, the City of San Diego has now adopted a policy that would prohibit such development. As part of carrying out the Coastal Plan, the City will also reevaluate and revise the Mission Bay Park Plan to ensure maintenance of resource preservation, public access, and recreational quality.

**Development Pressures.** Pacific Beach, Mission Beach, and Ocean Beach share common problems. Development pressures, which are a function of both rising demand for beach-oriented property and property tax increases, are threatening to destroy the physical, social and economic character of the beach communities. Also, as each vacant lot, single-family home, or low-density unit is converted to a multiple-unit complex, the already critical density-related problems of traffic and parking congestion will occur. This, in turn, may further restrict access to the bay and ocean beaches, as graphically demonstrated by the condominium development along Riviera Beach Drive.

The development standards in the adopted Mission Beach and Ocean Beach precise plans could go far toward implementing Coastal Plan policies calling for preserving the desired characteristics of these communities. However, such standards deal with only the physical aspects of development and can do little about such threats as market pressures and increasing property taxes. The Mission Beach precise plan suggests several alternatives to the present taxation system; however, the implementation of such alternatives goes far beyond the scope of a community precise plan.

**Special Studies.** Mission Beach, Ocean Beach, Pacific Beach and Mission Bay are designated as special study areas to coordinate the planning efforts of the City of San Diego, community planning groups, the Regional Commission and successor coastal agency. The San Diego river mouth and Famosa Street Slough are also designated as special study areas to prepare a management plan to guide the long-term utilization and protection of these resource areas.

## SUBREGION 8: POINT LOMA FEDERAL LANDS

[See Plan Map 61]

This subregion includes the military and other Federal government holdings located on the southern portion of Point Loma (south of Kellogg Street and Point Loma College). The entire subregion consists of Federal lands, which includes significant undeveloped natural areas.

On Point Loma the major resource areas to be protected under Coastal Plan policies are the Cabrillo National Monument, the entire beach and shoreline area—including tidepools, the last large undisturbed vegetation habitat lands, and a high quality intertidal area off southern Point Loma.

Manmade structures or environments that meet Plan criteria for manmade resources include the historic Point Loma Lighthouse, the Cabrillo National Monument, the Coast Guard Lighthouse, the Fort Rosecrans National Cemetery, the original site and buildings of old Fort Rosecrans, and the remnants of coastal defense installations.

Military installations and the Metropolitan treatment plant (with a rated capacity to reach 110 million gallons per day (MGD) and a 230 MGD ocean outfall, serving most of metropolitan San Diego) area noteworthy manmade features, but

do not qualify as manmade resources. Potential conflicts probably do exist between the Coastal Plan and proposals to expand the waste water treatment plant.

Perhaps the finest coastal scenic vista of the San Diego Coast Region is from Cabrillo Monument at the southernmost promontory of Point Loma; it affords an unrivaled panorama of the entire region. Additionally, the point itself must be considered the prominent visual feature and landmark of the Region.

The subregion, if further opened to the public, would have a very high recreational potential. South of Point Loma College, access is restricted by the topography to the extent that the beach can be reached only by boat. Also, military restrictions prohibit public use of this section of shoreline. These barriers have preserved this as one of the few remote stretches of ocean shoreline in southern California, matched only by portions of Camp Pendleton in the San Diego Region. Because of their immeasurable value as a remote shoreline area, the Plan designates the Point Loma military lands for light recreational use. The intent is to en-

courage the relaxation of military restrictions on public access, while still preserving the remote character.

**Military Lands.** The military lands of this subregion are not subject to the same development pressures as other areas. Military expansions on Point Loma, however, may very well encroach upon sensitive and valuable lands still in a natural state. Upon the certification of the Coastal Plan by the Federal Government under the Coastal Zone Management Act of 1972, all construction activity proposed by the military should be required to be consistent with the Plan to the maximum extent practicable. Present cooperation between the State and Federal governments should continue to ensure that unique and irreplaceable resource qualities are not diminished.

Point Loma is identified as a contingency area on the Coastal Plan Map. Any military land declared surplus should be retained in public ownership.

The Navy has stated that if its land needs were to diminish at Point Loma, the National Park Service would be the recipient of any surplus property for inclusion into the Cabrillo National Monument. The two areas of Point Loma with the highest priority for acquisition are the extension to Ladera Street Park and the Cabrillo National Monument expansion, as recommended in the Monument's Master Plan. Both areas could be acquired by a transfer of public lands. A special study by the coastal agency should ascertain proper uses and the appropriate level of use, and should assign first priority to coast-oriented public uses.

## SUBREGION 9: SAN DIEGO CITY BAYFRONT

[See Plan Map 61]

Boundaries of this urban-oriented subregion are the San Diego River Flood Control Channel to the north, the eastern boundary of the railroad right-of-way including the Santa Fe Depot to the east, San Diego Naval Station to the south, and Coronado City limits to the west. The area is extensively developed, with tourist/commercial use on Harbor and Shelter Islands, aviation-related industries around Lindbergh Field, marine-oriented industrial uses, including National Steel and Shipbuilding, located generally around the Coronado Bridge, and office/commercial uses in the downtown area. The subregion also includes the Marine Corps Recruit Depot, the Naval Training Center, the Navy Athletic Field, the Fleet Anti-Submarine Warfare Training Center, the Naval Facilities Engineering Command, Naval Supply Center, and the Commandant, Eleventh Naval District.

Based upon their opportunities for pedestrian and bicycle access and circulation, their urban waterfront development that maximizes the diversity of opportunity for the general public to enjoy the bayfront, and their tourist/commercial centers which attract numerous visitors to their shore areas, restaurants, hotels and marinas, Harbor Island, Shelter Island and the Embarcadero are also designated as areas possessing special coastal manmade resource qualities. In addition, the Santa Fe Depot, The **Star of India**, and the **Berkeley** should be considered manmade resources because of their cultural, historic, and architectural value. Of special visual significance are Harbor Island, Shelter Island, Spanish Landing, the Embarcadero, and Broadway Pier.

This subregion offers recreational opportunities unique to most of the region. Kellogg Beach is one of few opportu-

San Diego skyline, Shelter Island marina



ities for water-contact activities such as swimming, but substantial boating facilities exist. The grassy areas of Shelter Island and Spanish Landing provide picnicking and strolling, and fishing is popular.

The City of San Diego, the Regional Commission, and the Coastal Plan agree that the San Diego Bay's potential as a recreational resource has not yet been reached. Areas of particularly high potential for public recreation are Navy Field and the site of the old San Diego-Coronado Ferry. These are the last significant open spaces in the immediate area, and the Plan advocates their retention. Plans being prepared for the Embarcadero area by the port and city should enhance public access and enjoyment of this unique area.

**Redevelopment.** Because most of the land within the subregion is already developed, the major issue is redevelopment. The City of San Diego is in the early stages of implementing its center city plan. The objectives of this ambitious project are to revitalize and intensify the central business district, and strengthen its role as the commercial, financial, and transportation center of the region. An integral part of the plan is the bayfront, for which the city and port are jointly planning tourist/commercial facilities. Other major center city plan proposals that must be reviewed in terms of Plan policies include a marina adjacent to Navy Field, relocation of naval and nonmilitary facilities such as City Police Headquarters, major bay-related residential developments in the downtown area, and pedestrian transport alternatives to the automobile. Low- and moderate-income housing needs are not addressed in the plan. The San Diego Unified Port District has already divided the bayfront into sub-areas, identified in the Plan as special study areas, to facilitate the preparation of specific area plans for the bayfront that will conform with the port master plan and the Coastal Plan.

**Barrio Logan.** San Diego Bay and its bayfront are principal natural and manmade resource areas. The Barrio Logan

community planning area, because of its opportunities for low- and moderate-income housing, and because of its cultural and historical heritage as a Chicano community, is designated as a community with special qualities of greater than local significance.

Preparation of the Barrio Logan Community Plan is in its initial stages. The Chicano community is committed to the preservation and improvement of the Barrio. A principal concern that must be addressed is industrial encroachment into residential areas, since almost the entire community is zoned for industrial and manufacturing uses. Another critical matter is that of bayfront access historically enjoyed by the community but long since eliminated by industrial development. The Barrio has been identified as a special study area so that the city and State can coordinate planning and promote community interests.

Any military lands declared surplus should be retained in public ownership. A special study by the coastal agency should determine the appropriate type and level of use for the lands, with highest priority assigned to public recreational use. This same approach should be followed if and when Lindbergh Field is phased out as an airfield, with the Port and Coastal Commission jointly undertaking the study.

**Lindbergh Field.** Because the future of Lindbergh Field is somewhat uncertain, expansion of the existing airport facilities should be allowed only as interim measures, which would insure their efficient operation pending the final decision concerning the ultimate location of the San Diego regional airport. Any proposed expansion of the existing airport should: (1) Not intensify the total area encompassed by the airport boundaries; (2) Not intensify the adverse environmental impacts which the existing facility has; (3) Increase airport efficiency and accommodate larger quieter aircraft, which would reduce the total number of flights, and (4) Be of such a nature that it can be easily amortized over the useful life of the airport.

## SUBREGION 10: CORONADO/SILVER STRAND

[See Plan Map 61]

The boundaries of this subregion extend to and include, the North Island Naval Air Station to the north and Imperial Beach city limits to the south. The eastern boundary runs down the middle of San Diego Bay. The northern portion of the subregion includes the heart of the City of Coronado, which is already substantially developed, and the North Island Naval Air Station. Most of the Silver Strand, including the Naval Amphibious Base, Naval Communication Station, and Silver Strand State Beach, is in public ownership.

Principal resource areas of this subregion are the San Diego Bay shoreline and tidal mudflats, and the entire ocean beach and shoreline area. Of most concern in this area are the beaches which appear to be losing sand at the rate of approximately one million cubic yards per year. A natural reversal of the trend is not expected. The southern sections

of the beach have suffered the greatest loss, while the beaches north of the Hotel del Coronado have been more stable. The proposed San Diego Harbor channel deepening project will help to replenish beach sand by placing of approximately four million cubic yards of dredged material on Coronado's beaches.

**North Island.** North Island is a potentially valuable recreational resource whose ocean beaches are an extension of Coronado's. They are wide and sandy, and would be suitable for more recreational use beyond that of military personnel. The Coastal Plan, because of North Island's value for public recreational uses, designates its beach area as intensive use zones. Also, as with other military lands, should North Island ever be declared surplus land, it should be retained in public ownership with public recreational use receiving the highest priority. The area of North Island with



San Diego-Coronado Bay Bridge

the highest priority for acquisition is the ocean beach frontage from Sunset Park to Zuniga Point. Acquisition could be by means of a transfer of public lands.

In terms of visual qualities, excellent vistas are offered people traveling across the Coronado Bridge, and driving along Silver Strand on scenic Highway 75. Both the Coronado Bridge and the Hotel Del Coronado are identified as manmade resources. The Hotel Del Coronado was added to the National Register of Historic Places in 1971.

**Beach Access.** In spite of erosion, the beaches here are excellent. Because they are hard to reach, they are underused. This is evidenced by day-use attendance figures at Silver Strand Beach which show it far below capacity. To illustrate one of the keys to the access problems, the most direct route from the population center of the region necessitates a round trip on the Coronado Bridge which amounts to \$1.20 in tolls. Access via State Highway 75 through Imperial Beach is free, but is a far longer trip in time and distance for most of the region's population. Reinstating the ferry service, and continuing to provide bike trams across the bridge (as the California Department of Transportation recently initiated) will improve access to the beaches of this area. The Coastal Plan designates the beach areas for intensive recreational use in an attempt to promote more intensive long-term use. This designation includes the Naval Amphibious Base, North Island Naval Air Station, and the Naval Communication Station, should they be declared surplus or be opened for public use. The ocean front and bay front of the Amphibious Base are designated

as priority acquisition areas. Acquisition could be by means of a transfer of public lands. The Navy, at this time, does lease the beach frontage of the Communication Station to the YMCA.

**City of Coronado.** The City of Coronado is considering converting an abandoned railroad right-of-way down the middle of Highway 75 into a multipurpose recreational trail, and is promoting a major bayfront park on tidelands property for which the Port of San Diego has proposed a research park. The former would be favored by Coastal Plan policies.

For the most part, development patterns in the City of Coronado are stabilized and new development is carefully guided by the adopted general plans and by a City Design Review Board. The current population is 18,081 as shown in the 1975 Special Census, with a projection of 37,000 for the horizon year of 1990, including completion of the Coronado Shores and Coronado Cays developments.

The City of Coronado is making a concerted effort to meet the adoption deadlines for the State-mandated elements of the general plan. Adoption in 1973 of the Environmental Resource Management Element established the community resource base, and recommended as follows on three major issues: (1) on beach erosion, a joint-powers agreement approach to remedial actions and more detailed studies should be used; (2) a proposed second opening to San Diego Bay should be delayed for completion of a detailed environmental impact report; and (3) bay landfill should be allowed only to create open space recreational uses.

Coastal Plan policies appear to favor the following major proposals: (1) preserve Coronado as a manmade resource, primarily characterized as a pleasant, low-density residential community; (2) increase accessibility of beach areas, in-

cluding military beach frontage, and provide facilities to encourage more use; and (3) devise and implement a long-term beach sand maintenance program, to provide a permanent solution to beach erosion problems.

## SUBREGION 11: SOUTH SAN DIEGO BAY

[See Plan Map 61]

The boundaries of the South San Diego Bay subregion extend from and include, the San Diego Naval Station on the north to Palm Avenue on the south. Interstate 5 with the exception of the agricultural lands of the Sweetwater Valley is the inland boundary, and the midpoint of San Diego Bay is the western boundary. Most of the northern portion is developed, including the San Diego Naval Station and extensive industrial development in National City. The Chula Vista bayfront also has industrial development, including the Rohr Corporation and South Bay Power Plant. A significant portion, primarily the Sweetwater Marsh, is undeveloped and approximately 200 acres are in field tomato and vegetable greenhouse production. Further to the south, salt evaporator ponds form the termination of the Otay Valley drainage basin.

The most valuable natural resource area is the Sweetwater Marsh Complex, which includes Paradise Creek. Recognizing the habitat and nesting value of Sweetwater Marsh, the State Department of Fish and Game recommended that it, along with the South Bay salt ponds, be designated a wildlife refuge or ecological reserve. The agricultural lands of the Chula Vista bayfront are valuable as the last remaining agricultural lands in coastal-related production in the immediate area, and do constitute significant open space as well as a partial buffer for the marsh areas.

**Recreational Developments.** The South Bay area has a largely untapped potential for serving regional and statewide recreational demands. Two recently built boat launching ramps, one in National City and one in Chula Vista, are both heavily used. Adjacent to the boat launching ramps, the Port District has built short fishing piers and grassy areas for picnics and other activities. Some beach areas on the Chula Vista bayfront are suitable for swimming. Several small craft facilities have been proposed. Because of its concern for protecting the remaining marsh habitat areas in the South Bay, especially in the Sweetwater Marsh complex, the California Department of Fish and Game has thus far opposed the marina proposed by National City for the Paradise Creek. This proposal also appears to be in conflict with Coastal Plan policies. The City of Chula Vista has altered its original proposal, and has considered relocating the marina from the Sweetwater Marsh area to the existing fill surrounding the boat launching ramp. The fill already exists, and is shaped to accommodate a marina. Future facility proposals will be evaluated in terms of Plan policies.

**Public Access.** A second important issue is the provision of more public access to the bayfront. The Port District's plans for a bicycle path around the bay and Chula Vista's plans for providing and improving public bayfront areas

would help meet this end. Further public commitment is needed to pursue this objective, such as the joint study now being conducted by the cities of San Diego, National City, Chula Vista, and Coronado for a South Bay Bikeway.

Other than the marina proposals, several development projects could adversely impact the wetland habitat and nesting areas in the Sweetwater flood plain and marsh complex. The Corps of Engineers and the California Department of Transportation have proposed a joint Sweetwater Freeway (Route 54) and Flood Control Channel, now being revised as a result of public response to the environmental impact statement to preserve more wetland areas. Any flood control project or highway project in the Sweetwater River coastal area shall protect marshlands and potential public recreation areas from development and shall assure that any development made possible by such projects does not drain pollutants into the marsh areas of the Sweetwater River.

**National City.** National City, in promoting the industrial use of its holdings west of Interstate 5, has adopted an industrial use policy that gives priority to marine-related and marine-dependent industries and sets forth standards for design and landscaping. The National City redevelopment project is located inland of Interstate 5 and is thus outside of the subregion as presently defined.

**Chula Vista.** The Chula Vista bayfront plan stresses creation of a water-related tourist/commercial resort area. Additional consideration has been given to public open space and recreational areas, and multiple family residential uses. A point of potential conflict with the Coastal Plan that will have to be resolved in the subregional process evolves around the proposed conversion of lands now in agricultural use.

Should any land under the jurisdiction of the San Diego Naval Station be declared surplus, it should be retained in public ownership, with use priority going to public recreation.

The Sweetwater Marsh complex is designated a priority acquisition site to create a wildlife refuge that would preserve natural habitat and nesting values. The South Bay salt ponds have also been designated for priority acquisition. In addition, a special study of the two areas should produce comprehensive wetland plans to guide future management of their resources.



## SUBREGION 12: IMPERIAL BEACH/TIJUANA RIVER VALLEY

[See Plan Map 61]

Imperial Beach and the Tijuana River Valley are the southernmost land and water areas of the San Diego Coastal Zone. Imperial Beach is mostly developed with mixed residential and commercial uses with some areas of the immediate shoreline in varying degrees of disrepair. The Tijuana River Valley, except for agricultural and related uses, is undeveloped, containing one of the State's most valuable coastal estuaries. The Tijuana Estuary complex serves as an open space buffer between Tijuana and San Diego.

This subregion includes the City of Imperial Beach, the San Diego communities of Nestor and San Ysidro, the U.S. Navy, which has jurisdiction over approximately 1,204 acres at Ream Field, and the State, which manages 655 acres at Border Field State Park. The current population of Imperial Beach is over 21,000, projected to 27,500 by 1990. The urban complex of Imperial Beach, Nestor, San Ysidro, and Tijuana (in Mexico) will reach 1.2 million by 1990.

**Tijuana Estuary.** The Tijuana Estuary complex, including Oneonta Lagoon, and the land immediately surrounding it, is the most valuable natural resource of the subregion. The estuary serves as a habitat for a wide variety of bird and animal species, and has been identified by local, State and Federal agencies as a coastal resource of statewide significance worthy of preservation. An additional resource of significance is the 5,700-acre floodplain, which could support 2,200 acres of irrigated agriculture (only about 850 acres are under cultivation at this time).

However, increased land values, taxes, and labor costs have forced most of the farmers to sell their land. Today, all but 200 acres are farmed by tenants. The ocean shoreline, although subject to severe erosion problems, must also be considered a primary resource of the subregion. The Corps of Engineer bay dredging project is anticipated to provide two million cubic yards of dredge material to replenish Imperial Beach's shore areas.

**Border Field State Park.** The planned expansion of Border Field State Park to 2,000 acres will probably necessitate the acquisition of additional Navy property in the event that Ream Field is phased out. In such case, the surplus lands, in accordance with adopted policies of the Coastal Plan, should remain in public ownership with public recreational uses receiving highest priority. Except for a few peak summer Sundays, the area is not heavily used for coastal recreation. In view of the fragile resource areas adjacent to Border Field, such use levels are appropriate, and the Plan designates the area as a moderate-use recreational zone. However, the shore areas of Imperial Beach have a higher-use tolerance and have been designated for intensive use with the intent of promoting increased recreational use.

**Imperial Beach.** The main development pressure within Imperial Beach is for multiple-family development, which would be of concern if provisions are not made to protect and preserve the public access to the beach areas. Imperial Beach redevelopment, the most ambitious development

proposal/planning project, calls for the redevelopment and restoration of much of the city's coastal area into beach-related tourist/commercial resort area, with the prime goals being the revitalization of a deteriorated beachfront and the improvement of the local tax base, aesthetics, and public access and use. The proposed highrise development (100 feet) and building locations could achieve compliance with the Coastal Plan. However, the redevelopment project is auto-dependent and does not consider the provision of alternative modes of transit. Especially, with the possibility of relocation of the regional airport to Brown Field, Plan policies would specify consideration of alternative modes.

Two other development proposals which would impact Imperial Beach, but would have more direct effects on the river valley and estuary, are for a 500-acre marina and flood control facilities. The marina proposal would entail extensive dredging and filling of Tijuana Estuary, contrary to preservation policies of the Coastal Plan. The issue of flood control revolves around the extent to which such facilities are needed, and their impact on significant resource and agricultural areas and floodplain management. Flood protection of the river valley, such as the dissipator structures endorsed by the City of San Diego, should be allowed only to the extent of protecting the agricultural and recreational uses and the estuary complex. Protective structures should not be allowed in a manner that enables development in the floodplain.

In the long term, the San Diego Gas & Electric Company has projected a power plant site on its land east of Border Field. The issues of adverse environmental impact, need for additional generating capacity, and the availability of alternative sites are among those which must be satisfactorily addressed. Additional development pressures and activities within the river valley that could conceivably be at odds with Coastal Plan policies would be conversion of agricultural lands to urban uses, and sand and mining activities that would remove material that would naturally replenish the subregion's sand-starved beaches.

**Special Studies.** Based upon the natural resource value of Tijuana Estuary, the Plan designates it as a special study area and a priority acquisition site consistent with the eventual goal of the State Department of Parks and Recreation to own 2,000 acres of the estuary. The management plan must stress estuarine preservation. State or Federal acquisition would aid in the preservation and protection of the natural and aesthetic character of the estuary and its buffer area.

The redevelopment project, and the development of that area extending south along First Street toward the estuary, would benefit from preparation of a specific area plan which implements Plan policies on appropriate densities, public access, urban design, and alternatives to the automobile.

# WHAT THE MAPS SHOW

The following sections contain Summary Maps and Plan Maps, both of which illustrate graphically the location and extent of coastal resources, developed areas, and other factors that influence coastal planning. The information on these maps is explained below.

**Summary Maps.** The four Summary Maps present a large area at a glance, at a scale of 1 inch equals about 24 miles. These show the coastal watershed, coastal rivers and streams, a coastal climate zone, a generalized view of all timber and agricultural lands within the coastal watershed, the coastal highway, substantially built-up areas, and the coastal zone and resource management area boundaries.

The coastal zone and resource management area boundaries are defined in Part III and in the legend explanation below. The basis for mapping the management area boundary for each Region is outlined on the pages facing the four Summary Maps.

The coastal climate line shown on the Summary Maps represents the area considered to be directly influenced by the Pacific Ocean. In general, all habitat, timber and agricultural lands between the shoreline and this climate line are "coastal-related"; that is, certain plant species such as coastal redwood are never found inland of this climate line in a native habitat, and certain crops grown in this area are influenced by, and in some cases dependent on, the coastal climate. Agricultural and forestry lands are shown throughout the watershed for reference, although only some of these areas are considered coastal resources.

**Plan Maps.** The 61 Plan Maps show the array of natural and manmade coastal resources, important features of the

coast, and Plan proposals. The information on the Plan Maps, as described in the legend explanation below, includes: special marine environment, wetland or estuary, special land habitat, other land habitat or open space area, grazing, cultivated agricultural lands and Class I and II soils, forestry resource area, mineral extraction area, developed areas, existing recreation area, existing boating facility, proposed immediate acquisition area, special study area, existing public ownership, subregions, and coastal zone and coastal resource management area boundaries.

It is important to note that in nearly every part of the coast, more than one resource can be found, or development at one location can affect nearby resources. Thus, the resource or condition mapped may not be the only one to be considered in land use decisions in that area.

The Plan Maps are at the scale of 1:125,000 (1 inch equals about 2 miles). At this scale, they can show areas as small as 10 acres. Where smaller, but important, features exist, symbols are used to locate them wherever possible.

Each Region's maps are introduced by an index map showing the orientation and location of each Plan Map. On each page facing the 61 maps are Map Notes and, in some cases, Supplemental Notes or data pertaining to that geographic area or region. The notes are usually abstracted from the Regional Summaries and emphasize the major proposals of the Coastal Plan for the area on the adjoining map. The supplemental information varies from regional application of statewide policies to lists of specific sites for protection and enhancement. On the last page of each Region's map section is a bibliography of map sources.

## LEGEND EXPLANATION

Following are brief descriptions of the categories shown on the foldout Map Legend, (the last page of the entire Plan). General sources of information available statewide for mapping these categories are mentioned below as well.

### Special Marine Environment

Under the heading special marine environment, the maps show offshore water areas and rocky intertidal areas of

marine habitat value, such as kelp beds, existing Marine Life Refuges, Areas of Special Biological Significance (as designated by the State Water Resources Control Board), coastal waters of educational and scientific value, marine mammal and sea bird breeding sites in coastal waters, and other areas of acknowledged marine habitat value. (Other areas not designated as special marine environment are nevertheless a part of the entire marine ecosystem and contain valuable sport and commercial fisheries. The marine

ecosystem, ranging the entire coastal waters of California, is represented by the pale blue tint.) Key Plan policies affecting development and conservation in special marine environment areas (as well as other coastal waters) are Policies 2-14.

Sources for mapping the special marine environment include special studies by the Departments of Fish and Game, Parks and Recreation, and Water Resources, and the State Water Resources Control Board (SWRCB). Key publications include Appendices III and IX of the Comprehensive Ocean Area Plan (COAP), Department of Parks and Recreation's California Coastline Preservation and Recreation Plan, Coastal Commission studies, and SWRCB resolution 74-28 (establishing the Areas of Special Biological Significance).

## Wetland or Estuary

Areas shown as wetland or estuary include salt marshes and mudflats (wetlands), and sheltered waters of lagoons, sloughs, bays, and mouths of streams and rivers (estuaries). Where it is possible to show a boundary between a wetland and the open water of an estuary, a solid black line within the blue of the wetland or estuary color code is used to show that boundary (see for example San Diego Bay, Map 61). Special conservation of coastal wetland and estuarine areas is described in Policy 15.

Sources for mapping these conditions include studies by the Department of Fish and Game, Acquisition Priorities for the Coastal Wetland of California, California Coastline Preservation and Recreation Plan, and COAP Appendices III and IX.

## Special Land Habitat

Areas shown as special land habitat include ecologically significant or fragile land areas valuable for rare or endangered plants, animals, and communities. Included in the category are: (1) restricted natural communities--ecological areas which are scarce, involving only limited area; (2) rare and endangered wildlife species habitat; (3) rare and endangered plant species range; (4) specialized wildlife habitat; (5) outstanding representative natural communities; (6) sites with outstanding educational value; (7) fragile or environmentally sensitive resources (e.g., dune plant and riparian habitat areas); and (8) wilderness or primitive areas. Anadromous fish (salmon, steelhead, etc.) spawning streams and rivers are also included to the extent that primary channels can be shown. Plan policies most relevant to special land habitat areas are Policies 24-28 and 150.

Sources of information for mapping these various conditions include the California Coastline Preservation and Recreation Plan, California Natural Areas Coordinating Council, California Native Plant Society, Protected Waterways Program, COAP Appendices III and IX, and the Department of Fish and Game.

## Other Land Habitat or Open Space Area

Areas shown as other land habitat or open space area generally include coastal scrub and sage brushlands, chaparral, some grasslands, and wooded or brush-covered steep slopes, which are in a relatively natural condition, and vacant parcels of land in urban areas or on the fringe of urban areas. These areas often represent a continuum of habitat values surrounding or upland from more fragile

or significant areas and also provide important open space value in urban areas. Policies especially concerned with development in these areas are Policies 29 and 57.

Available sources for mapping this category include the California Regional Comprehensive Framework study maps and local land classification studies.

## Grazing

Grazing includes lands currently or recently used for grazing livestock (sheep, cattle, horses), including pasture or open rangeland. This category is not restricted to a particular level or range of animal unit carrying capacity and includes both prime and non-prime grazing lands. Grazing lands are mapped separately from cultivated agricultural lands because they represent a different degree and form of land use in the coastal zone. Grazing lands are often important for general habitat values and also as a valuable transition between intensive agricultural or developed areas and areas of primary habitat and scenic resource value. Plan policies regarding agricultural lands are Policies 30-37, with specific criteria for maintaining non-prime grazing lands in Policy 34.

Sources for this information include land use inventories produced for the Office of Planning and Research, personal communication with local farm advisors, and maps of Prime Rangeland Soils of coastal counties by Darwin Briggs, Planning Staff Leader, U.S. Soil Conservation Service, Davis, California, 1974.

## Cultivated Agricultural Lands and Class I and II Soils

Cultivated agricultural lands and Class I and II soils include all lands used for intensive agricultural practices and undeveloped areas with soil types qualifying them as "prime agricultural land" under the Williamson Act (Government Code Section 51201(c), see the Glossary). All lands in crop production, most of which also qualify as prime agricultural land, are included in this category. Lands of any soil classification that are currently or recently in crop production (i.e., land in agricultural production for at least two seasons in the past 10 years) and are capable of supporting coastal-related crops (i.e., crops that are restricted to the coastal zone because of climatic dependency or that grow best in the coastal zone because of climatic advantages) are included in this category. No grazing land is included in this category. Key Plan policies applying to coastal agriculture are Policies 30-37.

Sources of information were maps of prime agricultural land from the Office of Planning and Research, Soil Conservation Service county maps, coastal climate maps (Marston Kimball, Extension Bioclimatologist, Agricultural Extension Service, Davis, California, 1964), land use inventories from the Department of Water Resources and the California Regional Comprehensive Framework Study (1972), and personal communications with county offices of the Agricultural Extension Service, the Agricultural Commissioner's office and the U.S. Soil Conservation Service district offices.

## Forestry Resource Area

Forestry resource area shows lands covered by coniferous, mixed evergreen and mixed conifer-hardwood forests. Included are all classes of timberland and lands managed for

commercial timber purposes. Key forestry policies are Policies 38 and 39.

Sources of information include the State Division of Forestry and Soil-Vegetation and Timber Stand-Vegetation maps, U.S. Forest Service land cover and use inventories, and personal communications with local timber harvesters.

## Mineral Extraction Area

Mineral extraction area refers only to sites where extraction is currently taking place or extraction sites which have not been converted or restored to another use. The chief minerals represented are construction materials—primarily sand and gravel—and petroleum resources—oil and gas. In the case of petroleum resources, oil and gas fields that are currently in production are delineated, and in the case of non-petroleum resources, the actual quarried site is represented. Depending on the size of the extraction area, the area is either delineated or the symbol is used to indicate the approximate site. The extent of unmined resource is not shown. Policy 40 regarding mining and Policies 81-86 regarding petroleum development are key policies for these areas.

Sources of information include local studies by the Division of Mines and Geology, studies by the Bureau of Land Management (BLM), Division of Oil and Gas, local land use inventories, and the California Region Comprehensive Framework Study.

## Developed Area

Lands shown as developed areas are generally in urban areas, including residential, commercial, institutional, and industrial development; military facilities are also included. Generally, land built to a density of one dwelling unit per acre or equivalent densities of other uses have been shown as developed. Also included in this category are subdivisions of land where parcels of one acre or less have been created and public services such as roads, water and sewer connections have been provided. Policies that have a direct bearing on this category include Policies 58-63.

Mapping was done from existing land use information, county by county and city by city, and field survey by Regional staffs. The lowest common denominators, for designating an area as developed, were the lowest residential or urban classification used by the original local mapping source.

## Existing Recreation Area

Shown as existing recreation areas are major parks, amusement areas, beaches, golf courses, and other areas with principal use and value for recreation. Most local parks are too small to be shown at the scale of the Plan Maps; but State and Federal parks, large county and city parks, and large private recreation areas (e.g., golf courses) are shown and indicate the existing distribution of major opportunities for recreation. (Publicly owned recreation areas can be distinguished from privately owned areas by the dashed line showing public ownership.) Basic policies that affect recreational lands are Policies 131-144.

Land use information from Federal, State, and local agencies was the principal source of information for mapping recreational lands. Offshore water areas used for recreation

are not included since all ocean waters represent an opportunity for some recreational activity (i.e., boating, fishing, skin diving, surfing).

## Existing Boating Facility

Existing boating facility is a category for marinas and harbors of refuge that vary in size, berthing capacity, navigable water depth, and other factors. The boating facility symbol used is placed in the vicinity of each marina or harbor. Policies relevant to such facilities are Policies 146-148.

## Proposed Immediate Acquisition Area

Shown as proposed immediate acquisition areas are sites that have been tentatively nominated for early acquisition to preserve coastal resources or achieve other Plan objectives. Final recommendation of acquisition sites to the Legislature will be made by the Coastal Commission to supplement the Coastal Plan after public hearings (see Part III, Acquisition and Restoration section, for more complete explanation). Immediate acquisition areas are located by a small yellow dot in the vicinity of the proposed site. Where an acquisition area is large and the approximate boundaries can be shown, a diagonal parallel line pattern appears extending beyond the yellow dot. Each tentative acquisition site is discussed in a Map Note.<sup>1</sup>

## Special Study Area

A special study area is shown on the Plan Maps where, in the Commissions' judgement, important problems or opportunities exist that require more intensive study than could be accomplished in the time available for the Coastal Plan. For each special study proposal, a corresponding Map Note explains the opportunities to be explored and the conflicts to be resolved. The various special studies are intended to be carried out under the subregional planning process as outlined in Policy 162.

## Existing Public Ownership

Areas shown as existing public ownership include large parcels of Federal, State, regional, and local public agency lands. These areas are represented by a boundary line and named individually, permitting recreational areas, resources, or developed areas within the ownership to be shown in color. (Often public parks are shown as recreational areas, but may also contain other major resources such as fragile habitats, forests, etc. Where recreation is not the principal use, areas of habitat value, agricultural land, and/or developed areas are indicated.) Policies 127-129 address Plan concerns in publicly owned areas.

The principal sources for mapping public ownership include the county assessors' books and Federal agencies, including the Bureau of Land Management, the U.S. Navy, Air Force, Coast Guard, Army Corps of Engineers, and Marines.

<sup>1</sup> Any reference in this Plan to the ownership of any specific parcels of property are not meant to express any opinion as to whether there is an existing vested public interest in the parcels, including, without limitation by reason of the specifications thereof, rights arising out of express or implied dedication; nor do they express any opinion as to whether any of such lands are tide or submerged lands or were created by artificial means or accreted to such lands so created.

## Subregion

A subregion is a geographic area within the coastal zone smaller than one of the six coastal regions. Subregional areas generally extend from the inland coastal zone boundary to the shoreline (or are ocean areas entirely) and are divided from one another by natural geographic features, distinct urban community boundaries, or locally recognized planning areas. Major coastal environmental issues, development pressures, and Plan proposals are discussed by subregion in the Regional Plan Summaries section. Some subregions will require subregional plans as described in Policy 162.

## Coastal Zone

The coastal zone is mapped according to the definition of the coastal zone in the California Coastal Zone Conservation Act of 1972 (Proposition 20). In areas where the inland boundary of the coastal zone has more than one possible interpretation, the maps reflect the boundaries used by the Coastal Commissions. Within the coastal zone, it is recommended that major energy facilities and State and Federal projects be reviewed and approved by the coastal agency. In the offshore portion of the coastal zone, to the three-mile limit of State jurisdiction, and all areas held in public trust, the coastal agency should retain permit authority over all projects.

## Coastal Resource Management Area

The coastal resource management area is the area within which local plans would be brought into conformity with the Coastal Plan, as recommended in Part III of the Plan. It extends from the mean high tide line inland to include (1) all significant coastal resources (including natural, man-

made, and recreational resources) and (2) areas where development could directly or cumulatively affect public access to coastal recreation areas, e.g., by overloading coastal access roads. It also includes all offshore rocks and islands.

The significant coastal resources included in the coastal resource management area are: beaches, dunes, wetlands, estuaries and their immediate drainage areas; significant wildlife habitat areas; agricultural lands influenced by the coastal climate or otherwise designated in Plan policies; existing public recreational areas; areas proposed by public agencies for public acquisition; potential public recreation areas located near major metropolitan centers (e.g., Santa Monica Mountains, Irvine, San Mateo coast); special coastal neighborhoods; and other manmade resources as defined in the Glossary.

Areas where development may affect coastal access include urban coastal recreation centers confronted with severe congestion problems (e.g., Marina del Rey/Venice, Newport Bay, and Mission Bay) and open coastal areas where there are few public access roads (e.g. Irvine, Malibu, Big Sur and portions of the coast in San Mateo, Sonoma and Mendocino Counties.).

Opposite each of the Summary Maps in the following section are paragraphs that describe the basis upon which the coastal resource management area was mapped for each Region. In each case, the line as shown on the maps was approved by the State Commission on the basis of Regional Commission recommendations.

## Coastal Zone/Management Area

When the inland coastal zone boundary and the inland coastal resource management area boundary are coterminous, one boundary line representing the two categories is used and identified in the map legend as the coastal zone/management area.

# SUMMARY MAPS







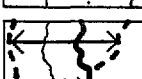


## NORTH COAST REGION

Del Norte, Humboldt, and Mendocino Counties comprise the coastal zone's largest region and are rich in natural resources. Maintaining scenic qualities, protecting productive resources (including floriculture, dairy pasturelands, prime timberlands, and clam and oyster beds), and promoting recreation — all of which contribute to the local economy — are principal Plan objectives for this region. Timber management, water quality and fisheries management, regionwide recreational planning, and control of the cumulative effects of premature subdivisions will be key factors in achieving these Plan goals.

**North Coast Resource Management Area.**<sup>1</sup> Because the land and resources of the North Coast are so vast, a simple, easily understood management line was the goal for this region. The management line recommended by the North Coast Regional Commission—five miles inland from tidal influence—contains the most important coastal resources in the region, the immediate drainage areas of the wetlands (e.g., Lake Earl, Lake Talawa, Humboldt Bay, the Eel River delta), and the areas where the cumulative impact of development could potentially cause adverse effects on coastal access. The line has been adjusted inland to include the Big Lagoon drainage area and shoreward in several places along ridgelines and drainage lines to exclude areas where development would not greatly affect coastal resources.

## Summary Map

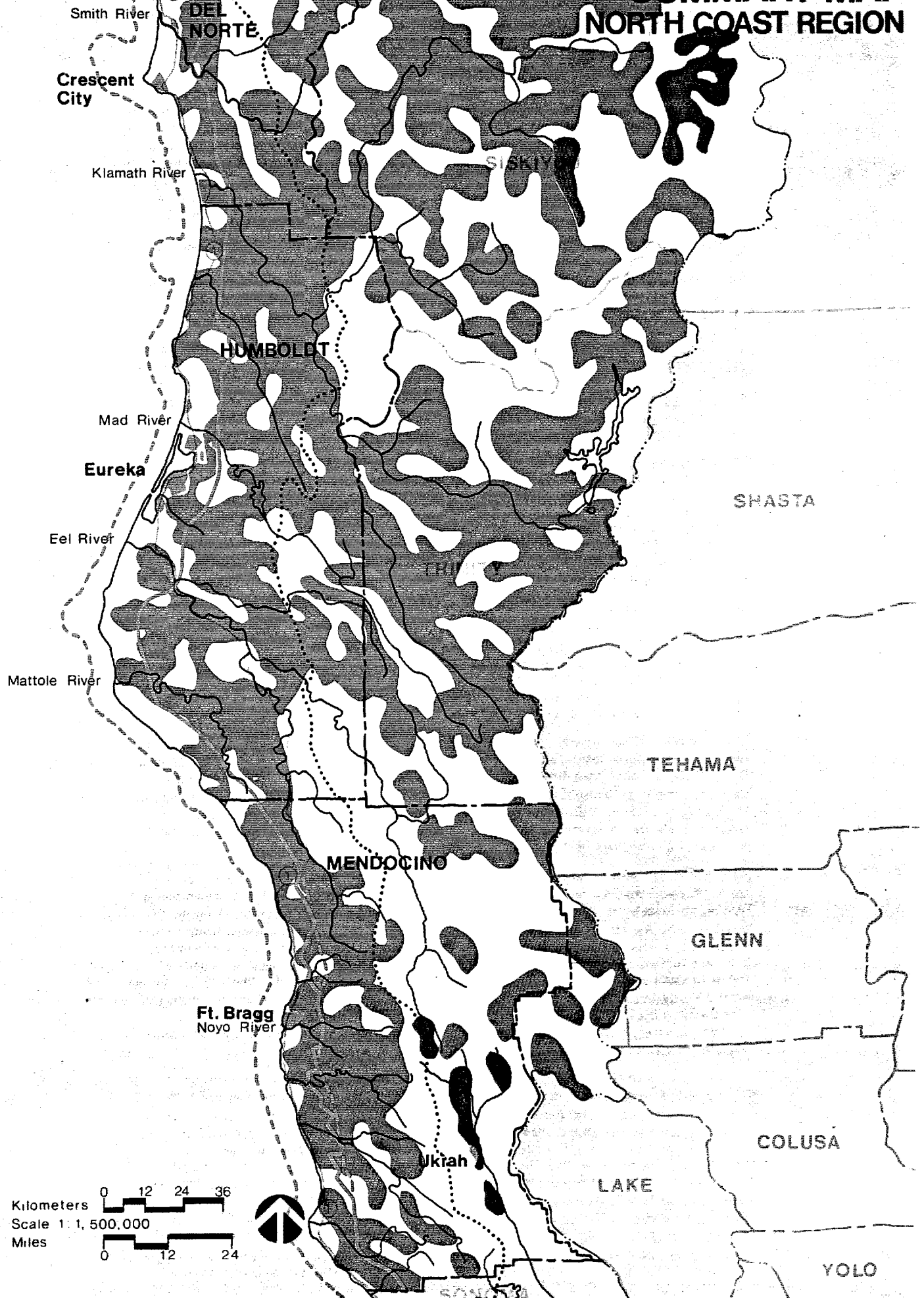
### LEGEND

-  Cultivated Agricultural Land
-  Forestry Resource
-  Developed Area
-  Coastal River
-  Coastal Roadway
-  Coastal Climate Zone
-  Coastal Watershed
-  Coastal Zone
-  Coastal Resource Management Area

<sup>1</sup>The coastal resource management area, as defined in the immediately preceding legend description and in Part III, is to include significant coastal resource and those areas affecting access to the coast. It is illustrated on the summary Maps and can be seen in more detail on the Plan Maps.

OREGON

# SUMMARY MAP NORTH COAST REGION



Kilometers 0 12 24 36  
 Scale 1: 1,500,000  
 Miles 0 12 24



### NORTH CENTRAL COAST REGION

Extensive public recreational lands, unique coastal settlements and fishing villages, dairy farms, and second-home subdivisions, together with San Francisco's residential neighborhoods, are all parts of this Region. The Coastal Plan proposes in specific areas that both urban and rural open lands be conserved, that the present scale of San Francisco's coastal housing be maintained, that opportunities for coastal-dependent activities (such as commercial fishing aquaculture, and marine research) be protected, that agriculture and timber harvesting be maintained, that designated habitat areas be preserved (and some restored), and that the nature of new development respect the character of its surrounding landscape.

**North Central Coast Resource Management Area.**<sup>1</sup> The North Central Regional Commission included in its recommended management area all of the coastal zone as defined in the Coastal Act (Proposition 20) except in San Francisco. The line was thus drawn to include all areas where the cumulative impact of development could affect public access to the coast (e.g., the northern Sonoma County coast), and where development could cause adverse impacts on important coastal wetlands and estuaries (e.g., southern Sonoma County and northern Marin County). In San Francisco, the line follows the Golden Gate Bridge, Park Presidio Boulevard, and 19th Avenue, thus including the coastal portions of the Golden Gate National Recreation Area and residential areas that view themselves as cohesive coastal neighborhoods, needing attention to maintain their special character.

### CENTRAL COAST REGION

This region extends south from San Francisco to the wilderness areas of Los Padres National Forest and encompasses a wide diversity of coastal resources. The fertile Salinas and Pajaro Valleys form the region's agricultural heartland, an important basis of the regional economy. Tourism, centering on the cities of Santa Cruz and the Monterey Peninsula but relying on the wide beaches and scenic landscape for support, also plays a major role in the regional economy. Unique ecological areas, such as Elkhorn Slough, the Sea Otter Refuge, and many rocky intertidal areas are additional critical resources of the coastal area, as is the Big Sur area.

**Central Coast Resource Management Area.**<sup>1</sup> The coastal resource management area for the San Mateo County coast includes a present and potential recreation area that, because of its close proximity to the San Francisco and San Jose metropolitan centers, is of a significance comparable to the Golden Gate National Recreation Area on the San Francisco and Marin coast. The management area line has been drawn to the top of the coastal ridgeline to include important coastal agricultural areas, wildlife habitat, public beaches, and potential parklands.

The Santa Cruz County coastal area to the coastal ridgeline (drainage divide) is a major recreational resource for the urbanized areas adjoining the southern portion of San Francisco Bay and the San Jose area. Special coastal neighborhoods such as those in Santa Cruz and Capitola have been included in the management area. Because the coastal hills surround the highly productive Pajaro Valley, one of the most important agricultural regions of the coast, the line has been drawn to the ridgeline of the valley to assure that the agricultural and wetland resources of the valley are protected.

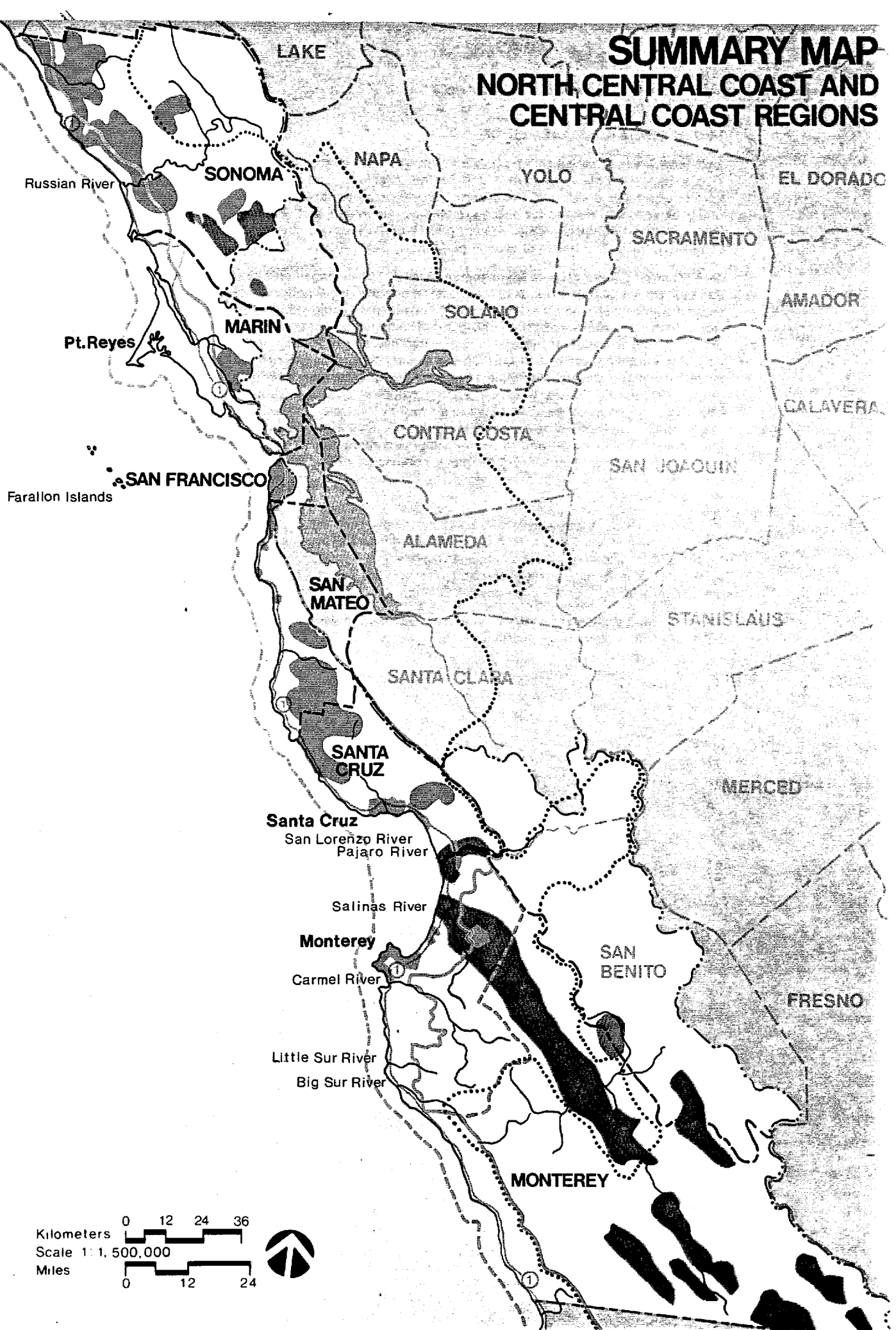
At the northern end of Monterey County is Elkhorn Slough, one of the most important wetlands and estuaries on the entire coast; the management area has been drawn along the line formed by the drainage area of this critical resource. From Elkhorn Slough, the management line has been drawn along the edge of the prime coastal agricultural lands around Castroville and south and west of Salinas in central Monterey county — one of the most productive agricultural areas in the nation. The City of Salinas itself and soils of lesser productivity were excluded, while the especially productive soils (the Blanco series) most directly influenced by the maritime climate have been included. Further south, the management area includes all of Fort Ord, to coordinate with Federal planning that impacts the area; it also includes the coastal-influenced Monterey Pine forests behind the cities of Monterey and Carmel.

The major agricultural lands of Carmel Valley (excluding grazing lands) and the important coastal redwoods proposed to be added to the Los Padres National Forest in the hills along the southwestern portion of the valley determine the furthest extent of the management line but the watershed area in the interior area of the valley has been excluded. The entire Big Sur area to the ridgeline of the coastal mountains has been included because of its statewide significance, the potential impact that development of the many scattered lots and subdivisions of the region would have on public use of the limited capacity provided by the narrow, winding Highway 1, and the need to protect the area's scenic and natural resources.

<sup>1</sup>The coastal resource management area, as defined in the immediately preceding legend description and in Part III, is to include significant coastal resources and those areas affecting access to the coast. It is illustrated on the Summary Maps and can be seen in more detail on the Plan Maps.



# SUMMARY MAP NORTH CENTRAL COAST AND CENTRAL COAST REGIONS



Kilometers 0 12 24 36  
Scale 1:1,500,000  
Miles 0 12 24



### **SOUTH CENTRAL COAST REGION**

Extensive areas of rangeland grazing interspersed with stream bank habitats, unique coastal dunes, highly valued citrus and avocado orchards, and other important cultivated agricultural lands are among the diverse natural resources of this region. The region is under extensive pressures for energy-related developments and urban expansion. It also offers recreational opportunities made possible by its pleasant climate. These factors combine to focus the issues of coastal planning in this region.

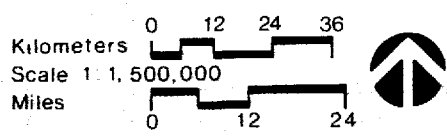
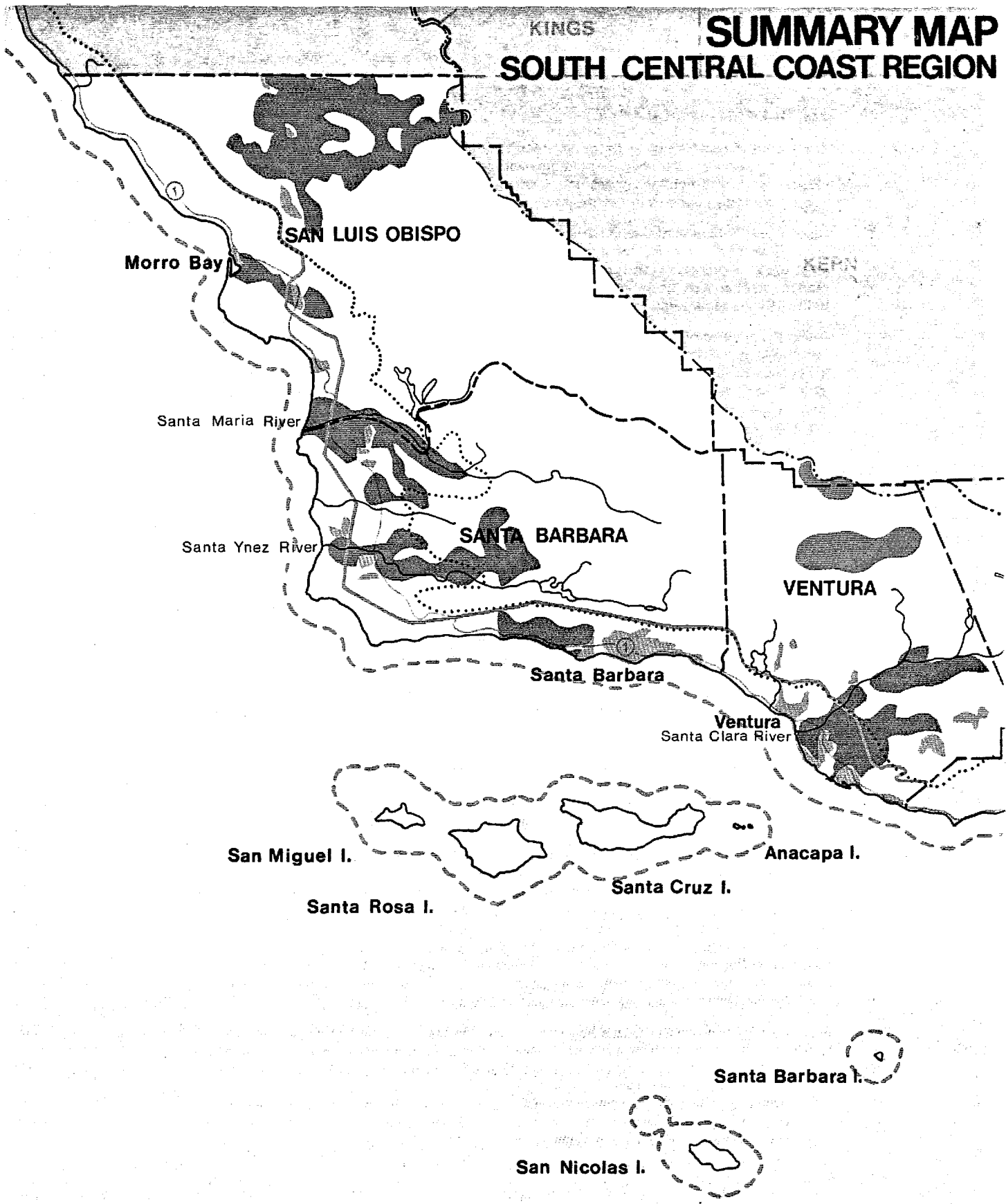
**South Central Coast Resource Management Area.<sup>1</sup>** The management area in northern San Luis Obispo County extends to the coastal mountain ridgeline (drainage divide) to include the area where the potential impact of development could significantly limit highway access to the southern portion of Big Sur. The management area boundary has been drawn around the edge of the Morro Bay watershed and to the top of the coastal hills ridgeline in other areas of San Luis Obispo County to include the rich and complex system of upland streams and valleys, marsh, bay and nearshore reefs that provide nesting and feeding for thousands of fish and migratory birds and marine animals. The line thus includes the major ranches that are so vital to the local economy and constitute a major coastal agricultural resource of the area, the dramatic dunes that have major recreational and wildlife value, and the many small communities that provide tourist facilities and coastal housing opportunities for many persons of modest means. The management area line has similarly been drawn along the ridgeline of the coastal hills in Santa Barbara County.

In Ventura County the management area line follows the ridgeline behind the Rincon communities and the City of Ventura to include mineral extraction areas that affect the Ventura River wetlands and the canyons where energy-producing installations are likely to be built. The Oxnard Plain prime agricultural lands and the Santa Clara River system are included as far inland as the coastal zone boundary.

All of the land area of the Channel Islands is included in the resource management area because of their sensitivity to development impacts.

<sup>1</sup>The coastal resource management area, as defined in the immediately preceding legend description and in Part III, is to include significant coastal resources and those areas affording access to the coast. It is illustrated on the Summary Maps and can be seen in more detail on the Plan Maps.

KINGS **SUMMARY MAP**  
**SOUTH CENTRAL COAST REGION**



### SOUTH COAST REGION

In the South Coast Region — the most urbanized region of the coastal zone — the prime coastal concerns are the need for meeting vast recreational demands, protecting and restoring the last remaining natural lands and waters, and protecting the unique and valued coastal neighborhoods from Malibu to Laguna.

**South Coast Resource Management Area.**<sup>1</sup> The historic character and function of Malibu as a recreational and resort destination and the need for recreational areas close to the large urban population of the Los Angeles Basin are reflected by the inclusion in the resource management area of the entire Malibu coast up to the ridgeline (drainage divide) of the Santa Monica Mountains.

Along the developed section of the south coast shoreline between the Santa Monica Mountains and Orange County, the line narrows to follow the nearest roads adjacent to special coastal neighborhoods (e.g., Venice, San Pedro, and Naples/Belmont Shores), major coastal recreation areas (e.g., Marina del Rey and Alamitos Bay), areas where the cumulative impact of development could exclude or hinder access to the shoreline (e.g., Redondo Beach), and remaining habitat resources (including potential restoration areas such as the Bolsa Chica wetlands in Northern Orange County.).

The management area extends inland to I-405 to include designated Santa Ana River greenbelt areas with high public recreation value. Further south, the management area includes the immediate drainage area of Upper Newport Bay inland to I-405. The Irvine Company's open property is included because of its importance in planning how to meet recreational and open space needs in the heavily-developed surrounding area.

The resource management area also incorporates the Laguna greenbelt, a valuable habitat and open space area designated for protection by both Orange County and the City of Laguna Beach; the last major open areas along the southern Orange County coast (AVCO headlands, Dana Point Headlands, Dana Point Palisades, and the Reeves Ranch property in San Clemente seaward of I-5); and productive coastal agricultural lands to the ridgelines on each side of the Capistrano Valley up to five miles inland.

All of the area of Santa Catalina and San Clemente Islands is also included in the resource management area because of their sensitivity to development impacts.

### SAN DIEGO COAST REGION

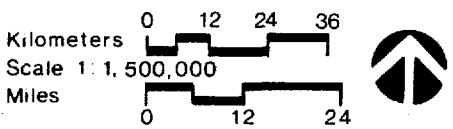
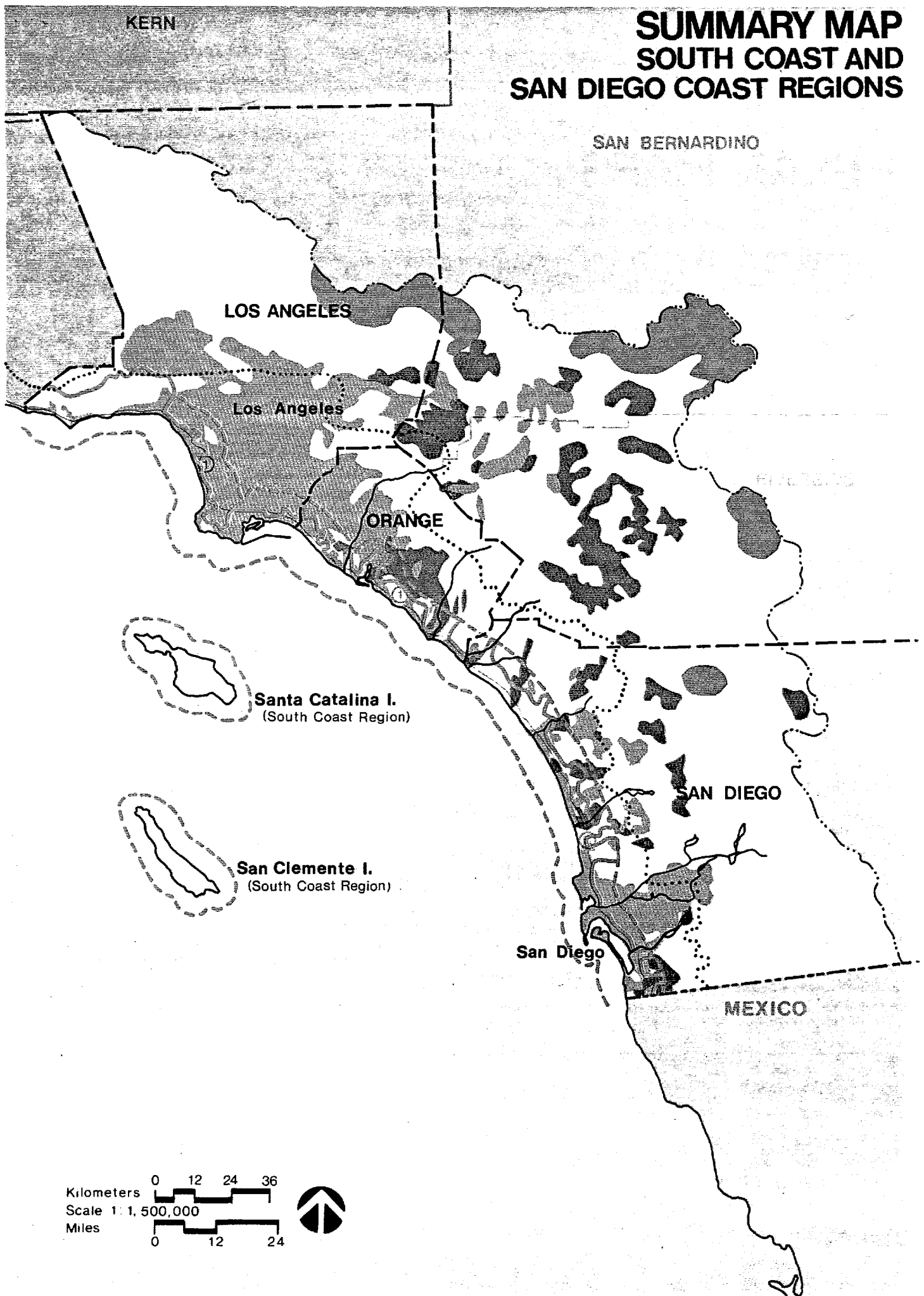
This region, with its attractive climate and landscape, is an unique part of the California coast and is in many places undergoing rapid urban expansion. Key Plan goals are the protection of the region's nationally significant floriculture, its special coastal communities, the unique lagoons and estuaries, and its nationally recognized recreation value.

**San Diego Coast Resource Management Area.**<sup>1</sup> The San Diego resource management area extends generally to the top of the coastal hills in Camp Pendleton. In northern San Diego County, the resource area includes the critical lagoon habitats and their immediate drainage areas. The important coastal agricultural lands of northern San Diego County (e.g., the San Luis Rey River Valley, the area between Agua Hedionda and Batiquitos Lagoons) have defined the furthest extent of the resource management area. Special coastal neighborhoods such as Leucadia, Encinitas, and Solana Beach have been included because they are subject to heavy development pressure that could change their character and potentially affect existing public access to the coast.

From La Jolla to south San Diego Bay, major concerns are protecting special neighborhoods (e.g., La Jolla Village and Ocean Beach) and protecting public access to the ocean beaches, to Mission Bay Aquatic Park, and to the San Diego Bay waterfront: accordingly, the resource management line has been drawn along I-5. The Sweetwater Marsh and its immediate drainage area have been included; in the Tijuana Estuary and Ojai River areas, the management line has been drawn around the major agricultural lands and around the wetlands and their immediate drainage areas.

<sup>1</sup>The coastal resource management area, as defined in the immediately preceding legend description and in Part III, is to include significant coastal resources and those areas affecting access to the coast. It is illustrated on the Summary Maps and can be seen in more detail on the Plan Maps.

# SUMMARY MAP SOUTH COAST AND SAN DIEGO COAST REGIONS



# PLAN MAPS

## SELECTED STATEWIDE MAPPING SOURCES

This is a selected listing of publications, maps, and aerial photography available in the State office for mapping the Coastal Plan. The selection is based on relevance of the material to mapping.

### PUBLICATIONS

*Acquisition Priorities for the Coastal Wetlands of California.* Bureau of Sport Fisheries and Wildlife and Department of Fish and Game, 1974.

*At the Crossroads.* Department of Fish and Game, 1974.

*California Coastline Preservation and Recreation Plan.* Department of Parks and Recreation, 1971.

*California Outdoor Recreation Resources Plan.* Department of Parks and Recreation, 1972.

*California Protected Waterways Plan (Initial Elements).* Protected Waterways Program, 1971.

"Coastal Wetland Series": Natural Resources of the Eel River Delta; Goleta Slough; Bolinas Lagoon; Elkhorn Slough; San Diego Bay; Humboldt Bay; Los Penasquitos Lagoon; Morro Bay. Department of Fish and Game, 1974.

*Comprehensive Framework Study California Region.* Prepared by the California Region Framework Study Committee (State and Federal agencies), 1972.

*Comprehensive Ocean Area Plan (COAP), Supplement and nine Appendices.* Department of Navigation and Ocean Development, 1972.

*Landscape Preservation Study: The Sierra Foothills and Low Coastal Mountain Province and Landscape Preservation Study: The Southwest Mountain and Valley Province.* Royston, Hanamoto, Beck & Abbey for Department of Parks and Recreation, 1973.

*1974 Park Bond Program.* Department of Parks and Recreation, 1974.

*Regional Ocean Coastline Plan (ABAG) and Tri-County Coastline Study (Santa Cruz, Monterey, San Luis Obispo counties).* Sedway/Cooke, Urban and Environmental Planners and Designers, 1972.

*Regional Water Quality Control Board Basin Plans 1A, 1B, 2, 3, 4A, 4B, 8 and 9.* State Water Resources Control Board, 1974.

*San Francisco Bay Plan and Appendix.* San Francisco Bay Conservation and Development Commission, 1969.

*State Water Resources Control Board Resolution 74-28.* SWRCB, 1974.

*Soil Surveys of all coastal counties.* Soil Conservation Service, 1968-1974.

*The California History Plan.* Three volumes. Department of Parks and Recreation, 1973.

*The Marine Life Refuges and Reserves of California.* Department of Fish and Game, 1974.

*Type 16 Flood Insurance Study: Tsunami Predictions for Pacific Coastal Communities.* U.S. Army Engineer Waterways Experiment Station, 1974.

### MAPS

*Geologic Map of California.* Geology maps of 1:250,000 scale quads along the coastline; shows major geologic formations and structure including faulting.

*Land Use.* California Region Framework Study, 1964.

"Native Plants," maps from *Inventory of Rare and Endangered Vascular Plants in California.* California Native Plant Society, 1974.

"Natural Areas," maps from *A Selected Listing of the Natural Areas of California.* California Natural Areas Coordinating Council, 1974.

*Plantclimates of California.* Agriculture Extension, 1964.

*Prime and Potential Prime Agricultural Land.* Department of Water Resources, 1974.

"Prime Rangeland Soils." U.S. Soil Conservation Service, 1974.

*Tsunami Runup Areas.* Division of Mines and Geology, 1974.

*Vegetative Cover.* California Region Framework Study, 1971.

### FILM

9x9 black and white vertical prints covering immediate coastline with an average of one-third of format showing ocean. Scale is approximately 1:12,000. One flight available, 1970. Resolution is good.

35mm oblique color slides covering immediate coastline. Inland coverage varies. Shot from low flight. One flight available, 1972. Color is excellent.

35mm vertical color slides covering the immediate coastline. Coverage is approximately one-mile with an average of one-third of frame showing ocean. Contact scale is approximately 1:24,000. Two flights are available, 1968 and 1970. Color is excellent.

Computer printout of various film and format combinations. Film is available from NASA Ames Research Center, Menlo Park.

# NORTH COAST REGION

## INDEX MAP

Crescent City

DEL NORTE

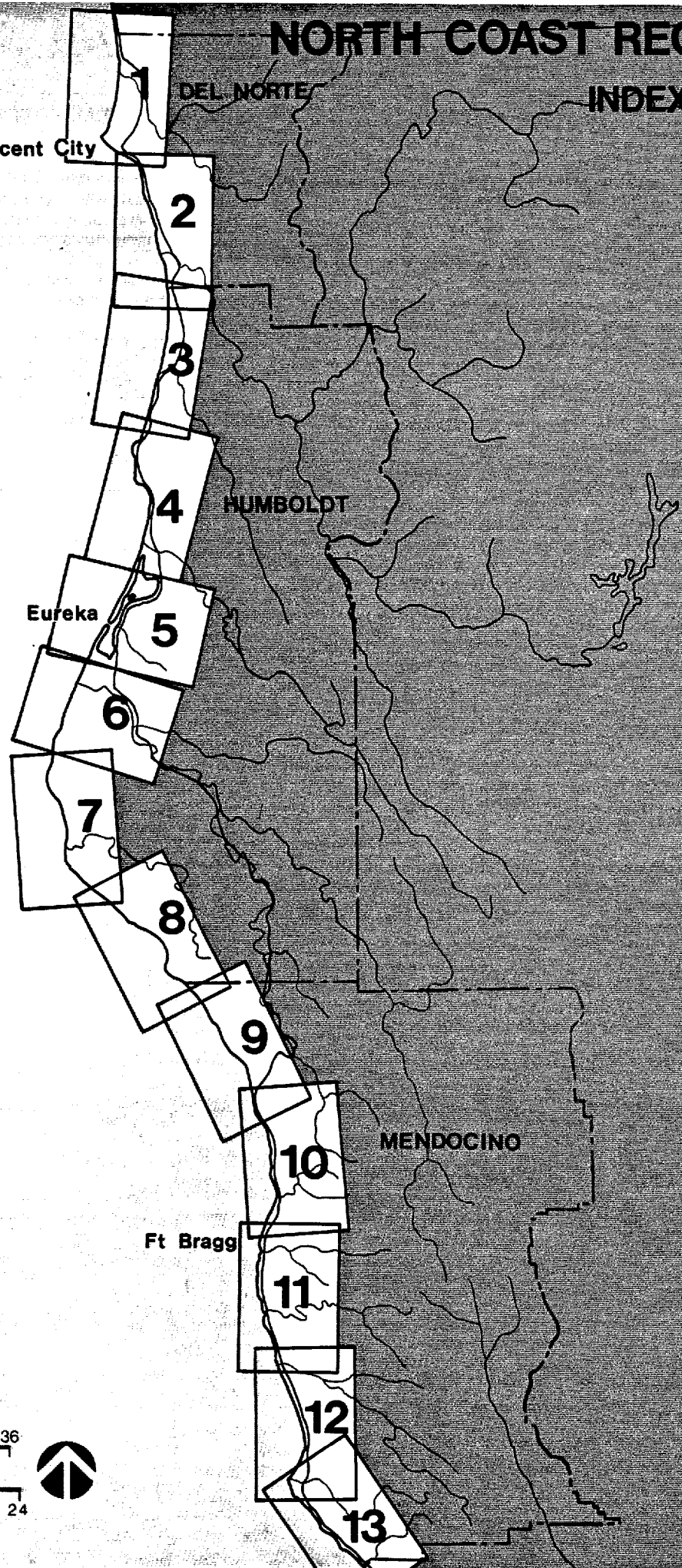
HUMBOLDT

Eureka

Ft Bragg

MENDOCINO

Kilometers 0 12 24 36  
Scale 1:1,500,000  
Miles 0 12 24





## PLAN MAP 1: MAP NOTES

### SUBREGION 1: DEL NORTE COUNTY

**Lands North of Smith River.** Maintain the agricultural lands from the Oregon border to the Smith River in agricultural use. Prevent further strip development along Highway 101 to protect scenic qualities.

**Smith River to Dead Lake.** Acquire open space easements from the mouth of the Smith River to Dead Lake to protect sand dunes and valuable wetland habitats. The California Department of Fish and Game should enter into a cooperative management program with surrounding landowners to further protect habitat values and to prevent development that would degrade the shallow water table.

**Pacific Shores.** Regulate development of this subdivision to prevent destruction of sand dunes and to control any septic tank problems. Allow public day-use access (foot travel) to the dunes and beach area.

**Lakes Earl and Talawa.** Acquire this 2,500-acre area of wetlands and expansive dunes (an extremely valuable fish and wildlife habitat) for resource preservation, general recreational use, and open space. (The State is currently in court asserting that the lake bottom is subject to a public trust.)

**Crescent City Manor.** Acquire approximately 75 acres of this subdivision for habitat preservation and open space values, including protection of an unstable sand dune area and poorly-drained marsh lands. Limit public access to these sensitive areas to foot traffic.

**Crescent Beach.** Prohibit off-road recreational vehicles in this area to prevent compaction of the sand that would threaten habitat values (this is one of the most productive areas for invertebrates in the North Coast).

**Wetlands South of Crescent City.** Protect these highly productive and sensitive areas by acquiring open space easements around the wetlands and by controlling future development nearby to prevent degradation.

**Crescent City Harbor.** Allow maintenance dredging and necessary modification of the harbor to ensure safety. Regulate disposal of dredge spoils, when dredging next becomes necessary, in accordance with applicable Plan policies.


### SUPPLEMENTAL NOTES

**Special Communities.** Protect and enhance the unique character of special communities throughout this subregion through the use of design guidelines and the restriction of inappropriate development, as determined by community design review committees and appropriate public agencies.

**Water Quality and Ecosystem Protection.** Maintain water quality, prevent destruction of wetlands, and protect fragile ecosystems.

**Timberlands.** Maintain all prime timberlands now in economically feasible harvesting units as a valuable natural resource, important nationwide. Reconsolidate smaller parcels in areas that are not significantly built out at this time to return them to productive use.



Map  
  
**North Coast**

OREGON

DEL NORTE COUNTY

Pyramid Point  
 Smith River

Shirley Ashore

Smith River Easement

Pacific Shores

Lake Talawa

Lake Earl

Point St. George

Dead Lake

Crescent City Manor

CRESCENT CITY

Jedediah Smith Redwoods State Park

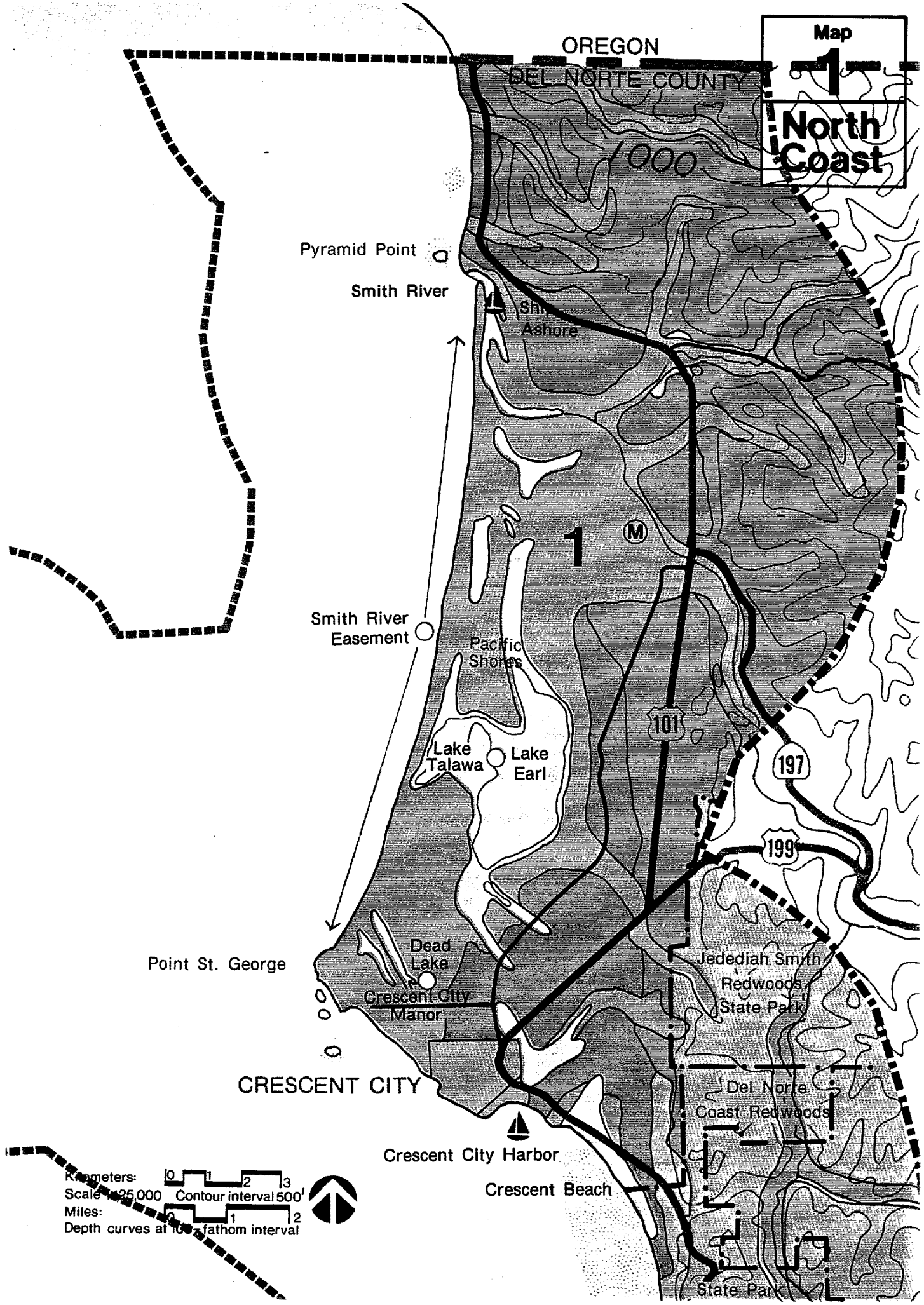
Del Norte Coast Redwoods State Park

Crescent City Harbor

Crescent Beach

State Park

Kilometers: 0 1 2 3  
 Scale: 1:25,000 Contour interval 500'  
 Miles: 0 1 2  
 Depth curves at 100 fathom interval



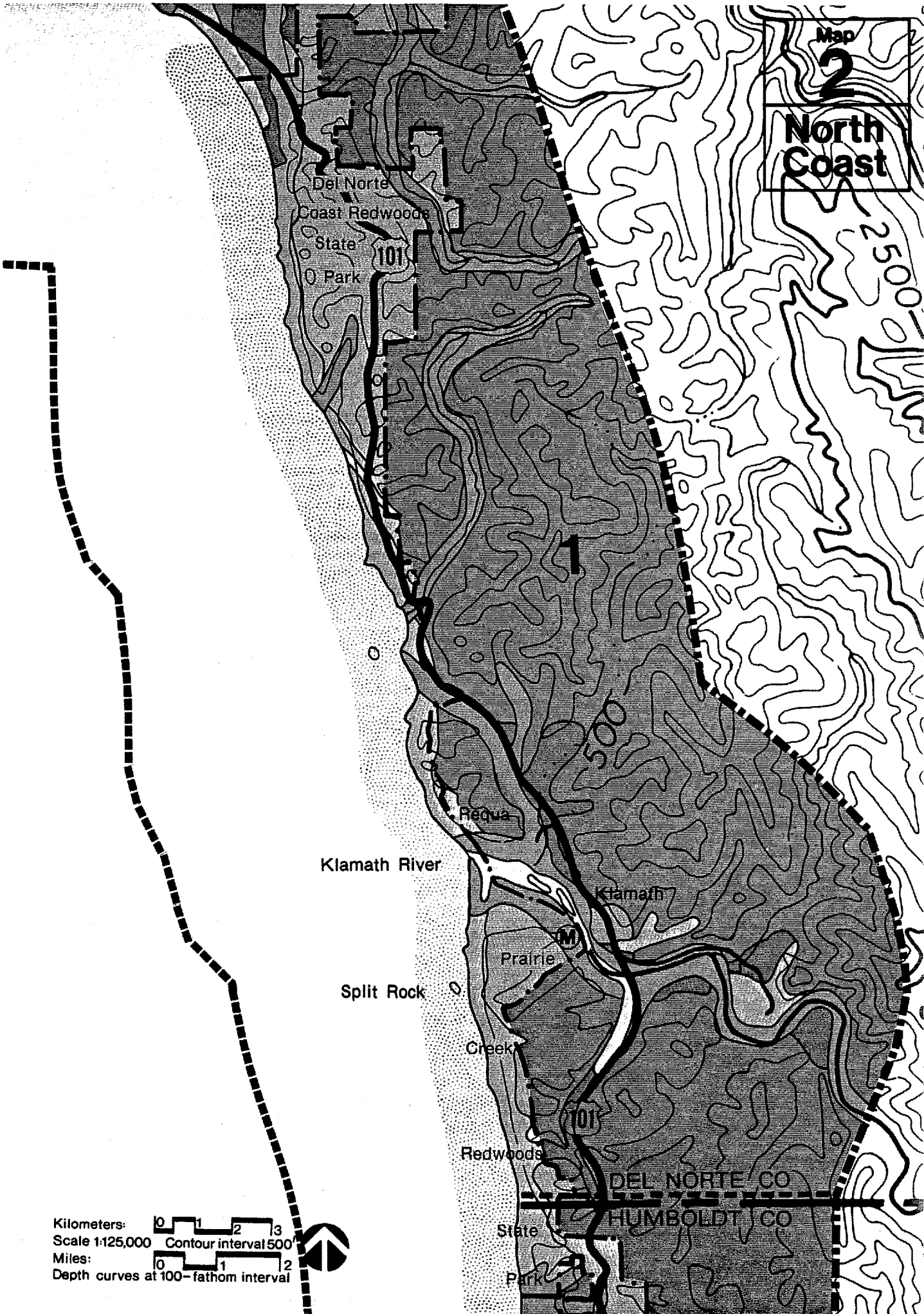
## **PLAN MAP 2: MAP NOTES**

### **SUBREGION 1: DEL NORTE (CONTINUED)**

**Requa.** Maintain the character of this special community, a regionally important historic site for both Native American and white settlers, by limiting commercial development. Prevent development of the steep, highly scenic hillsides above the town.

**Klamath River.** Plan development within the watershed to protect the valuable anadromous fish resource of the Klamath River.

Map  
**2**  
**North Coast**



Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



## PLAN MAP 3: MAP NOTES

### SUBREGION 2: HUMBOLDT COUNTY

**Orick.** Prevent divisions of agricultural lands. Because existing water sources are of low quality and quantity, a community water system should be developed to provide for existing needs and to eliminate present problems.

**Freshwater, Stone, and Big Lagoons.** Regulate development within this watershed to protect views, water quality, and fish and wildlife habitat.

**Big Lagoon.** Acquire approximately 357 acres of partially-logged forest lands to protect the visual corridor along Highway 1 and to screen logging operations from view. (The State is currently asserting that a portion of the lagoon is subject to a public trust, and thus purchase of the entire parcel may be unnecessary.)

**Big Lagoon Subdivision.** Allow build out consistent with North Coast Regional Commission Blanket Conditions dealing with geologic hazards.

### SUPPLEMENTAL NOTES

**Special Communities.** Protect and enhance the unique character of special communities throughout this subregion through the use of design guidelines and the restriction of inappropriate development, as determined by community design review committees and appropriate public agencies.

**Water Quality and Ecosystem Protection.** Maintain water quality, prevent destruction of wetlands, and protect fragile ecosystems.

**Timberlands.** Maintain all prime timberlands now in economically feasible harvesting units as a valuable natural resource, important nationwide. Reconsolidate smaller parcels in areas that are not significantly built out at this time to return them to productive use.

**Agricultural Lands.** Protect all prime agricultural lands from conversion to non-agricultural uses.

**Trails and Bikeways.** Develop initial segments of the coastal trails system in this subregion both north and south of the King Range National Conservation Area. Site and manage the trails in a manner that will protect continued agricultural operations, using alternate locations or appropriate protective measures where necessary. Expand bikeways where feasible and in areas where bike use is heaviest (McKinleyville, Arcata, and Eureka).

Map  
**3**  
**North Coast**

DEL NOR  
HUMBOLDT CO

Prairie Creek  
Redwoods  
State Park

101

Redwood  
National  
Park

Oreck

Redwood  
National  
Park

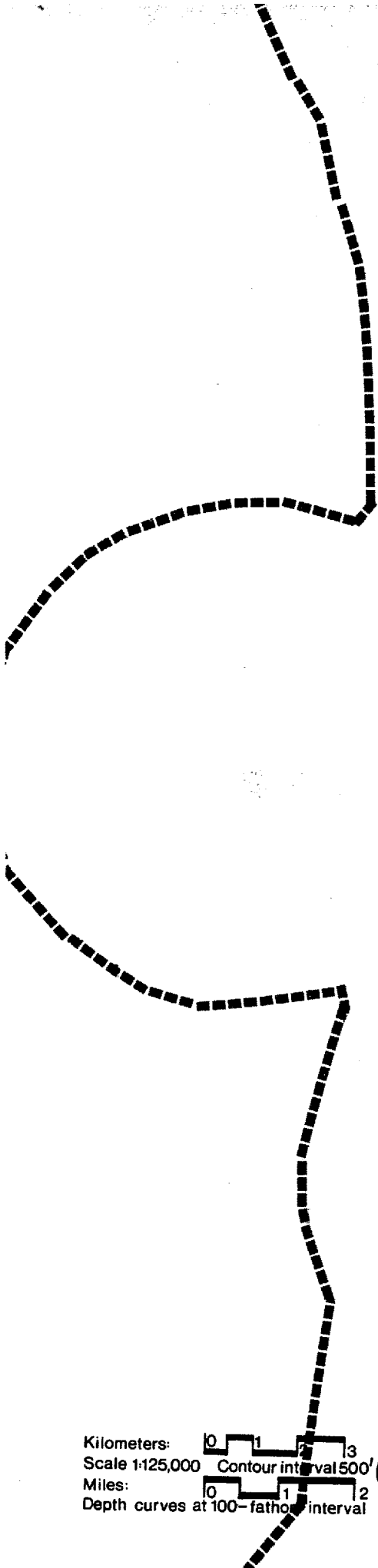
Redwood Creek

Freshwater Lagoon

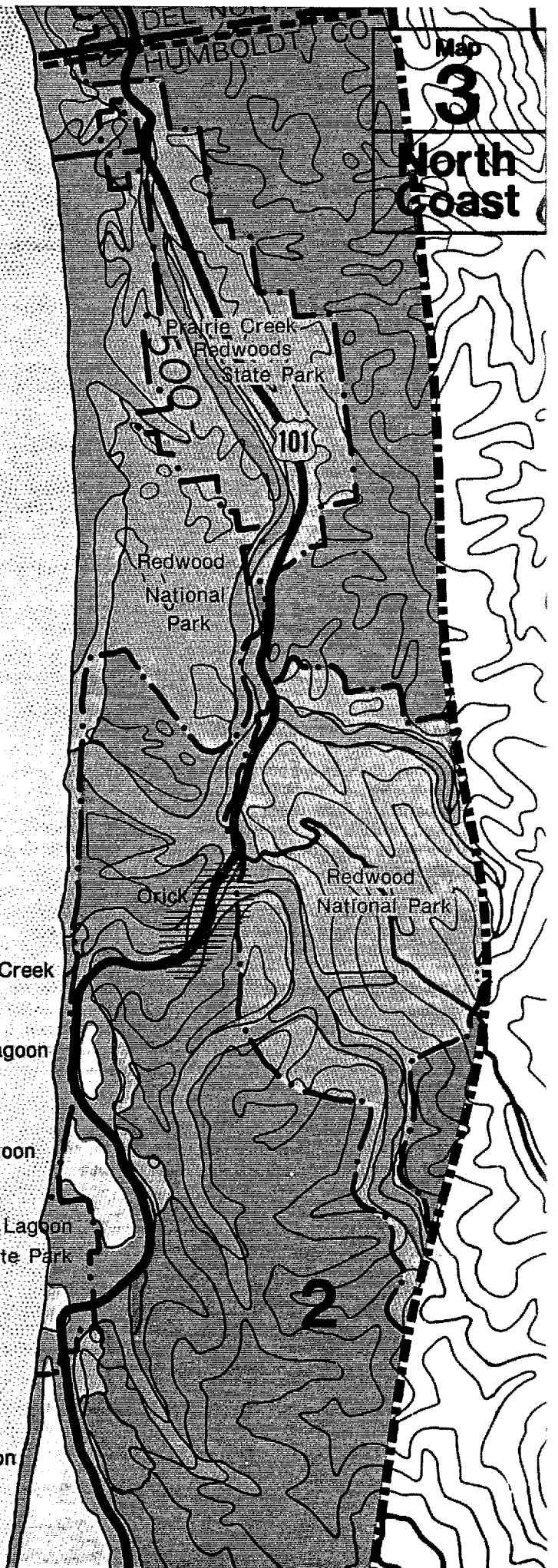
Stone Lagoon

Dry Lagoon  
State Park

Big Lagoon



Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



## PLAN MAP 4: MAP NOTES

### SUBREGION 2: HUMBOLDT (CONTINUED)

**Agate Beach.** Acquire approximately 175 acres of beach and coastal forest east to Highway 101 for general recreation.

**Stagecoach Road (Patrick's Point).** Acquire an open space easement west of Patrick's Point Drive and Stagecoach Road to protect steep coastal headlands and the view corridor.

**Beach North of Trinidad.** Acquire 8-acre beach and bluff property for general recreation.

**McConnahas Mill Creek and Luffenholtz Creek.** Control development adjacent to these creeks to protect the water supply for Trinidad.

**College Cove.** Designate this area of Trinidad State Beach as a limited-use area. Undertake erosion control measures to prevent further problems along the trails and parking areas. Designated parking areas should be constructed and managed by the California Department of Parks and Recreation.

**Trinidad Area.** Establish a design review committee to keep future development consistent with the character of the community. Reconstruct the Tsurai Village in an authentic manner; do not allow commercialization. A more detailed development plan should be prepared for the Trinidad area.

**Trinidad Head.** Protect 70-acre undeveloped headland and coastal brush area for general recreation. Recommend transfer from Federal to State ownership.

**Trinidad Bay.** Undertake a comprehensive, detailed study (cooperatively with the City of Trinidad, Humboldt County Planning Department, Department of Navigation and Ocean Development, and the U.S. Army Corps of Engineers) to determine the needs of and modifications necessary to provide for a safe, all-weather harbor facility and harbor of refuge.

**Trinidad Head to Little River.** Acquire the large undeveloped parcels west of Scenic Drive and north of Little River for access, beach recreation, and support facilities.

**Little River to Mad River.** Prohibit off-road recreational vehicle access to sand dunes and beach areas from Little River to Mad River. (The beach is readily accessible by foot from a parallel frontage road.) Allow only day use of Clam Beach County Park. Protect the Mad River estuary from developments harmful to the river's salmon and steelhead.

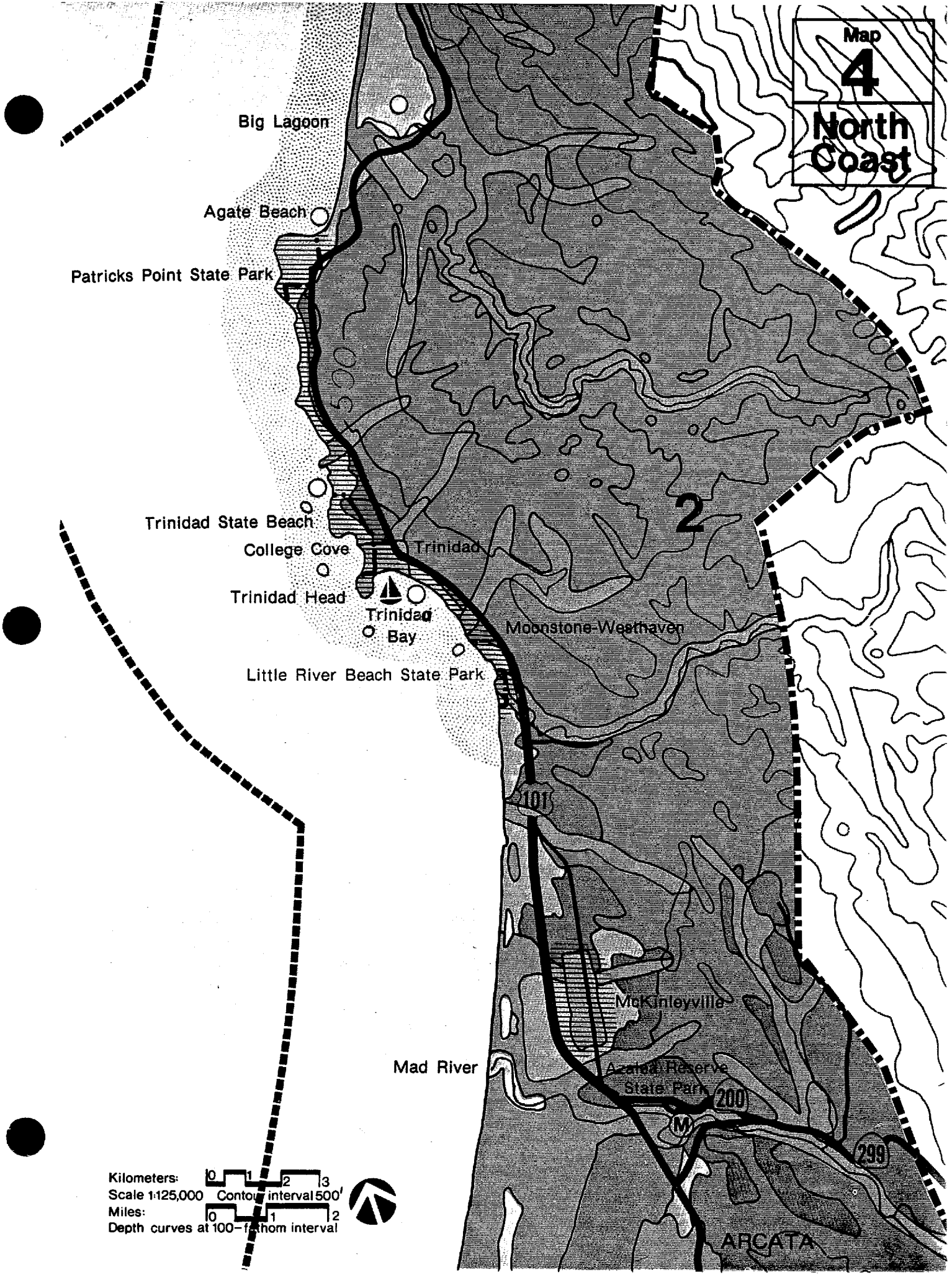
**Trinidad South to Rio Dell.** Establish a public bus system extending from Trinidad south to Rio Dell and connecting with existing bus systems (Arcata and Mad River Transit and Bishop Transit).

**McKinleyville.** Control the recent scattered and widespread growth of this community. Protect all remaining prime agricultural land from conversion to non-agricultural uses. A building moratorium has been imposed by the county because of serious health hazards resulting from the use of septic tanks in hardpan conditions. Correct this problem by developing a wastewater treatment system that meets regional water quality standards as indicated in the North Coastal Basin 1B Plan.

**McKinleyville-Arcata-Eureka Area.** Expand bikeways in these areas where bike use is heaviest.



Map  
**4**  
North  
Coast



Patricks Point State Park

Agate Beach

Big Lagoon

Trinidad State Beach

College Cove

Trinidad Head

Trinidad Bay

Little River Beach State Park

Mad River

McKinleyville

Azalea Reserve State Park

ARCATA

Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



## PLAN MAP 5: MAP NOTES

### SUBREGION 2: HUMBOLDT (CONTINUED)

**Mad River to Manila.** From the mouth of the Mad River to the town of Manila, retain the largely undeveloped sand dunes in their natural state. On a long-term basis, acquisition should be considered. Seek to relocate the gun club, now located at one of the wetlands scattered throughout these dunes, to a safer site.

**Mad River Slough.** Prevent the destruction of this diminishing slough habitat by acquiring a 450-acre open space easement along the slough and on the islands in the slough. The California Department of Fish and Game should enter into a cooperative management program with adjacent landowners to manage for wildlife production, including public access for duck hunting.

**North Spit (South of Manila).** Retain the section of coastal dunes lying west of the new Navy Base road and south of the town of Manila to the U.S. Coast Guard Station in an undeveloped state. Acquire an open space easement across these dunes to prevent future development on them.

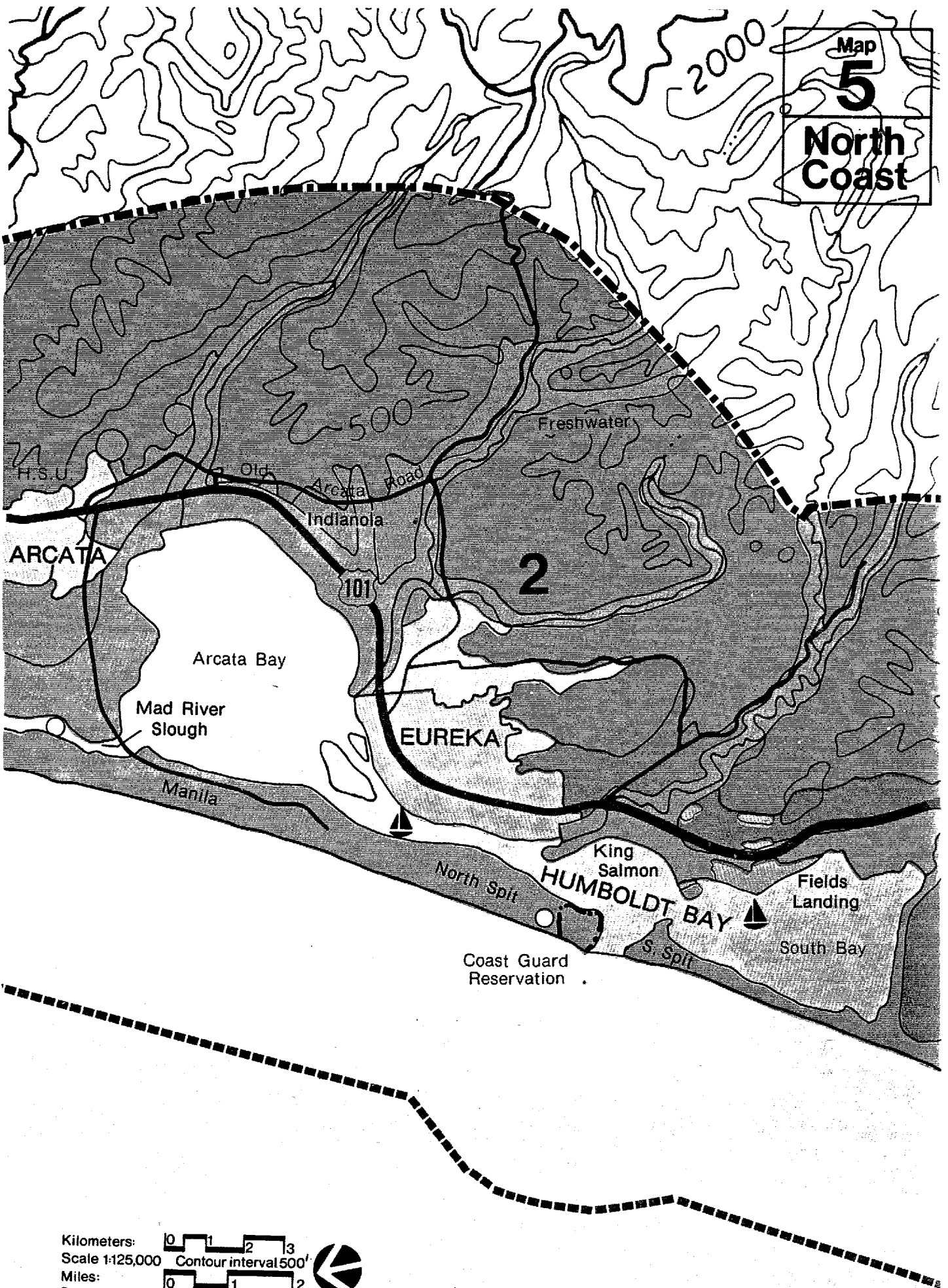
**Arcata and Eureka Area.** Prohibit strip development along Highway 101 between Arcata and Eureka to ensure open space values, to protect agricultural lands and wildlife habitats, and to maintain the integrity of the two communities. Maintain prime agricultural lands in Arcata Bottoms area in agricultural use. Allow buildout in existing developed areas consistent with Coastal Plan policies. Expand bikeways, where feasible, in areas where bike use is heaviest.

**Humboldt Bay.** Protect the biological integrity of Humboldt Bay, an extremely important coastal estuary. Allow maintenance dredging to ensure the economic viability of Humboldt Bay as a harbor and shipping facility. Regulate spoil disposal in accordance with Plan policies, probably requiring disposal offshore rather than on lands adjoining the bay. Prohibit development or degradation of salt and fresh water marshes.

**South Spit.** Permit current off-road recreational vehicle use to continue if strict enforcement of the county ordinance can assure that vehicle access is limited to the seaward site and does not encroach on the vegetated dunes.



Map  
**5**  
 North  
 Coast



Kilometers: 0 1 2 3  
 Scale 1:125,000 Contour interval 500'  
 Miles: 0 1 2  
 Depth curves at 100-fathom interval



## PLAN MAP 6: MAP NOTES

### SUBREGION 2: HUMBOLDT (CONTINUED)

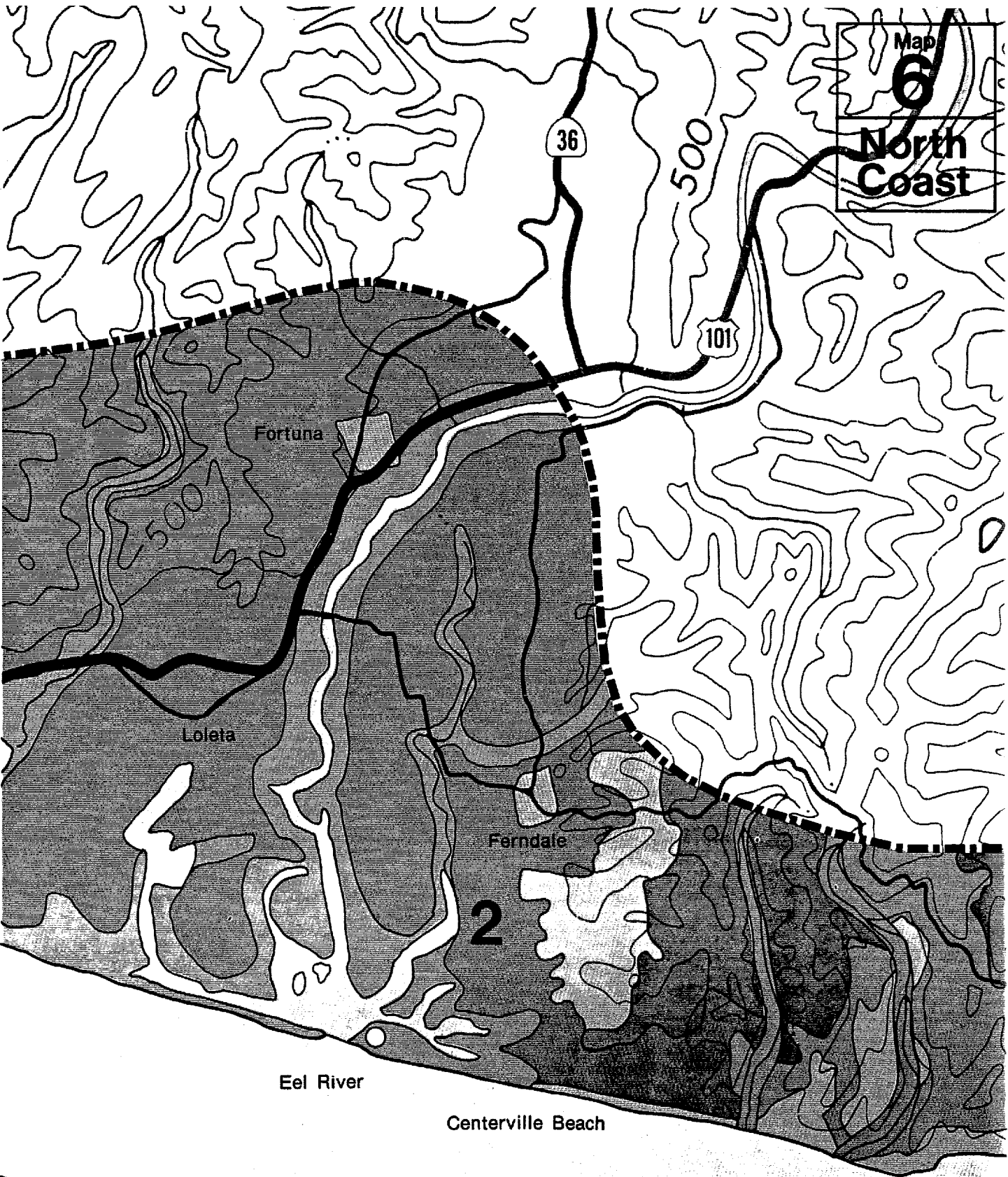
**Eel River Floodplain.** Allow only dairy support facilities and only to the extent that they can withstand periodic flooding. Prevent conversion of agricultural lands, now used for grazing, to non-agricultural uses.

**Eel River Salt Marsh.** Prohibit filling or other alteration of the salt marshes north of the mouth of the Eel River around McNulty Slough and from the mouth of the Eel River south to Centerville Beach. Acquire a 450-acre open space easement to protect this salt marsh of statewide significance. The California Department of Fish and Game should enter into a cooperative management program with adjacent landowners to enhance wildlife productivity in the area.

**Centerville Beach.** Allow continued use of off-road recreational vehicles if consistent with Plan policies and with County ordinances requiring the vehicles to stay seaward of the sensitive vegetated dunes.

**Fortuna, Ferndale, Loleta.** Modify existing water and sewer systems as necessary to meet water quality control standards, as indicated in the North Coastal Basin 1-B Plan. Maintain the unique character of Loleta and Ferndale as special coastal communities.

Map  
**6**  
North  
Coast



Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



## PLAN MAP 7: MAP NOTES

### SUBREGION 2: HUMBOLDT (CONTINUED)

**Bear River.** Acquire a 1.5-mile public easement along the mouth of Bear River from Wildcat Road to provide public access for fishing and for other recreational use.

**Mattole River to King Range.** Use the beach area as a segment of the coastal trail system from Mattole River south to the King Range National Conservation Area, rather than developing any trail upland that could interfere with productive agricultural lands.

Map

7

North Coast

Bear River

Coast Guard  
Reservation

Cape Mendocino

Mattole

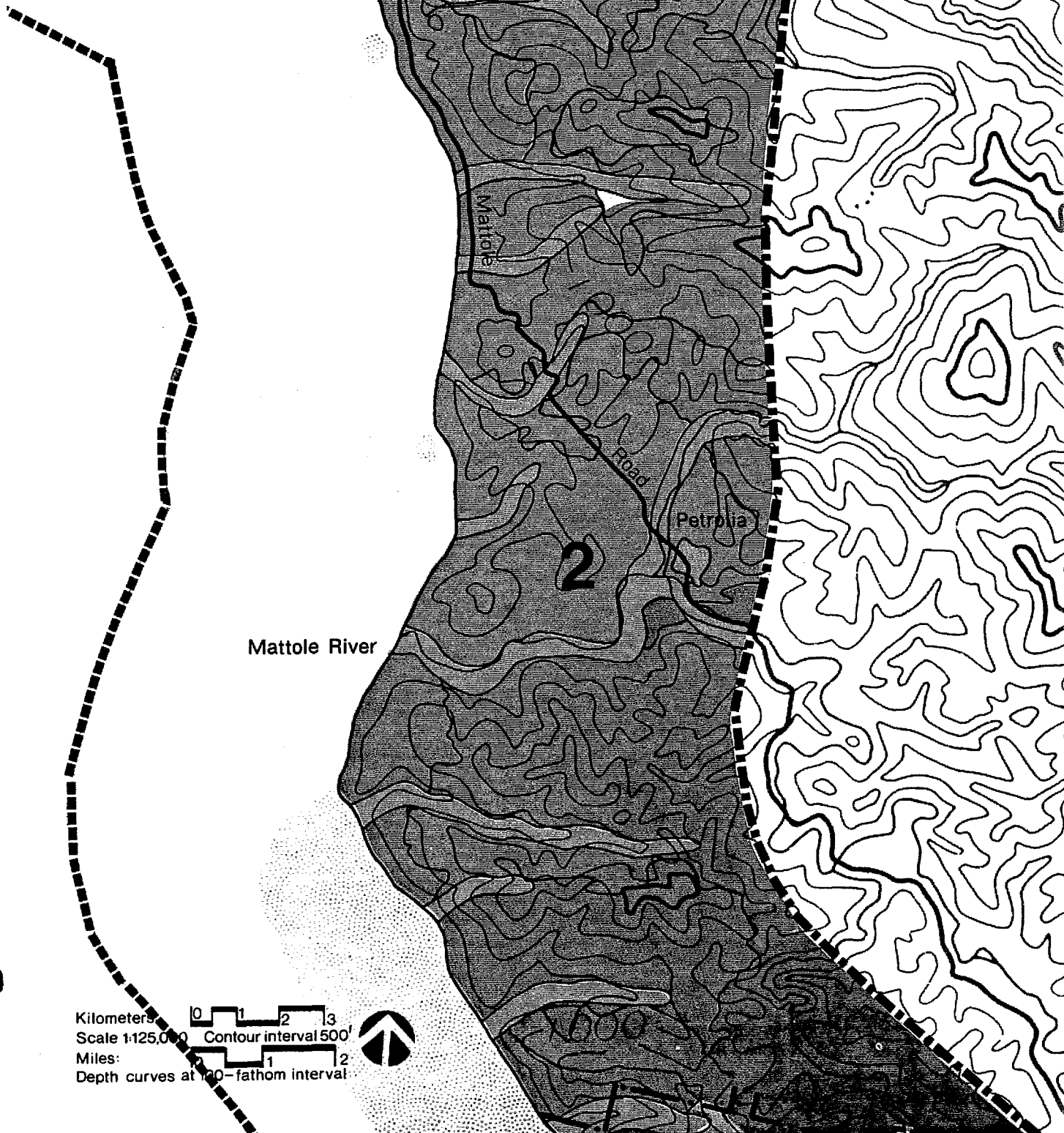
Road

Petrolia

2

Mattole River

Kilometers 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval

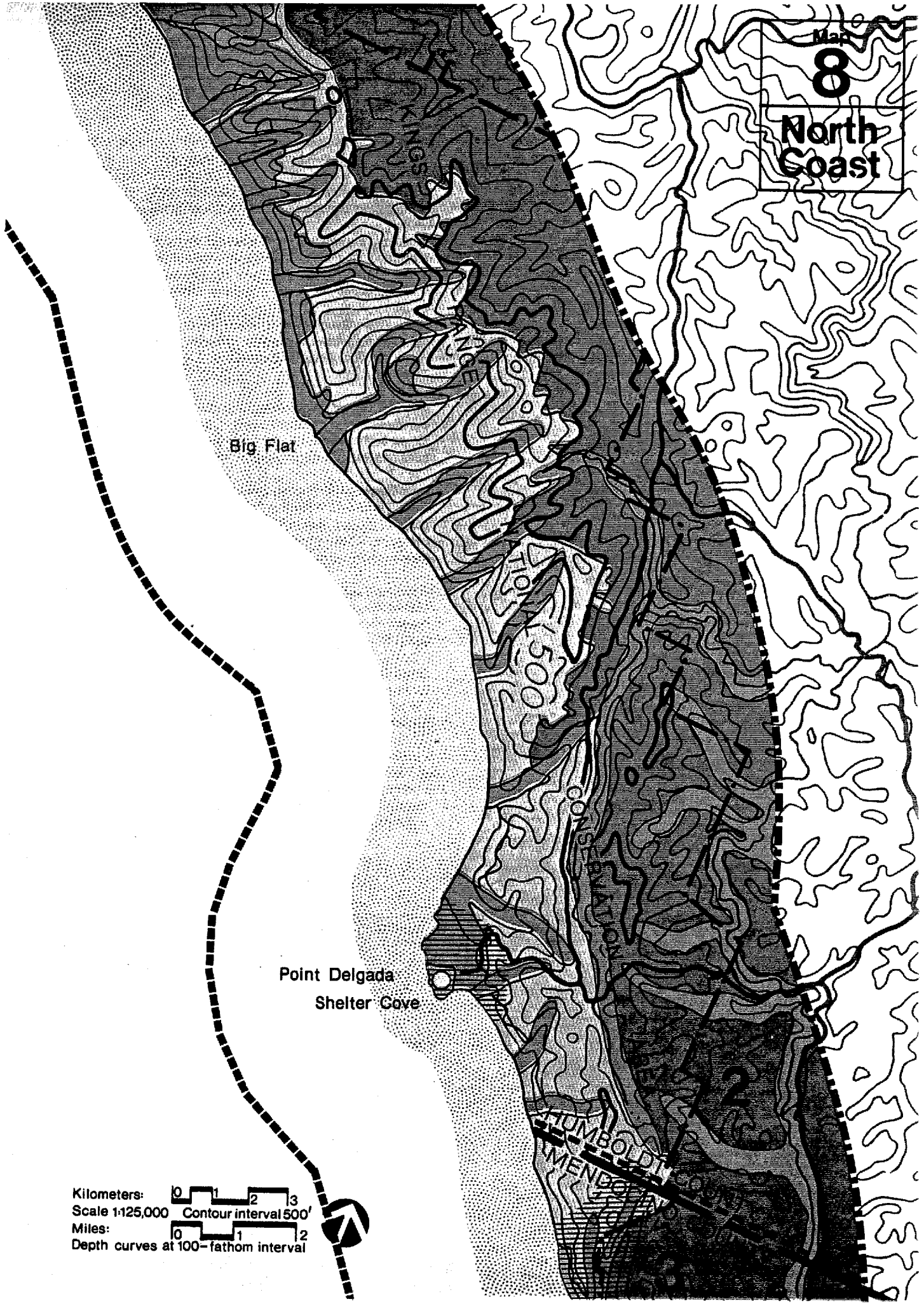


## **PLAN MAP 8: MAP NOTES**

### **SUBREGION 2: HUMBOLDT (CONTINUED)**

**Shelter Cove Area.** Allow build-out of some existing lots now serviced by sewer and water systems, consistent with geologic hazard requirements. Acquire selected parcels to protect viewshed, archaeological, and soil resources, giving priority to shoreline lots (especially between the airport and the ocean), lots near the bluff at the south end of the subdivision, and parcels of special archaeological importance. Because of the high geologic risks on steep hillside areas of Shelter Cove Rancho, do not allow development on these 40-80 acre parcels.

Map  
**8**  
North  
Coast



Big Flat

Point Delgada  
Shelter Cove

HUMBOLDT  
MENDOCINO

Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



## PLAN MAP 9: MAP NOTES

### SUBREGION 3: MENDOCINO COUNTY

**Bear Harbor and Usal Creek.** Complete the current acquisition of 3,660 acres by the State Department of Parks and Recreation; acquire an additional 2,000 acres to connect the Bear Harbor and Usal Creek areas.

**King Range to DeVilbis Ranch.** Develop a segment of the coastal trail system from the King Range National Conservation Area south to the DeVilbis Ranch, linking with trails in the proposed California Department of Parks and Recreation Bear Harbor-Usal Creek acquisition.

**Usal Creek.** Maintain buffer areas and manage construction activities within the watershed to ensure high water quality and to protect osprey nesting sites. Do not allow logging activities to begin until the nesting season is over.

### SUPPLEMENTAL NOTES

**Coastal Roads.** Keep Highway 1 along the Mendocino Coast essentially a two-lane scenic highway. Protect the scenic qualities of the existing county road system and upgrade to all-weather standards to provide coast-to-valley transportation corridors as alternatives to the State highways.

**Streams, Estuaries, and Wetlands.** Preserve and protect the remaining estuaries and wetlands and buffer areas necessary to protect the wetlands and their wildlife habitat. Maintain the fish resources and water quality in coastal streams.

**Recreation.** Study the impact of recreation on areas of biological concern within the region, including: Gualala River, Garcia River, Navarro River, Albion River, Big River, Noyo River, and Ten Mile River.

**Soil and Forest Resources.** Complete detailed upland soils surveys for Mendocino County. Develop programs for rehabilitation and enhancement of commercial timber resources to ensure continued timber productivity.

**Kelp Resources.** Protect the kelp beds near Fort Bragg, Point Arena, and Saunders Reef as a limited resource, important for providing food, habitat, and shelter for numerous species of birds, fish, and marine invertebrates. Do not allow commercial kelp harvesting in this region.

**Boating Needs.** Study boating needs (principally for commercial fishing) along the Mendocino Coast to determine best means for meeting these needs consistent with resource protection.

**Subdivisions and Lot Splits.** Undertake special studies in three large areas (Fort Bragg to Navarro River, Mallo Pass Creek to Garcia River, and Iversen Point to Gualala River) to evaluate the impact of lot splits and subdivisions within the coastal resource management area. The studies shall be undertaken jointly by the Regional Commission and the Mendocino County Planning Department. Objectives of the studies include preventing conversion to residential uses of timberlands that remain in economic units and limiting new development to existing community boundaries.



King Range National  
Conservation Area

Whale Gulch

Bear Harbor

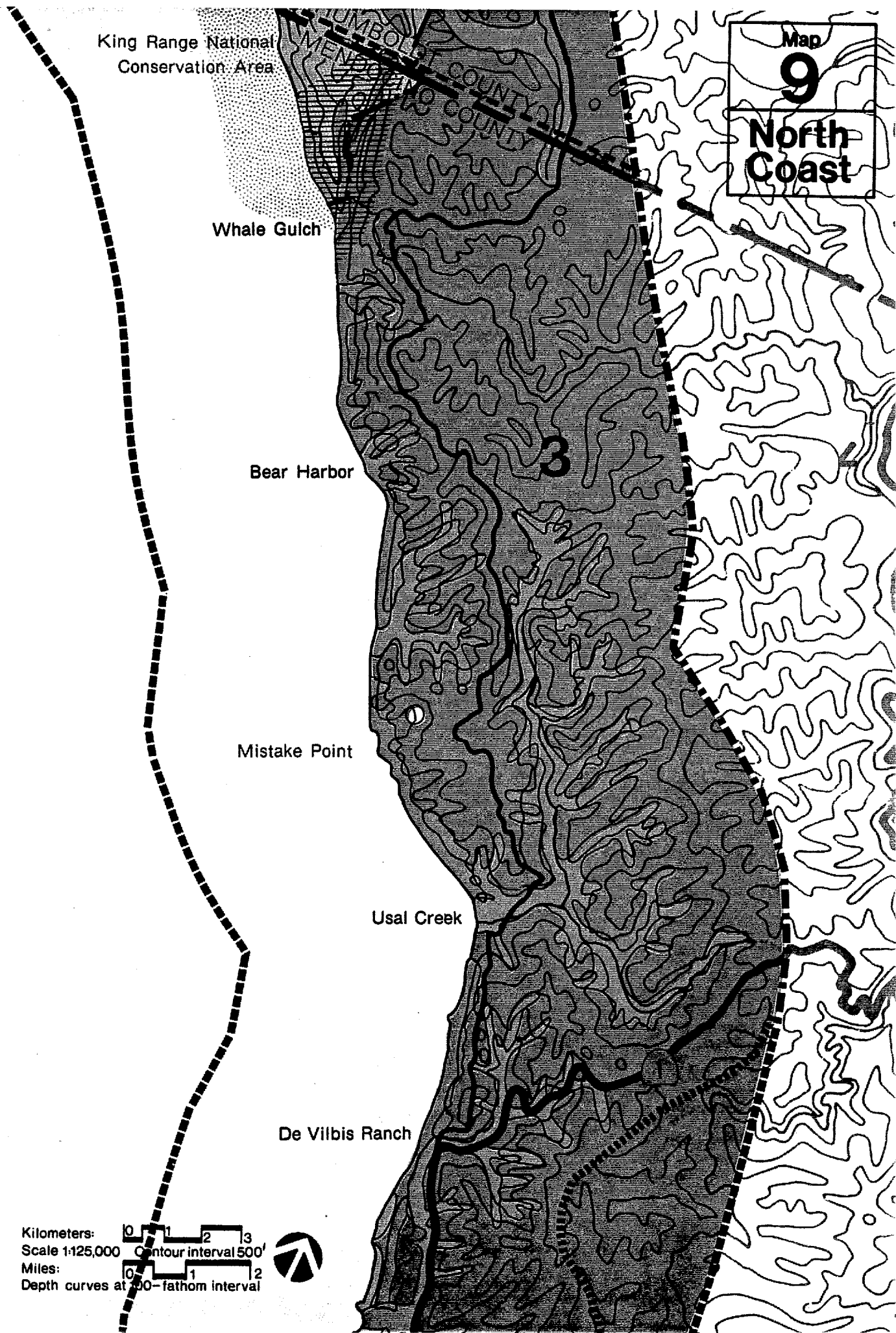
Mistake Point

Usal Creek

De Vilbis Ranch

Map  
**9**  
North  
Coast

Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 20-fathom interval



## PLAN MAP 10: MAP NOTES

### SUBREGION 3: MENDOCINO (CONTINUED)

**Cottoneva Creek and Rockport Bay.** Acquire 120 acres of canyon, hills, and beaches for preservation of the valuable riparian habitat along the banks and the small estuary at the mouth of Cottoneva Creek. Maintain present uses at Rockport Bay (a significant historical area, formerly a lumber schooner port).

**Westport.** Undertake a detailed study for the community of Westport, in cooperation with the Mendocino County Planning Department.

**Seaside Creek.** Acquire 25 acres, including the wetland area at the mouth of the creek, for preservation of the estuarine habitat.

**Ocean Meadow Subdivision.** Acquire this 31-acre planned subdivision on coastal grasslands for open space and agricultural use.

**Ten Mile River.** Acquire approximately 170 acres, including the extensive wetland habitat area, for preservation of the estuarine environment (one of the most important estuaries of the Mendocino coast).

**Ten Mile Dunes and Inglebrook Fen.** Acquire this 745-acre wetland and dune area for preservation as a wildlife habitat.

Map  
**40**  
North  
Coast

Cottoneva Creek  
Rockport Bay

Abalone Point

Westport

Seaside Creek  
Ocean Meadow Subdivision  
Ten Mile River

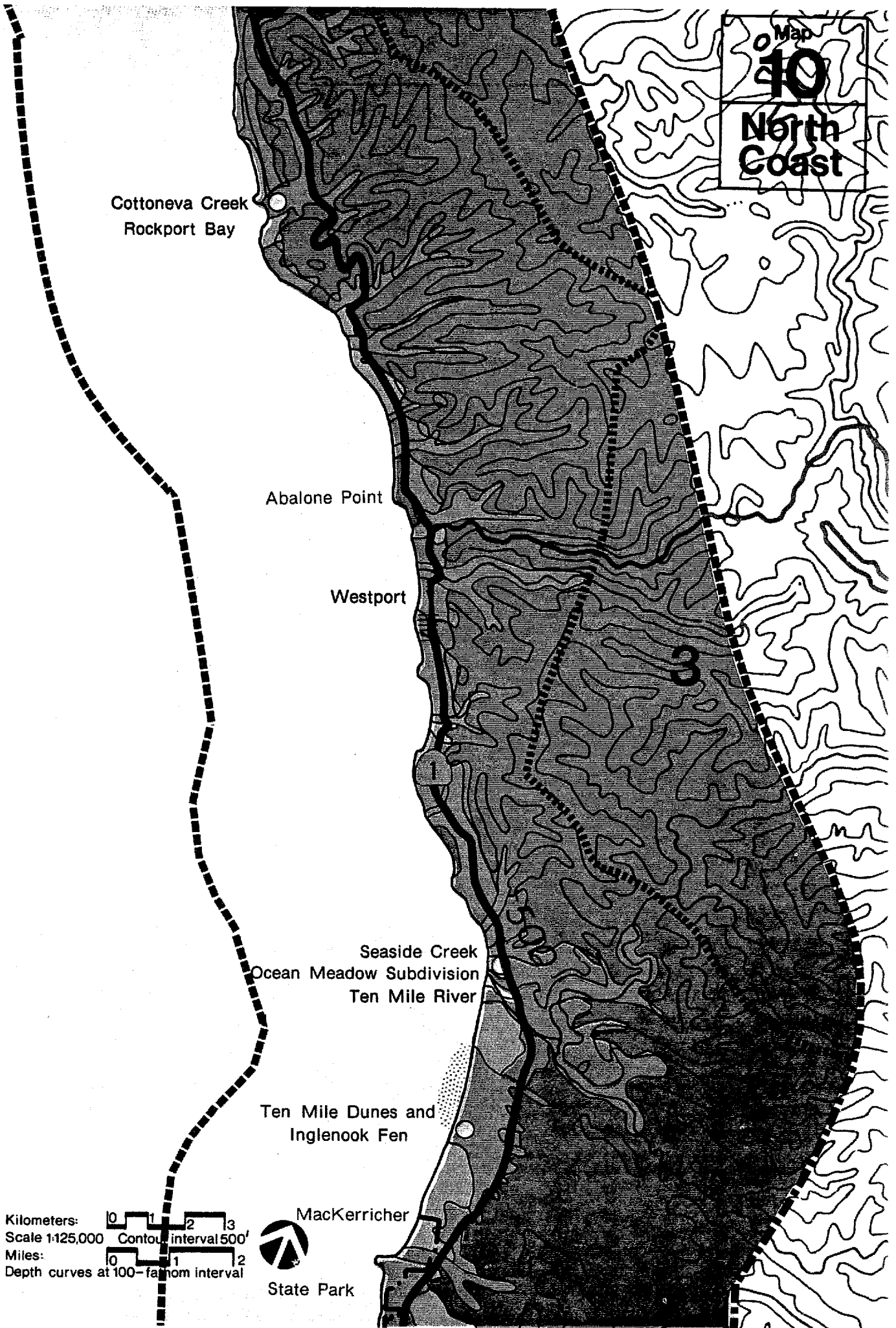
Ten Mile Dunes and  
Inglenook Fen

MacKerricher

Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



State Park



## PLAN MAP 11: MAP NOTES

### SUBREGION 3: MENDOCINO (CONTINUED)

**Cleone Acres.** Do not allow strip development in undeveloped areas along Highway 1 north of Cleone Acres.

**Fort Bragg.** Allow future development consistent with the existing and proposed water and sewage systems to ensure adequate water supplies and the maintenance of water quality.

**Noyo Harbor.** Permit maintenance dredging as necessary to maintain existing harbor facilities.

**Noyo Headland.** Acquire 18 acres of bluffs and grasslands for open space.

**Todd Subdivision.** Acquire this four-acre-plus planned subdivision on coastal grasslands for open space.

**Fort Bragg to Navarro River Special Study Area.** Undertake a special study to evaluate the impact of lot splits and subdivisions, with the objectives of preventing conversion to residential uses of timberlands that remain in economic units and limiting new development to existing community boundaries.

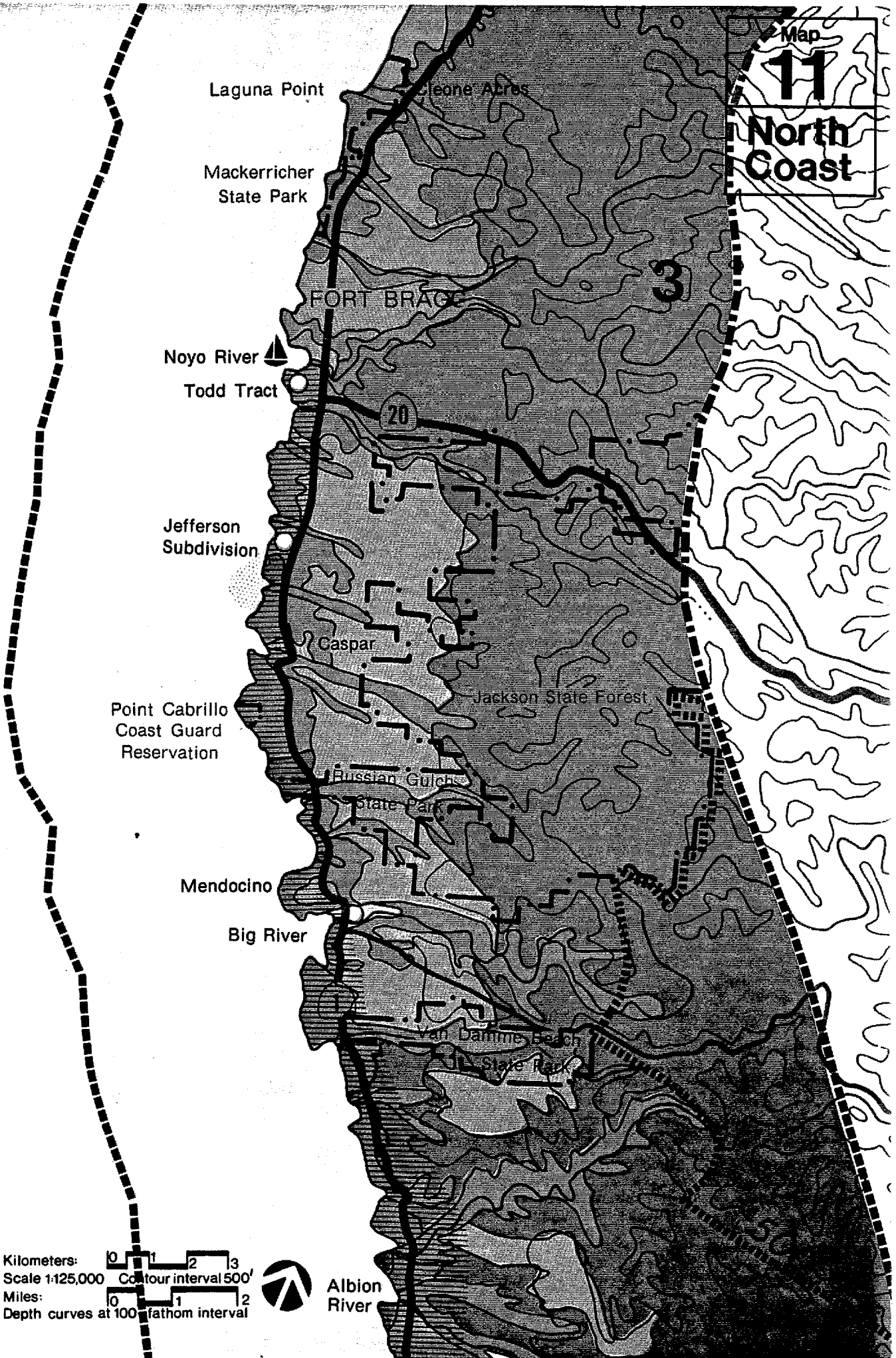
**Jefferson to Jug Handle Creek.** Acquire 121 acres, including Jefferson subdivision and the surrounding grasslands, bluffs, and rocky beaches, for general recreational use, wildlife preservation, and educational use.

**Caspar.** Maintain the special character of Caspar as an historically significant community in a scenic area; limit service facilities for subdivisions in the area and maintain open space.

**Mendocino.** Protect the unique qualities of the town as a community of special character; apply design guidelines west of Highway 1.

**Big River Wetland.** Acquire 150 acres for preservation of the extensive estuarine and wetland habitats (comparable in importance to those of Ten Mile River).

Map  
**11**  
**North Coast**



Kilometers: 0 1 2 3  
 Scale 1:125,000 Contour interval 500'  
 Miles: 0 1 2  
 Depth curves at 100 fathom interval



Albion River

## **PLAN MAP 12: MAP NOTES**

### **SUBREGION 3: MENDOCINO (CONTINUED)**

**Albion River Wetland.** Acquire 145 acres for preservation of the estuarine habitat.

**Elk.** Maintain the unique, special character of Elk, restricting linear development along Highway 1.

**Elk Creek Wetland.** Acquire 720 acres for preservation of the estuarine habitat.

**Mallo Pass Creek to Garcia River Special Study Area.** Undertake a special study to evaluate the impact of lot splits and subdivisions, with the objectives of preventing conversion to residential uses of timberlands that remain in economic units and limiting new development to existing community boundaries.

**Laguna Ranch Marsh.** Acquire 40-acre marshland for preservation of the wildlife habitat and for general recreational use.

**Irish Beach.** Restrict expansion of Irish Beach subdivision, because expansion would degrade this scenic area and exceed the capacity of existing service facilities. Build new residences within the existing subdivision or in Point Arena.

**Hunters Lagoon.** Acquire 450 acres of marshland adjacent to Manchester State Beach, now partially subdivided, for preservation of the wildlife habitat. After acquisition the area should be restored as feasible to its original natural state.

**Garcia River.** Acquire 200 acres for preservation of the estuarine habitat.

Map  
**12**  
North  
Coast

Dark Gulch

Albion River

Navarro Point

Navarro River

Cuffeys Point

Elk

Mallo Pass Creek

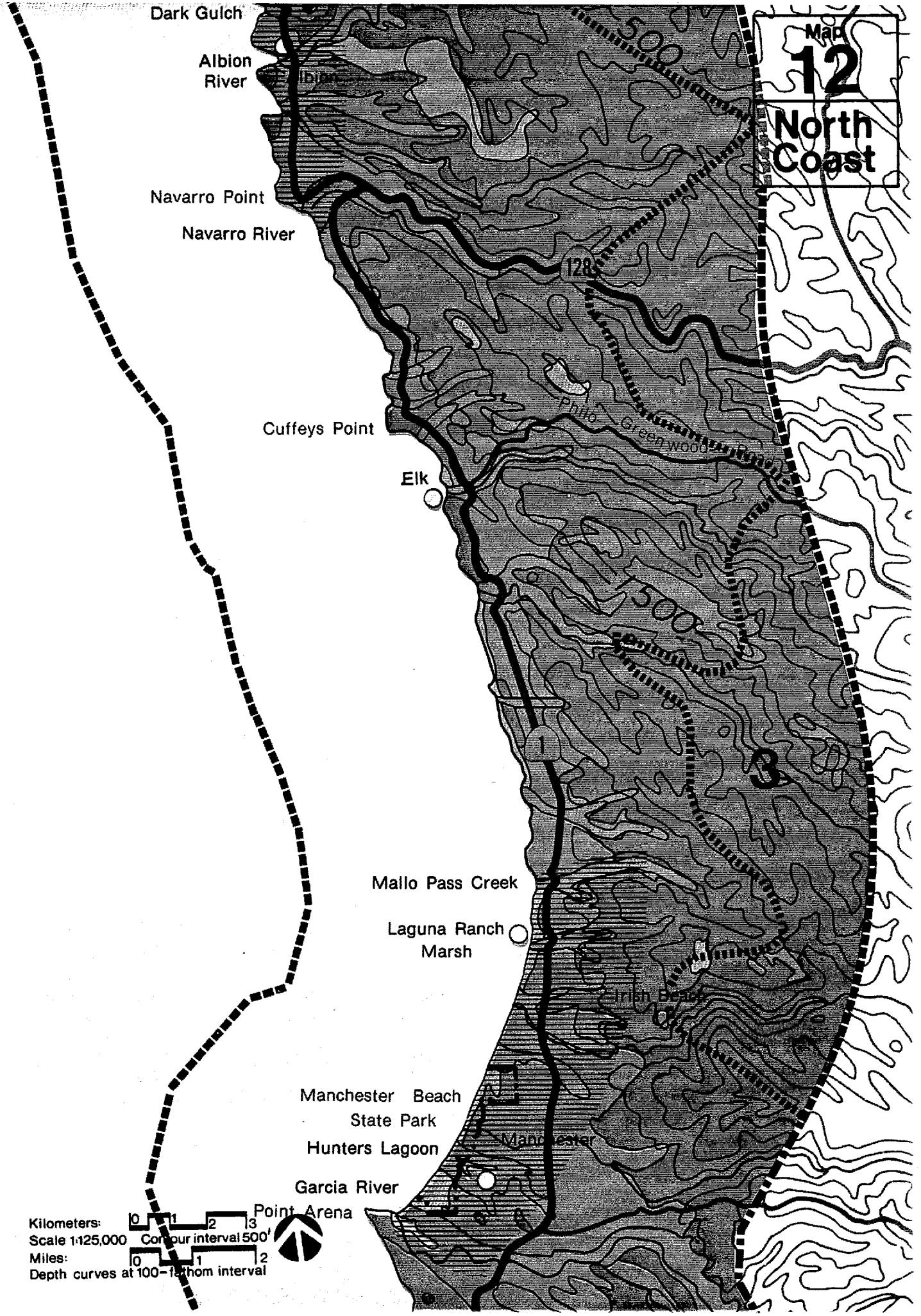
Laguna Ranch  
Marsh

Manchester Beach  
State Park  
Hunters Lagoon

Garcia River

Point Arena

Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-foot interval



## **PLAN MAP 13: MAP NOTES**

### **SUBREGION 3: MENDOCINO (CONTINUED)**

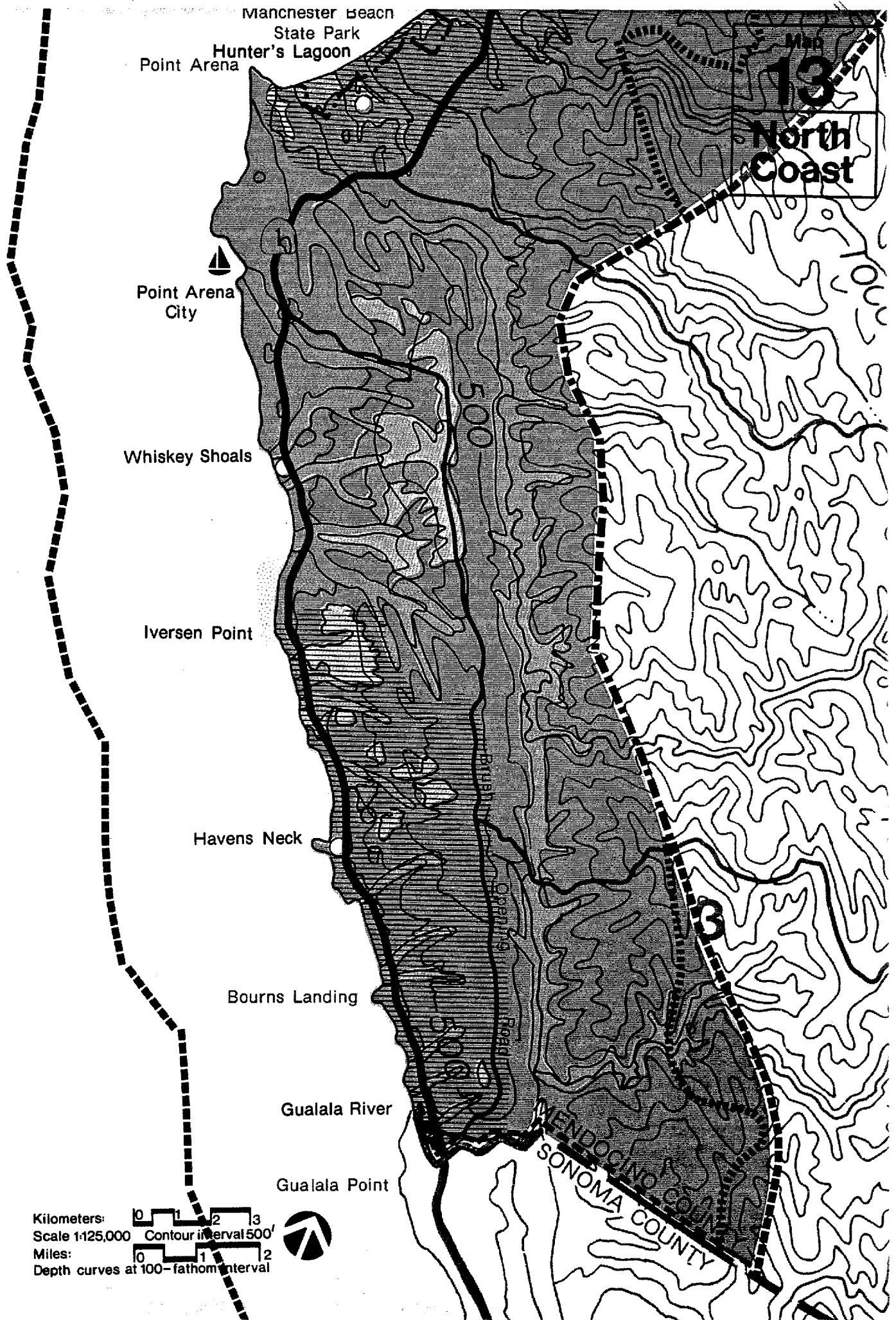
**Point Arena.** Concentrate high-intensity development, service centers, and commercial activity within existing city limits, to prevent uncontrolled growth.

**Whiskey Shoals.** Acquire this 100-acre planned subdivision on coastal grasslands for open space and agricultural use.

**Iversen Point to Gualala River Special Study Area.** Undertake a special study to evaluate the impact of lot splits and subdivisions, with the objectives of preventing conversion to residential uses of timberlands that remain in economic units and limiting new development to existing community boundaries.

**Havens Neck.** Acquire this 15-acre grassy headland to preserve open space values and for general recreational use.





## **NORTH COAST REGION SELECTED MAPPING SOURCES**

### **PRODUCTIVE RESOURCE AREAS**

- Physical Environment and Resources.* Division of Mines and Geology, 1971.
- Report for General Soil Map, Mendocino County.* U.S. Soil Conservation Service, 1967.
- Soil Survey of the Mendocino County Bottomlands.* U.S. Department of Agriculture, 1973.
- Soils of Coastal Del Norte County.* University of California, Davis, 1966.
- Soils of Western Humboldt County.* U.C. Davis, 1965.

### **HABITAT AREAS**

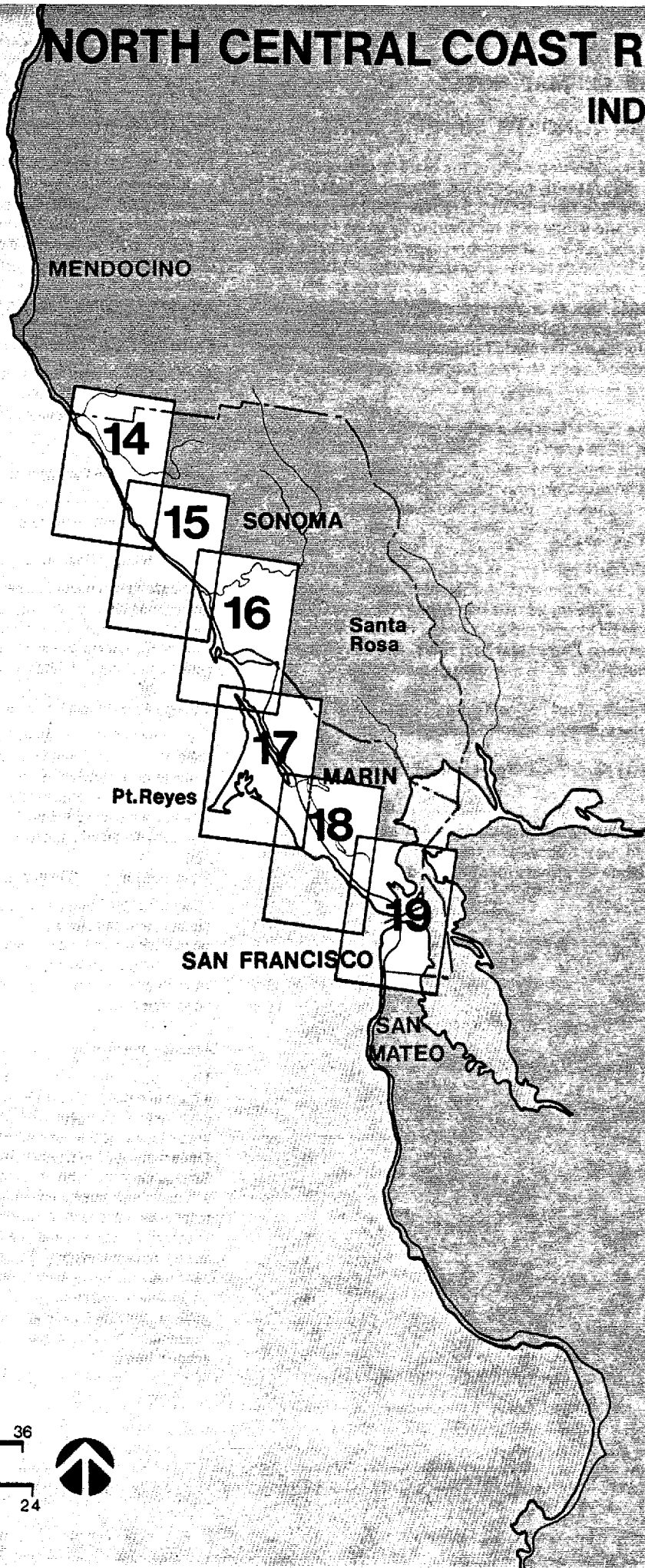
- California Seabird Breeding Ground Survey.* Department of Fish and Game, 1969-70.
- Coastal County Fish and Wildlife Resources and their Utilization.* Department of Fish and Game, 1975.
- Ecology and Avian Use of the Coastal Rocks of Northern California.* Timothy O. Osborne, graduate thesis, Humboldt State University, 1972.
- Fish and Wildlife in the Marine and Coastal Zone.* Department of Fish and Game, 1971.
- Freshwater Fish.* Eddy Samuel, 1969.
- Wetlands of the United States.* U.S. Department of Interior, Circular No. 39, 1971.

### **RECREATION-DEVELOPED AREAS-PUBLIC OWNERSHIP**

Maps from various local, State, and Federal agencies.

# NORTH CENTRAL COAST REGION

## INDEX MAP



Kilometers 0 12 24 36  
Scale 1: 1,500,000  
Miles 0 12 24



## PLAN MAP 14: MAP NOTES

### SUBREGION 1: NORTH SONOMA COAST

**Sea Ranch.** Allow development, at the historic rate of construction, of the presently subdivided, improved, legally buildable lots at Sea Ranch, but guarantee view protection, public access, and septic tank monitoring by using the environmental deposit fund for these objectives in the absence of action by the lot owners' association. Develop public access in subdivision Units 8, 34A, and 36, and along the shoreline south of Gualala Park as shown in the Plan Map. Acquire approximately 297 acres to provide access to the beach and to protect coastal views. Preclude further subdivision in the area pending completion of a study of future transportation problems along the Sonoma-Mendocino coastline.

**North Sonoma Coast.** Maintain open lands between Highway 1 and the coastline in open space. Continue present agricultural operations with provision for blufftop trails and access where compatible with ranching activities. Acquisition is a long-term possibility in cases where loss of open space values is threatened.

**Highway 1.** Retain Highway 1 as a two-lane rural road throughout the region. Development of Annapolis-Skaggs Springs Road is suggested as a means of relieving future traffic congestion. A study should be conducted of the need for improvements of Highway 1 between Jenner and Fort Ross, and use of the Sea-view-Plantation Road as an alternate parallel route.

**Stewarts Point.** Protect the remaining buildings of this lumber port settlement as a historic park.

**Salt Point State Park.** Expand parklands and develop 200 campsites.

**Richardson, Kruse Ranches.** Acquire 1,521 acres of terrace lands for trails, beach access and agriculture. Lease back the agricultural lands to farmers for continued cultivation.

### NORTH CENTRAL COAST ADDED MAP SYMBOLS

The North Central Regional Commission developed a Regional Supplement which applied statewide policies to the geography of the region. The plan maps developed by the region included detail that is not reflected in the statewide map legend of the Coastal Plan and therefore a supplementary legend has been developed for the North Central Region. The following discussion describes these added regional map notations that appear on the following six maps.

#### Proposed Public Campgrounds

Areas proposed for additional public campgrounds are indicated by an outline "tent symbol". The level and type of development proposed at each site is discussed in the text of Part IV.

#### Existing Public Campgrounds

The solid "tent symbol" indicates existing Federal, State, and county campgrounds.

#### Private Visitor Facilities

The asterisk symbol is used to indicate areas proposed for additional visitor-serving facilities. Typical activities would include overnight accommodations (including private campgrounds), eating places or shops. The text of Part IV includes guides to the scale and quantity of such facilities.

#### Village Expansion Boundary

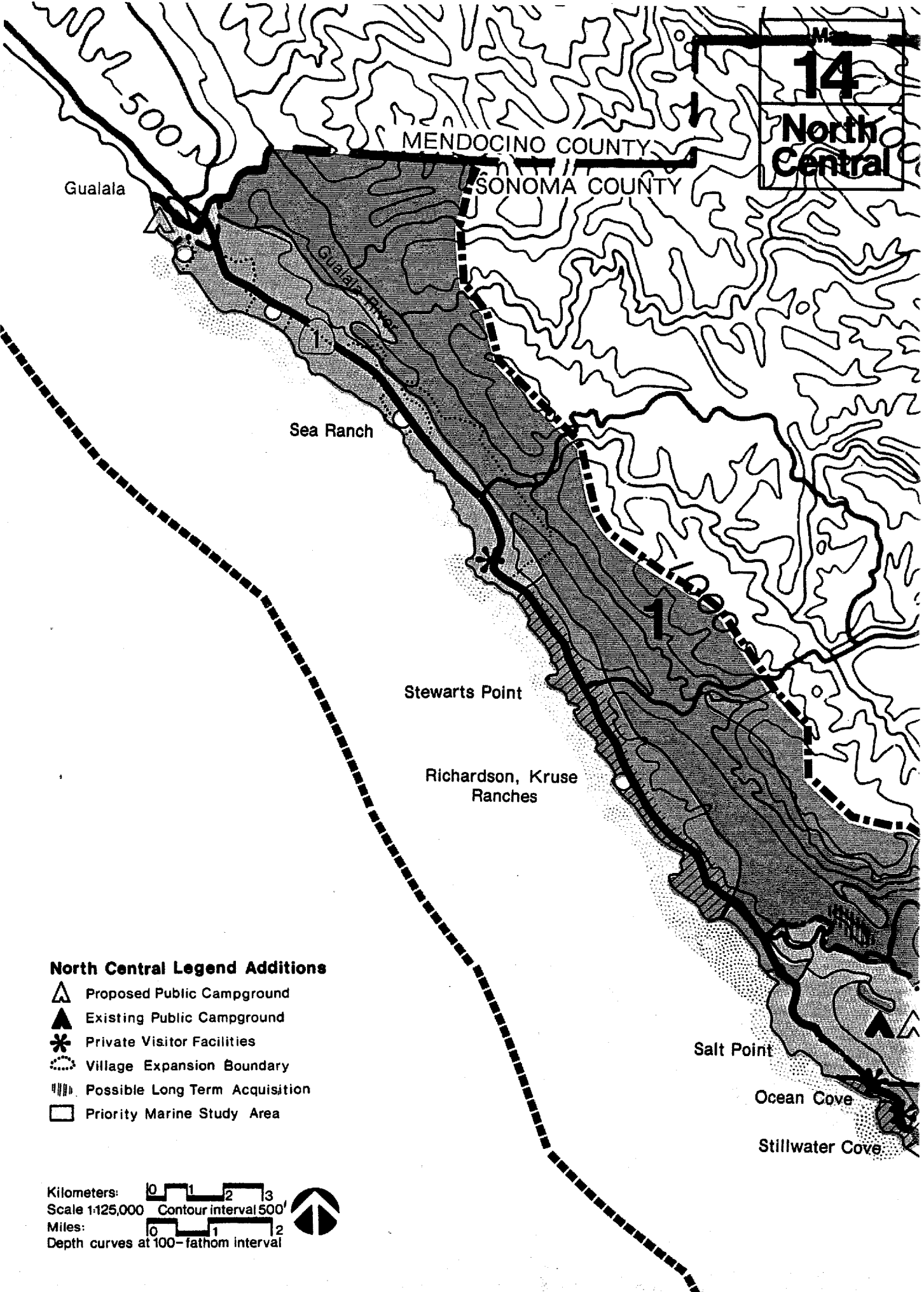
A number of Plan policies indicate that development should take place within the boundaries of already settled areas. The expansion boundaries shown on the North Central maps reflect these recommended boundaries of coastal settlements, based on existing lot patterns, public service systems, visual barriers and other indicators.

#### Possible Long — Term Acquisition

In some situations the use or protection objectives for special resource areas can be met without public acquisition, or acquisition can be deferred. This lower acquisition priority designation reflects management situations described in the Part IV text and does not reflect on the value of designated resource areas.

#### Priority Marine Study Area

This map symbol identifies all rocky intertidal coastline areas which are not included in the "Special Marine Environment" category. This latter category includes only those shoreline areas identified as important marine life habitats by the Department of Fish and Game, the Water Resources Control Board, Commission sponsored studies or other marine advisors and agencies. Since it is known that all rocky intertidal zones are rich in marine life and are susceptible to disruption, all such areas are included in this Priority Marine Study Area category. These areas should have priority for specific studies and evaluation by marine scientists. Ocean shoreline areas not included in the above two categories are predominantly sandy and cobbled beaches, which are also important marine areas in their own right, but are less fragile habitat.



MENDOCINO COUNTY

SONOMA COUNTY

Gualala

Sea Ranch

Stewarts Point

Richardson, Kruse  
Ranches

Salt Point

Ocean Cove

Stillwater Cove

**North Central Legend Additions**

- ▲ Proposed Public Campground
- ▲ Existing Public Campground
- \* Private Visitor Facilities
- ⋯ Village Expansion Boundary
- ▤ Possible Long Term Acquisition
- Priority Marine Study Area

Kilometers: 0 1 2 3  
 Scale 1:125,000 Contour interval 500'  
 Miles: 0 1 2  
 Depth curves at 100-fathom interval



## PLAN MAP 15: MAP NOTES

### SUBREGION 1: NORTH SONOMA COAST [CONTINUED]

**Ocean, Stillwater Coves.** Acquire 513 acres (two parcels) within the Salt Point State Park expansion project, as proposed by the State Department of Parks and Recreation, for general recreational use.

**Timber Cove Terrace.** Acquire 28 acres on the immediate shoreline for general recreational use. Develop camping and visitor facilities on this site.

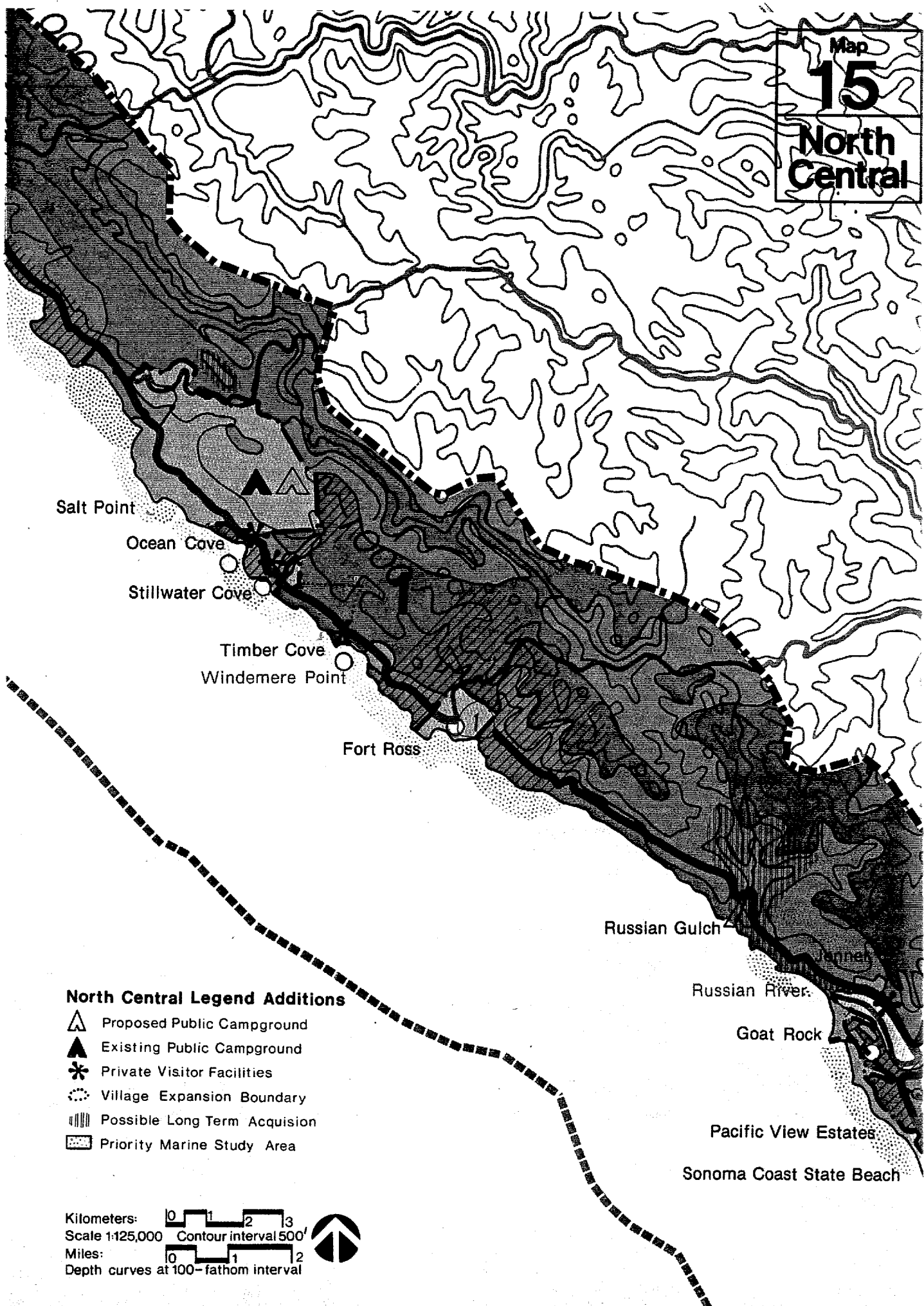
**Fort Ross.** Continue grazing and selective timber harvesting. Expand interpretive facilities and develop campsites and hiking trails.

**Fort Ross Expansion.** Recommend completion of the current acquisition of 868 acres at this site by the State Department of Parks and Recreation. Acquire the remaining 3,442 acres for general recreation (e.g., camping, trails) and lease back portions for agricultural use.

**Russian Gulch and Jenner Beach.** Develop this area as a campground with public beach access provided from Russian Gulch south to the village of Jenner. Acquire approximately 841 acres adjacent to Sonoma Coast State Park for camping and improved public access to the beach.

**Goat Rock, Bridgehaven.** Add 176 acres to Goat Rock State Park to protect the unique view qualities of this area.

Map  
**15**  
 North  
 Central



Salt Point  
 Ocean Cove  
 Stillwater Cove  
 Timber Cove  
 Windemere Point

Fort Ross

Russian Gulch







Russian River



Goat Rock

Pacific View Estates

Sonoma Coast State Beach

**North Central Legend Additions**

-  Proposed Public Campground
-  Existing Public Campground
-  Private Visitor Facilities
-  Village Expansion Boundary
-  Possible Long Term Acquisition
-  Priority Marine Study Area

Kilometers:  0 1 2 3  
 Scale 1:125,000 Contour interval 500'  
 Miles:  0 1 2  
 Depth curves at 100-fathom interval





## PLAN MAP 16: MAP NOTES

### SUBREGION 2: SOUTH SONOMA COAST

**Jenner.** Limit development to the existing village area.

**Duncans Mills.** Concentrate additional visitor-serving facilities at Duncans Mills, approximately doubling those presently available.

**Willow Creek Expansion.** Acquire 1,258-acre buffer at the mouth of the creek for development of a campground and protection of the marsh.

**Pacific View Estates.** Acquire 23 acres within this planned subdivision for public use and view protection.

**Sonoma Coast Beaches.** Study relocation of parking east of Highway 1 along with opportunities for providing shuttle bus service between park units.

**Salmon Creek.** Undertake an overall management study of the Salmon Creek watershed to protect its present resources and to determine opportunities for restoration.

**Bodega Bay.** Allow present visitor-serving and commercial fishing facilities to expand to approximately double their present size. Development of a new mooring for commercial fishing boats at Spud Point appears consistent with Plan policies if current studies of the proposal show this to be the least environmentally disruptive alternative. Limit residential development to presently subdivided areas with total population in the area not to exceed 2,750 persons.

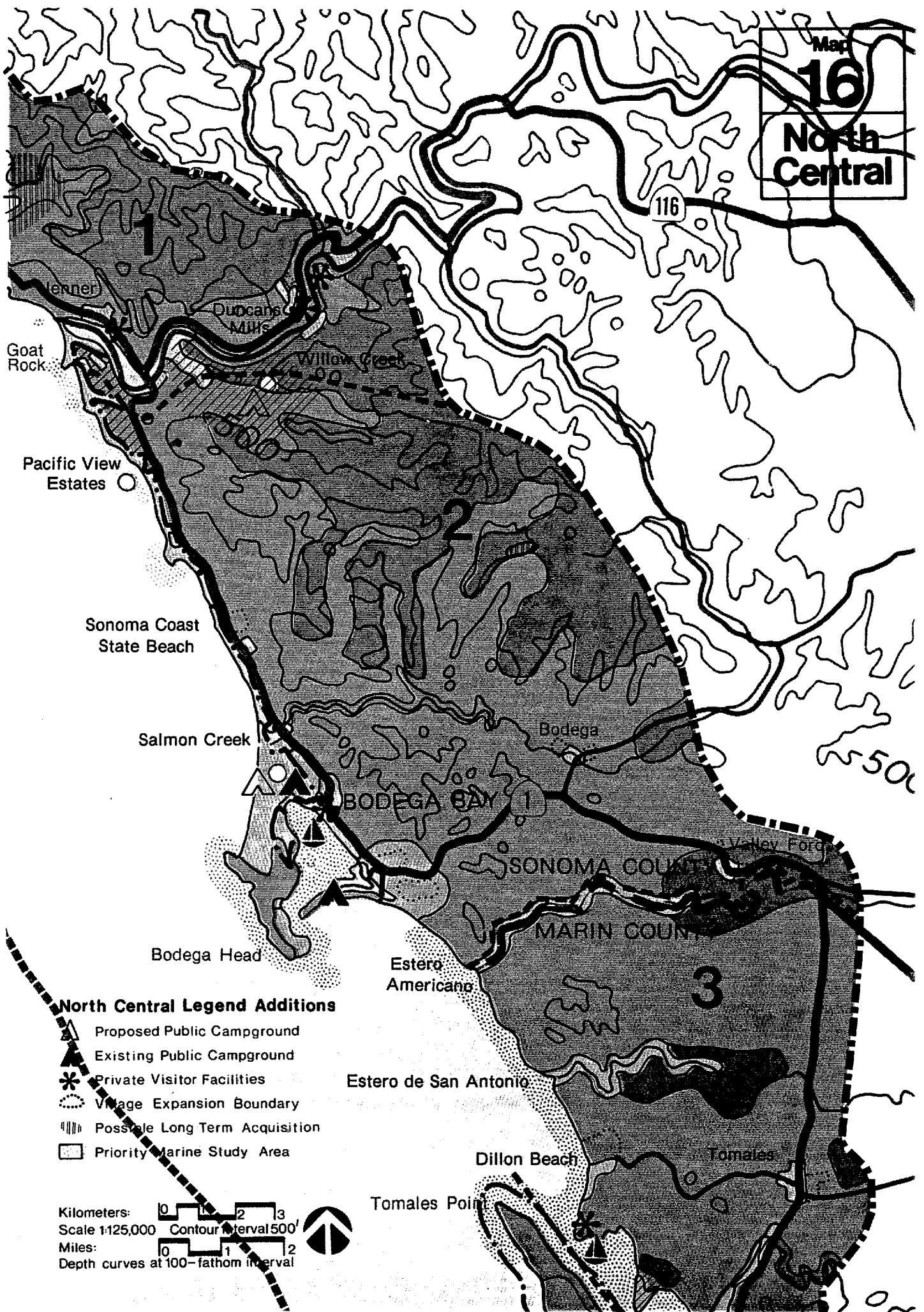
**Bodega Dunes State Park.** Add 44 acres to the Sonoma Coast State Beach complex for general recreational use and to preserve the dune area.

### SUBREGION 3: TOMALES BAY

**Esteros.** Give special protection to the Esteros Americano and de San Antonio; permit only hike-in access

**Dillon Beach.** Limit expansion to the presently subdivided area. Require a master plan at Lawson's Landing prior to any expansion of facilities.





Goat Rock  
 Jenner  
 Duncans Mills  
 Willow Creek

Pacific View Estates

Sonoma Coast State Beach

Salmon Creek

BODEGA BAY

Bodega

Valley Forge

SONOMA COUNTY

MARIN COUNTY

Bodega Head

Estero Americano

Estero de San Antonio

Dillon Beach

Tomaies

Tomaies Point

**North Central Legend Additions**

- Proposed Public Campground
- Existing Public Campground
- Private Visitor Facilities
- Village Expansion Boundary
- Possible Long Term Acquisition
- Priority Marine Study Area

Kilometers: 0 1 2 3  
 Scale 1:125,000 Contour Interval 500'  
 Miles: 0 1 2  
 Depth curves at 100-fathom interval



## PLAN MAP 17: MAP NOTES

### SUBREGION 3: TOMALES BAY [CONTINUED]

**Tom's Point.** Acquire this 176-acre beach and dune area at the mouth of Tomales Bay for camping, fishing and clamming, and other water-related recreational activities.

**Tomales Bay.** Give serious consideration to designating this important areas as a National Estuarine Sanctuary. Fully protect all existing marsh areas, designating several for use as scientific reserves. Permit campground developments in adjacent valleys, subject to environmental constraints.

**Angress Property.** Acquire 22 acres on the eastern shore of Tomales Bay for maintenance of the viewshed and other planning purposes.

**Marconi.** Limit the Synanon complex to its present scale.

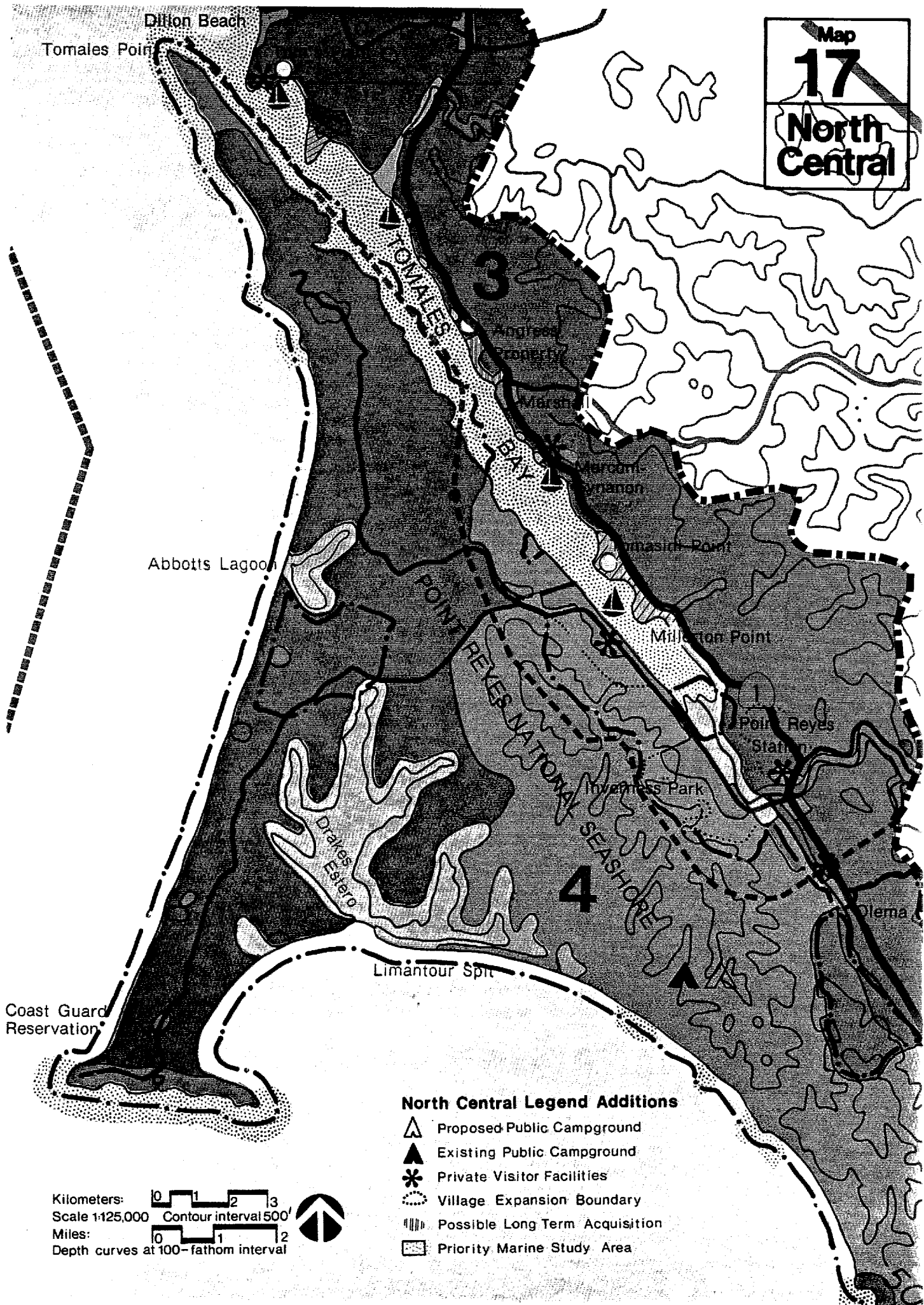
**Millerton, Tomasini Points.** Acquire 292 acres to preserve this area for research and education. Control access consistent with resource protection.

**Point Reyes Station.** Concentrate moderate-size visitor facilities within Point Reyes Station. Set expansion boundaries for the community as those indicated in Marin's Countywide Plan.

**Inverness.** Limit further residential and visitor-serving development to the existing lots and street pattern.

### SUBREGION 4: POINT REYES NATIONAL SEASHORE TO THE GOLDEN GATE

**Point Reyes National Seashore.** Give maximum protection to the wilderness values of the Seashore, consistent with retention of existing agricultural operations and recreational facilities. Allow high use at Drakes Beach and Santa Maria Beach. Develop a new trailhead in the Five Brooks area.



Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



**North Central Legend Additions**

- ▲ Proposed Public Campground
- ▲ Existing Public Campground
- \* Private Visitor Facilities
- - - Village Expansion Boundary
- |||| Possible Long Term Acquisition
- ..... Priority Marine Study Area

## PLAN MAP 18: MAP NOTES

### SUBREGION 4: POINT REYES NATIONAL SEASHORE TO THE GOLDEN GATE [CONTINUED]

**Olema Valley.** Develop several clusters of tent cabins and walk-in camp grounds along the valley (no specific locations suggested). Consider conversion of ranch homes within the Golden Gate National Recreation Area to hostels.

**Palomarín.** Keep the southern entrance to the Seashore open as an unimproved secondary access. Add lands between the present park boundaries and the subdivided area on Bolinas Mesa to the Seashore.

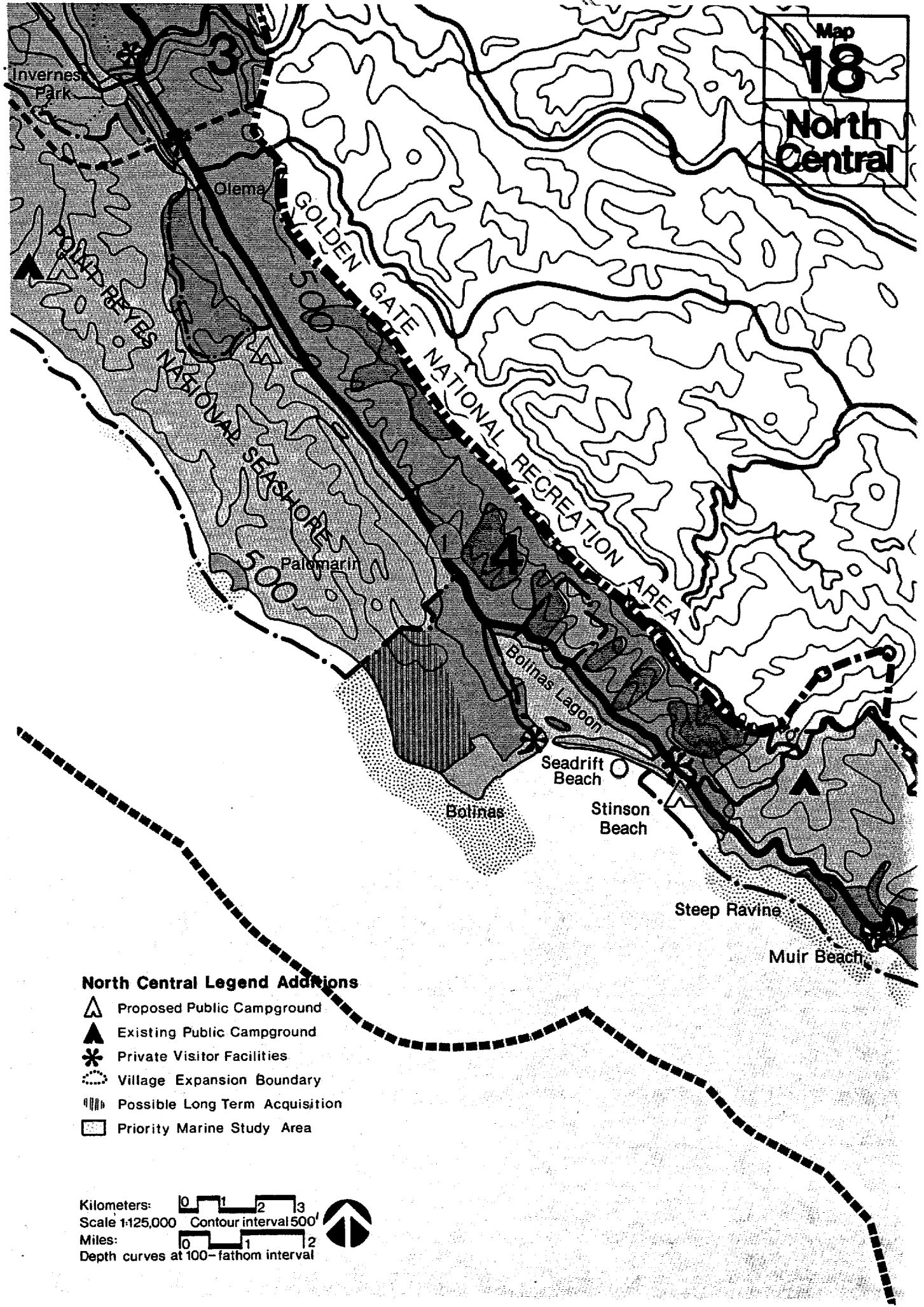
**Bolinas Lagoon.** Undertake a management study to provide for resource protection and compatible recreation as well as possible restoration programs.

**Bolinas.** Limit residential and visitor-serving facilities to present community boundaries.







**Stinson Beach and Seadrift.** Guarantee access to the 50 acres of sandy beach at Seadrift. Acquire land for construction of small-scale parking and visitor facilities near the Seadrift gate. Limit town expansion to presently subdivided lots. Give priority to a study of a southern park entrance and development of campground facilities. Do not allow new development until the area's wastewater treatment problem is solved.

**West Marin Access.** Balance use of existing routes through use of road signs and provision of visitor information. Retain all routes as two-lane roadways, permitting minimal improvements only where required for safety or for provision of transit access. Develop improved transit access to northern and southern ends of the Golden Gate National Recreation Area, working with park planners and the County.


**Steep Ravine.** Make existing cabins accessible to the public for recreation and nature-interpretive uses.



**North Central Legend Additions**

-  Proposed Public Campground
-  Existing Public Campground
-  Private Visitor Facilities
-  Village Expansion Boundary
-  Possible Long Term Acquisition
-  Priority Marine Study Area

Kilometers: 0 1 2 3  
 Scale 1:125,000 Contour interval 500'  
 Miles: 0 1 2  
 Depth curves at 100-fathom interval



## PLAN MAP 19: MAP NOTES

### SUBREGION 4: POINT REYES NATIONAL SEASHORE TO THE GOLDEN GATE [CONTINUED]

**Muir Beach.** Limit development to single-family units on existing lots and a small-scale, compatible, visitor facility.

**Tennessee Cove.** Provide only hike-in access to the cove.

**Mill Valley-Tamalpais Junction.** Encourage a transit center and overflow visitor facilities to serve West Marin at this location.

**Rodeo Lagoon-Bakers Beach.** Develop high use recreational enclaves at these locations.

### SUBREGION 5: SAN FRANCISCO

**Cliff House.** Continue commercial recreational use of this site, limited to its present area.

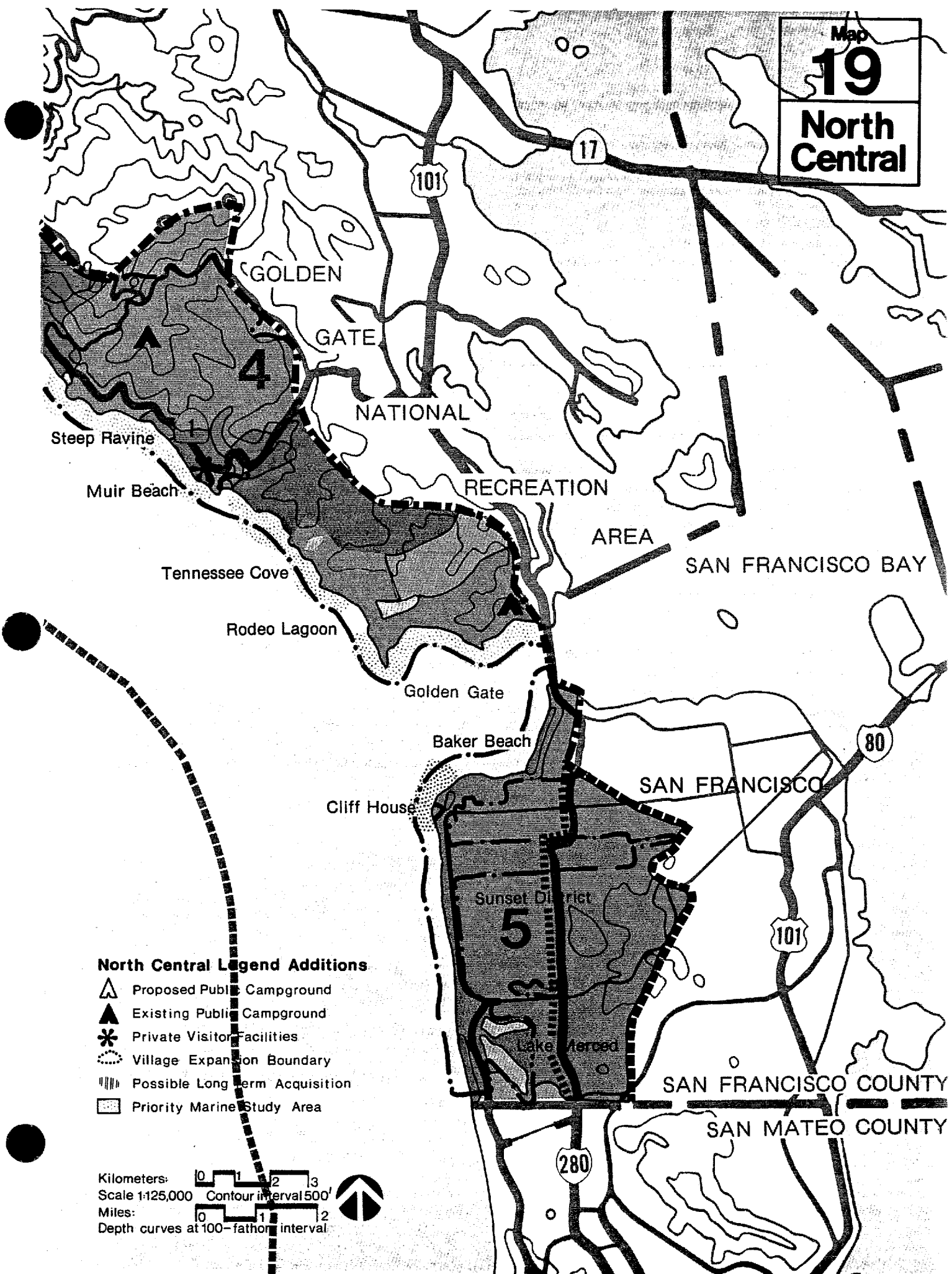
**Playland-at-the-Beach Site.** Require provision of visitor-serving and recreational uses as a part of any development planned for this area.

**Sunset and Parkside Neighborhoods.** In blocks that have not already been extensively converted to apartment development, retain the single-family, middle-income character of these neighborhoods.

**Lake Merced.** Protect the open character of lands surrounding Lake Merced. Assure that stringent environmental standards are met before allowing the development of a proposed sewage treatment plant and ocean outfall.

**Farallon Islands.** Retain the present protected status of the islands.





**North Central Legend Additions**

- ▲ Proposed Public Campground
- ▲ Existing Public Campground
- \* Private Visitor Facilities
- ⋯ Village Expansion Boundary
- ▨ Possible Long Term Acquisition
- Priority Marine Study Area

Kilometers: 0 1 2 3  
 Scale 1:125,000 Contour interval 500'  
 Miles: 0 1 2  
 Depth curves at 100-fathom interval



## **NORTH CENTRAL COAST COMMISSION SELECTED MAPPING SOURCES**

### **GENERAL REFERENCES**

*Regional Ocean Coastline Plan.* Sedway/Cooke, 1972. Project files, Association of Bay Area Governments (ABAG).

*San Francisco Bay Region Environment and Resources Planning Study.* U.S. Geological Survey and Department of Housing and Urban Development (HUD), 1970 to present.

### **PRODUCTIVE RESOURCE AREAS**

*Flood Prone Areas.* USGS, 1970. (1:24,000.)

*Flood Prone Areas in the San Francisco Bay Region.* USGS - Water Investigation 37-73, 1973. (1:125,000.)

*General Soils.* ABAG, 1972. (1:125,000.)

*Land Capability Classification.* ABAG, 1972. (1:125,000.)

*Marin County Agricultural Preserves.* Marin County Planning Department, 1974. (1:48,000.)

*Sonoma County Agricultural Preserves.* Sonoma County Planning Department, 1974. (1:125,000.)

### **HABITAT AREAS**

*Fish and Game Field Notes.* Department of Fish and Game, 1974. (1:31,680.)

*Natural Resource Areas (Region).* North Central Coast Regional Commission (NCCRC), 1974. (1:62,500.)

*Natural Resource Areas (Sea Ranch Subdivision).* NCCRC, 1974. (1:4800.)

*Timber Stands.* U.S. Department of Agriculture-Forest Service. (1:31,680.)

*Vegetative Cover.* California State Soil Service. (1:250,000.)

### **RECREATION-DEVELOPED AREAS- PUBLIC OWNERSHIP**

*Archeologic Survey.* North Coast Ranges Archaeological Group, 1973. (1:24,000.)

*Boundary Maps for Public Service Districts in NCCRC Area.* Local Agency Formation Commission. (Various scales and dates.)

*Coastal Issues Map.* NCCRC, 1974. (1:125,000.)

*Coastal Trail,* NCCRC, 1974. (1:125,000.)

*Land Use.* Sonoma County Planning Department, 1971. (1:125,000.)

*Land Use.* USGS (EROS), 1972. (1:62,500.)

*Marin County Master Plan.* Marin County Planning Department, 1973. (1:48,000.)

*Recreational Accommodations.* NCCRC, 1974. (1:62,500.)

*Service Areas and Districts.* Sonoma County Planning Department, 1973. (1:125,000.)

*Sonoma County Zoning.* Sonoma County Planning Department, 1973. (1:125,000.)

*State Park Acquisitions.* California Department of Parks and Recreation, 1972. (1:24,000.)

*Village Expansion Maps (Marin County).* Marin County Planning Department. (Various scales and dates.)



# CENTRAL COAST REGION

## INDEX MAP

SAN FRANCISCO

20

SAN MATEO

21

22

SANTA CRUZ

23

24

25

Santa Cruz

26

Monterey

28

27

29

30

31

MONTEREY

32

SAN LUIS OBISPO

Kilometers 0 12 24 36  
Scale 1:1,500,000  
Miles 0 12 24



## PLAN MAP 20: MAP NOTES

### SUBREGION 1: DALY CITY AND PACIFICA

**Thornton Beach.** Recommend that the State Department of Parks and Recreation add 36 acres to the existing State Park, expand parking and support facilities, and improve beach access.

**Daly City.** Expand public use area adjacent to shoreline. Develop Old Coast Road as a coastal trail.

**Pacifica.** Improve access to coastal recreation without destroying special coastal neighborhoods.

**Mori's Point.** Acquire a 30-acre scenic headland area adjacent to Sharp Park State Beach for preservation of views and public use areas after a full exploration of prescriptive rights.

### SUBREGION 2: HALF MOON BAY

**San Pedro Beach.** Explore possible public prescriptive rights; if no such rights exist, acquire this beach area for public recreation.

**Devil's Slide.** Establish scenic parkway.

**Montara Beach.** Recommend that the State Department of Parks and Recreation complete its acquisition of this one mile of ocean frontage linking Montara State Beach to Gray Whale Cove.

**Montara to Half Moon Bay.** Protect agriculture and outdoor floriculture as open-space buffers.

**Montara to Pillar Point:** Provide bluff top trail access.

**Fitzgerald Marine Reserve.** Complete this 195-acre acquisition to add more intensive use areas and to manage access to the reserve.

**Highway 92.** Develop transit options for recreation from San Mateo to Half Moon Bay.

**Miramar Beach.** Develop alternative erosion control measures for study by the Army Corps of Engineers.

**North Half Moon Bay Special Study Area.** Develop mutually consistent plans for harbor improvement, erosion protection, recreational development, design of urbanizing areas, and continued agriculture. Explore and implement methods for agricultural rehabilitation of unimproved subdivisions.

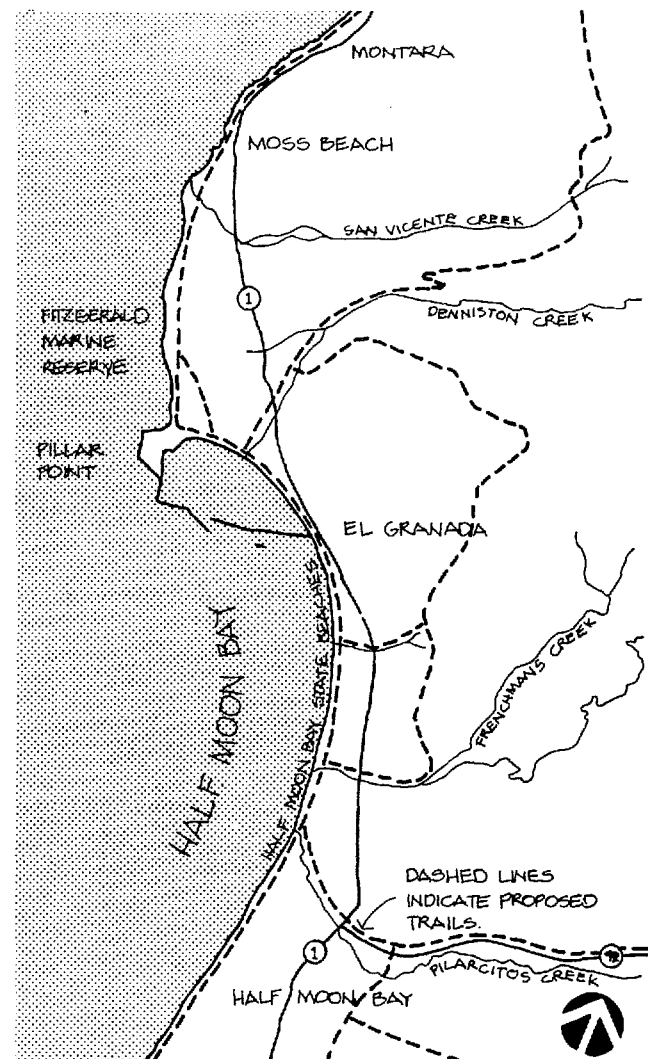
**Half Moon Bay.** Improve road and trail access to and along beachfront and provide beach user facilities.

**San Mateo Midcoast Beaches.** Acquire 259 acres encompassing 5 miles of ocean frontage for general recreation.

### SUPPLEMENTAL NOTES

**Coastal Trails.** The Plan calls for the establishment of a state-wide coastal trail system, developed cooperatively among local agencies, the State Departments of Parks and Recreation and Transportation, and the coastal agency. The trails are to be located where they will impose the least economic and environmental costs, provide non-motorized access to recreational and scenic areas, and accommodate popular forms of recreation (hiking, riding, and bicycling). Care must be taken in location and management of the trails system to minimize unsafe conditions, fire danger, damage to fragile landforms, vegetation, or wildlife, vandalism, and crop damage. As envisioned by the preliminary California Recreational Trails and Hostel Plan (1975), the system will link urban centers, public beaches and parks, hostels, campgrounds, and picnic areas.

In the Half Moon Bay area, segments of trail could be located on scenic bluff tops (such as an unused right-of-way west of Vallemar St. in Moss Beach), for educational purposes (along Frenchman's Reef, through the Seal Cove landslide, around Princeton Marsh), and connecting the coastal trails to the mountain trails along the creeks. In some sensitive areas, bike trails can be separated from hiking trails (Airport Street). Proposed trail locations in the Half Moon Bay Area are illustrated below.



SAN FRANCISCO COUNTY  
SAN MATEO COUNTY

Map  
**20**  
Central  
Coast

Thornton State Beach

Daly City

Pacifica

Sharp Park  
Mori's Point

San Pedro Beach

San Pedro Point

Devil's Slide  
**10**

Montara  
State Beach

Montara

Fitzgerald

Marine  
Reserve

Pillar Point  
Pillar Point Harbor  
Miramar Beach

HALF MOON BAY

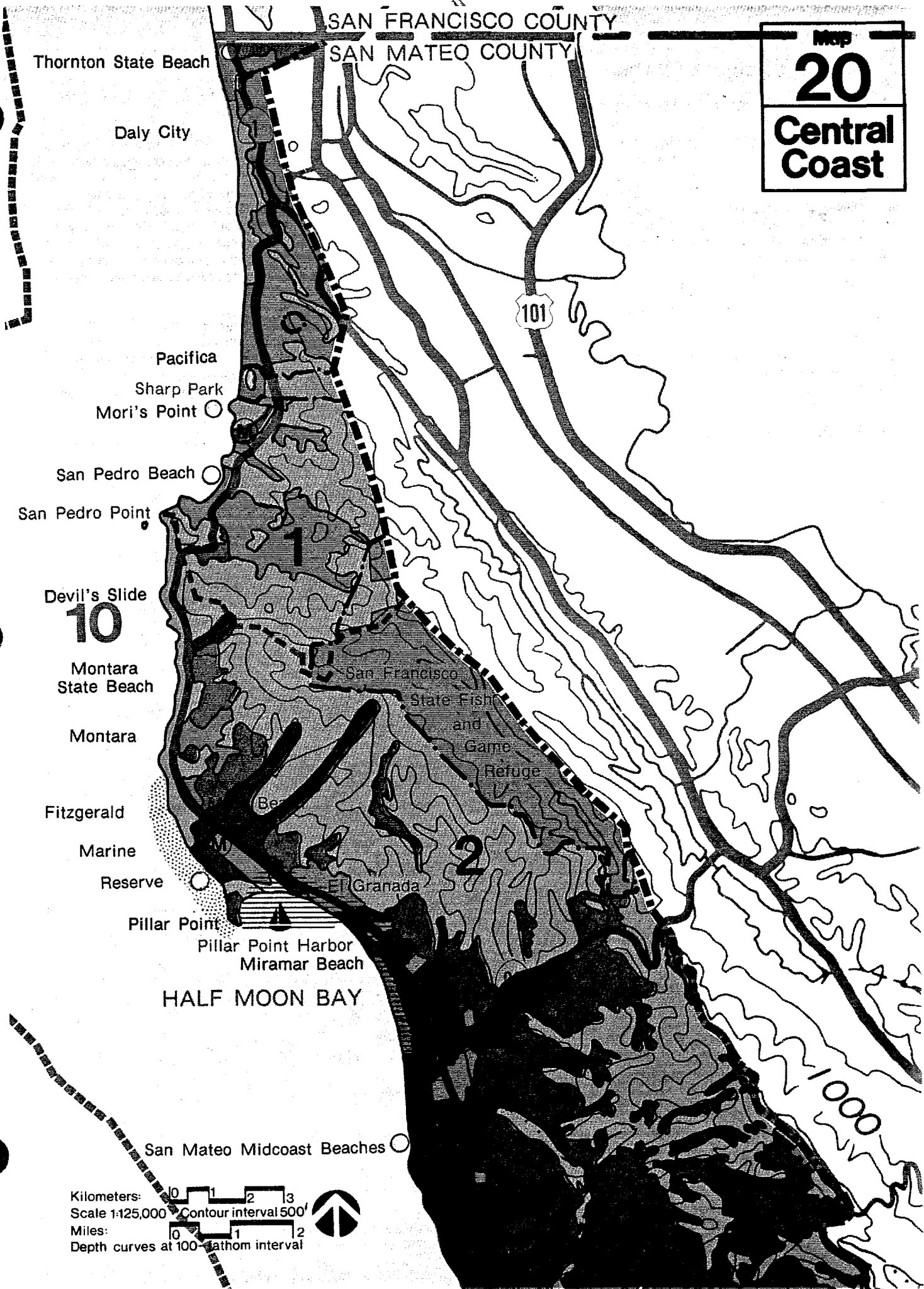
San Mateo Midcoast Beaches

101

San Francisco  
State Fish  
and  
Game  
Refuge

El Granada

Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100 fathom interval



## PLAN MAP 21: MAP NOTES

### SUBREGION 3: ANO NUEVO COAST

**Pescadero Marsh.** Complete acquisition of the wetland and surrounding area totaling 340 acres to preserve the area for trails and the construction of educational facilities.

**Bolsa Point Beaches.** Explore possible public prescriptive rights; if no such rights exist, acquire this 40-acre beach and bluff area comprising one mile of coastline to improve and manage recreation.

**Franklin Point, Ano Nuevo.** Complete State Reserve acquisition (200-250 acres) to preserve the dunes and control access across them.

**Half Moon Bay to Santa Cruz.** Establish scenic parkway on two-lane Highway 1.

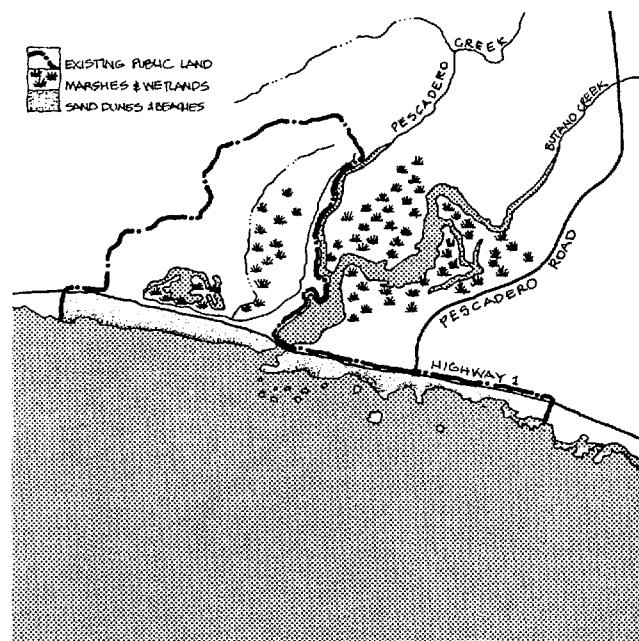
### SUBREGION 10: CENTRAL COAST OCEAN AREA

**Bay and Ocean Areas.** Retain and expand oil drilling prohibition zone.

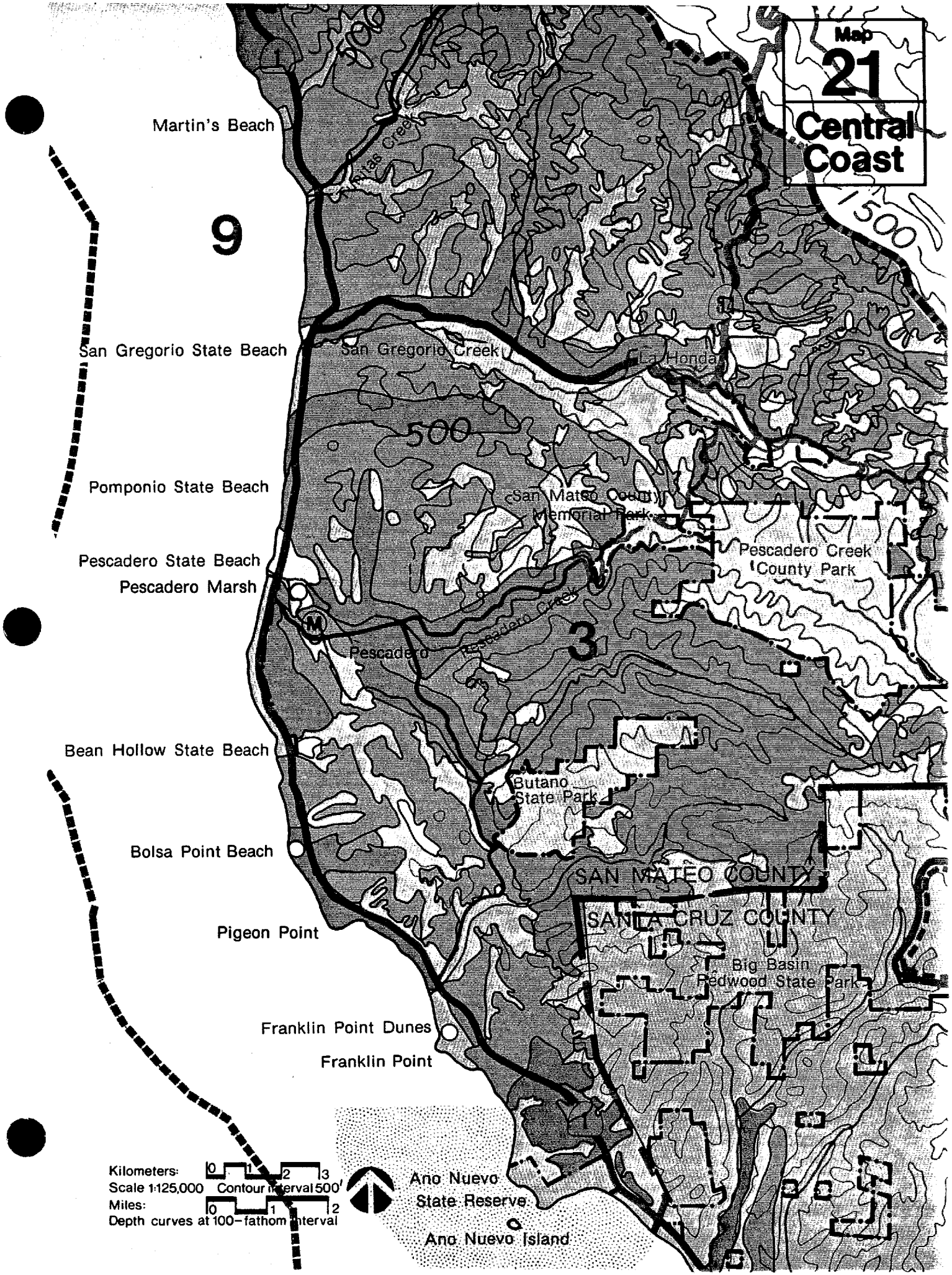
## SUPPLEMENTAL NOTES

**Carrying Capacity.** Coastal Plan policies require appropriate use levels to be established for coastal recreation areas. While most sandy beaches can, with maintenance, sustain intensive recreational use, unregulated use of more fragile resource areas commonly leads to their destruction. Control of access, publicity, and availability of physical facilities (such as parking, water, restrooms, and campsites), together with appropriate signs, ranger presence, and visitor education, can provide management tools necessary to protect resources from over-use or misuse.

At Pescadero State Beach, access could well be confined to trails and observation blinds in the wildlife-rich marsh areas; in the dunes, more freedom of movement might be permitted, but use should be directed away from stabilizing vegetation; and primary visitor access provided to the most durable feature, the open beach. This is illustrated below.



Map  
**21**  
**Central Coast**



Martin's Beach

9

San Gregorio State Beach

Pomponio State Beach

Pescadero State Beach  
Pescadero Marsh

Bean Hollow State Beach

Bolsa Point Beach

Pigeon Point

Franklin Point Dunes  
Franklin Point

San Gregorio Creek

San Mateo County  
Memorial Park

Pescadero Creek  
County Park

Butano  
State Park

SAN MATEO COUNTY

SANTA CRUZ COUNTY

Big Basin  
Redwood State Park

Ano Nuevo  
State Reserve

Ano Nuevo Island

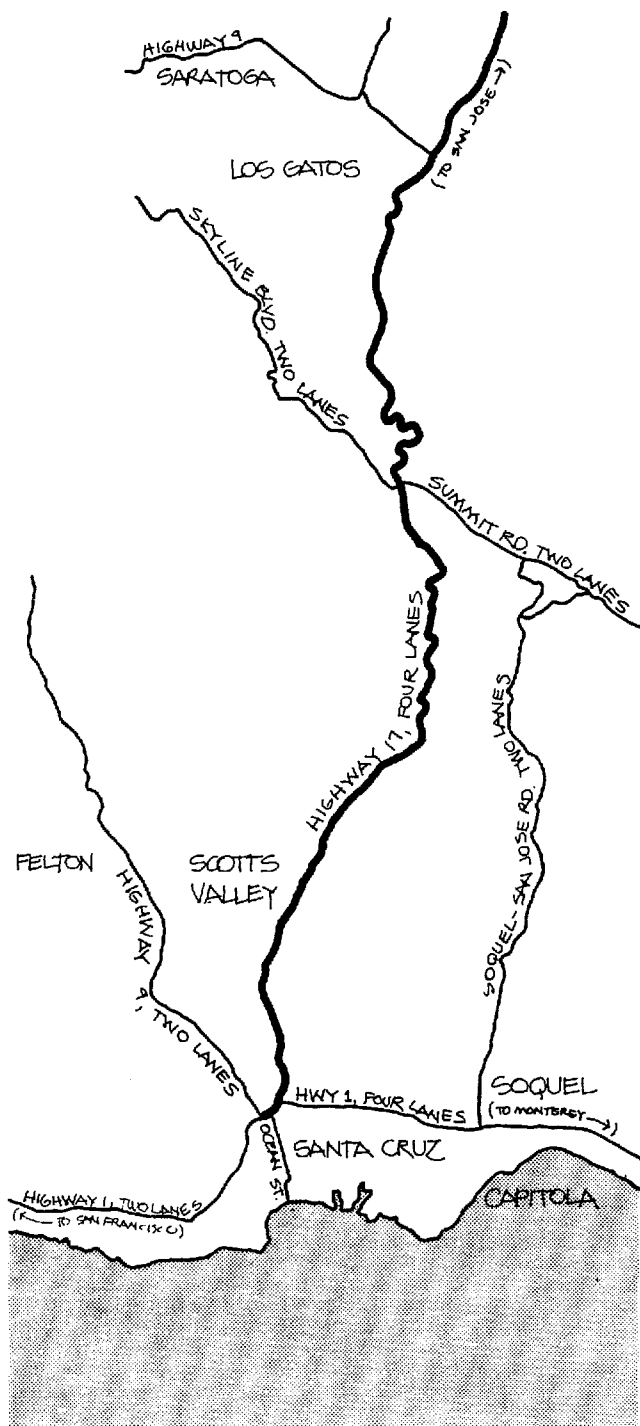
Kilometers: 0 1 2 3  
Scale 1:125,000 Contour Interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



## PLAN MAP 22: MAP NOTES

### SUBREGION 4: SANTA CRUZ

**Highway 17.** Provide transit options for recreational users of Highway 17 from the Santa Clara Valley to Santa Cruz.



### SUPPLEMENTAL NOTES

**Highway Capacity Budgeting.** Several major coastal roads are limited, by cost (both economic and environmental) and by public policy, to a minimum of improvement. Highway 1, for example, which through much of the Central Coast will keep its present two-lane, rural character, must carry a large proportion of coastal visitors. Other major coastal access roads, such as Highways 92 and 17, will not be improved in the near future, but are already heavily used by both recreational and commuter traffic. For all of these roads, development of transit options and careful budgeting of capacity are recommended in Plan policies.

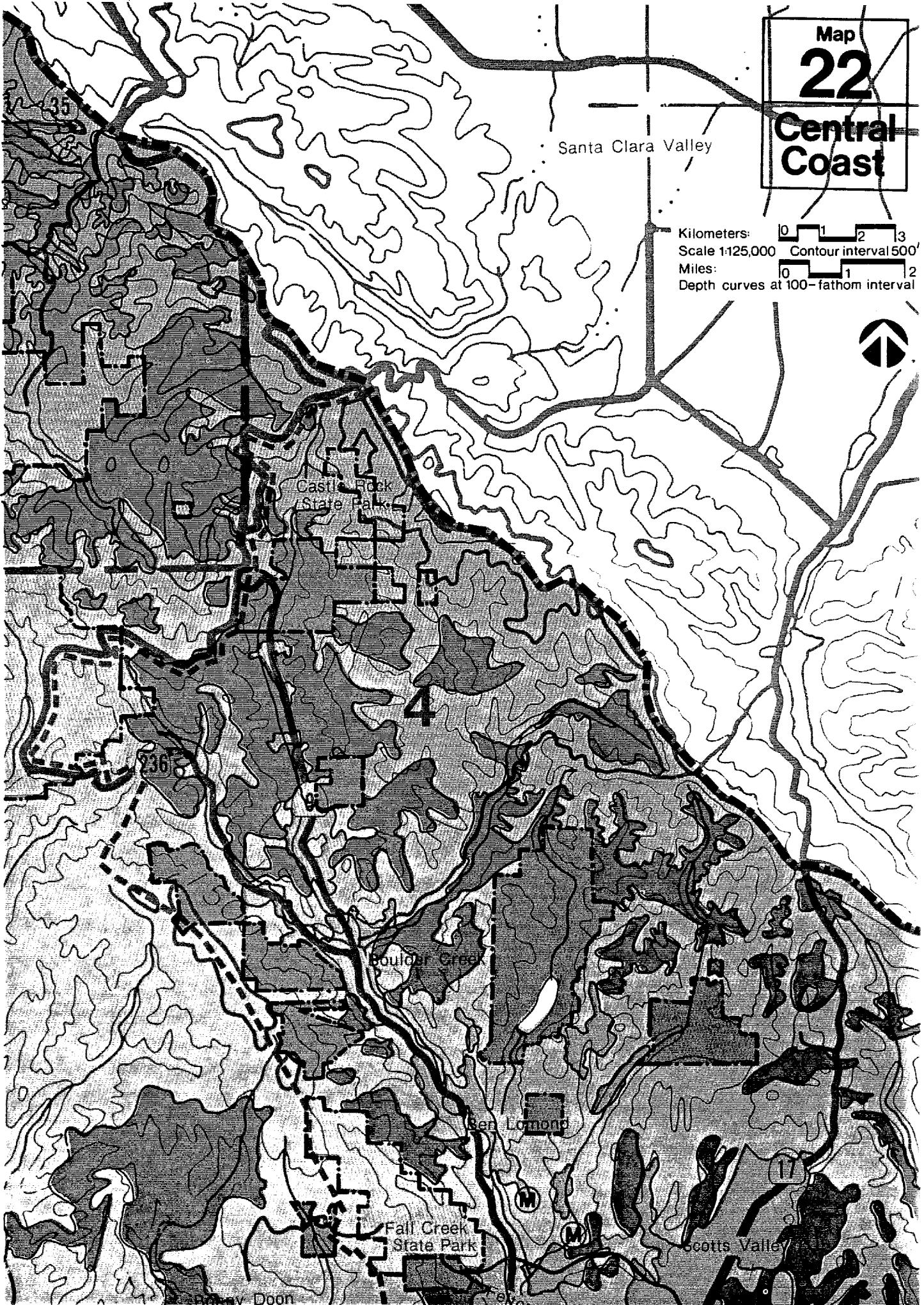
The Plan calls for a system of budgeting coastal road capacity so that recreational use of the road system will not be limited by new private development. It will be necessary to determine road capacity at several levels of congestion and transit use. Then recreational demand—travel to the coast for beach or boat use, scenic drives, and other leisure pursuits—can be balanced with transportation needs of coastal residential and commercial developments.

On Highway 17, the primary access from the Santa Clara Valley and much of the San Francisco Bay area to many of the Central Coast's recreational facilities, the problem is apparent. It was estimated in June 1975, that average daily traffic during the peak recreational months of July and August would reach 36,500. At this level, the road may approach its capacity both for recreational and other traffic. The capacity budgeting process will help prevent conflicts between public access to the coast and new development that would be dependent on use of Highway 17 and will help keep all uses of the road at a desirable level of service.

Map  
**22**  
**Central Coast**

Santa Clara Valley

Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



Castle Rock State Park

Boulder Creek

Ben Lomond

Fall Creek State Park

Scotts Valley

Bonny Doon

## PLAN MAP 23: MAP NOTES

### SUBREGION 3: ANO NUEVO COAST [CONTINUED]

**Half Moon Bay to Santa Cruz.** Establish scenic parkway on two-lane Highway 1.

**Scott Creek.** Acquire 65-70 acres to protect the freshwater marsh. Acquire the upland area for parking and support facilities.

**Davenport Landing.** Acquire a one-acre beach access area.

### SUBREGION 4: SANTA CRUZ [CONTINUED]

**Natural Bridges.** Acquire an 11-acre addition to this existing State Beach for general recreation and protection of the habitat area.

**North Santa Cruz Coast Special Study Area.** Evaluate new State Park and proposed Marine Research Station to assure that critical habitats, productive agricultural areas, and urban neighborhoods nearby are not disrupted. Reconsider Santa Cruz City's urban reserve.

**Santa Cruz.** See Map Notes opposite Plan Map 24.

### SUBREGION 10: CENTRAL COAST OCEAN AREA [CONTINUED]

**Bay and Ocean Areas.** Retain and expand oil drilling prohibition zone.

## SUPPLEMENTAL NOTES

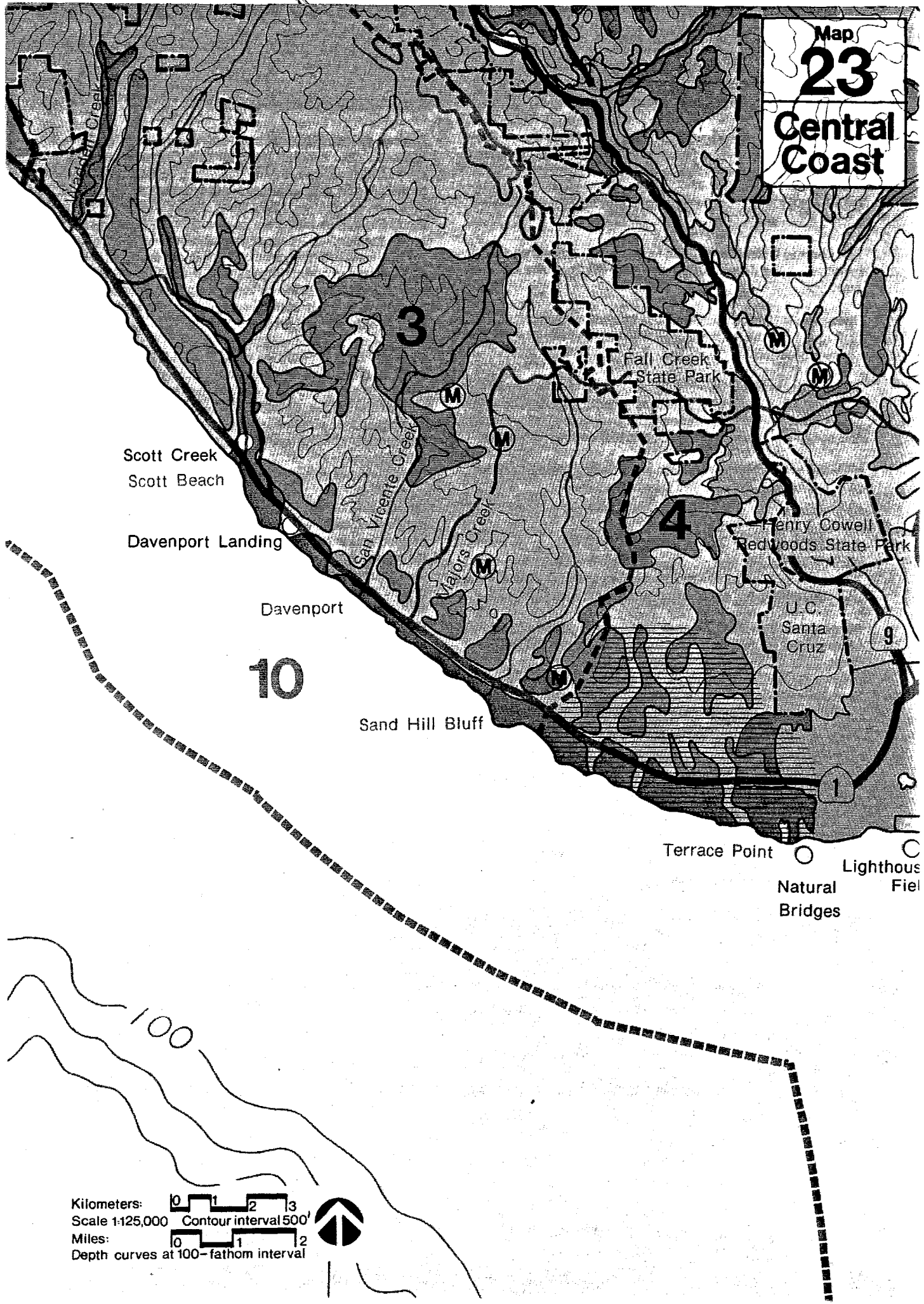
**Recreation Vs. Agriculture.** Especially significant coastal agricultural land, growing crops that require direct and frequent exposure to the coastal fog, is restricted to the narrow shelves between the coastal highway and the sea. In the Central Coast Region these lands produce most of the nation's brussels sprouts and artichokes. Where these lands meet the ocean are spectacular cliffs, sea caves, sand dunes, and protected beaches, as well as rocky or hazardous areas. Plan policies call for providing public access to many such shoreline areas and also for protection of agricultural uses.

The two goals can and must be reconciled. Through careful subregional planning, various methods of securing access can be tested. Accessways can be clearly marked and fenced to avoid unnecessary destruction of crops. Litter cans and sanitary facilities can be provided area-wide. Parking can be regulated so that recreation areas do not become over-crowded. Supervisory personnel and emergency equipment should be available to serve remote areas without long delays.

The Santa Cruz North Coast is an area where such potential conflicts occur. It is proposed for special study to assure maintenance of agricultural operations while providing for appropriate public access.



Map  
**23**  
**Central Coast**



Scott Creek  
Scott Beach

Davenport Landing

Davenport

10

Sand Hill Bluff

Fall Creek  
State Park

Henry Cowell  
Redwoods State Park

U.C.  
Santa  
Cruz

Terrace Point

Natural  
Bridges

Lighthouse  
Field

Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



## PLAN MAP 24: MAP NOTES

### SUBREGION 4: SANTA CRUZ [CONTINUED]

**Santa Cruz.** Acquire urban waterfront open space areas. Protect Victorian and Mission architecture. Provide transit from in-town parking to the coast for beach users.

**Lighthouse Field.** Provide for public purchase of this 37-acre scenic headland.

**San Lorenzo River Mouth.** Add to the existing State park an area overlooking the river mouth to preserve the headland and view area.

**Upper Yacht Harbor.** Acquire up to 60 acres in Santa Cruz adjacent to the marina for recreation, habitat, and waterfront open space protection.

**Santa Cruz Harbor Special Study Area.** Evaluate existing plans that would surround small craft harbor with intensive private development. Provide adequate public road and trail access and designate coastal-related public and commercial areas.

**Manresa Beach.** Add 70 acres to the existing State Beach for bluff protection, access, and support facilities.

### SUBREGION 5: PAJARO-ELKHORN

**Pajaro Valley.** Encourage reclamation of wastewater for irrigation and recharge of overdrafted groundwater basins.

**Pajaro Coast Beaches.** Acquire 135 acres to create a continuous strip of State beach from La Selva Beach to the Pajaro River.

**Sunset Beach.** Acquire this 13-acre inholding within the existing State beach for development of day-use facilities.

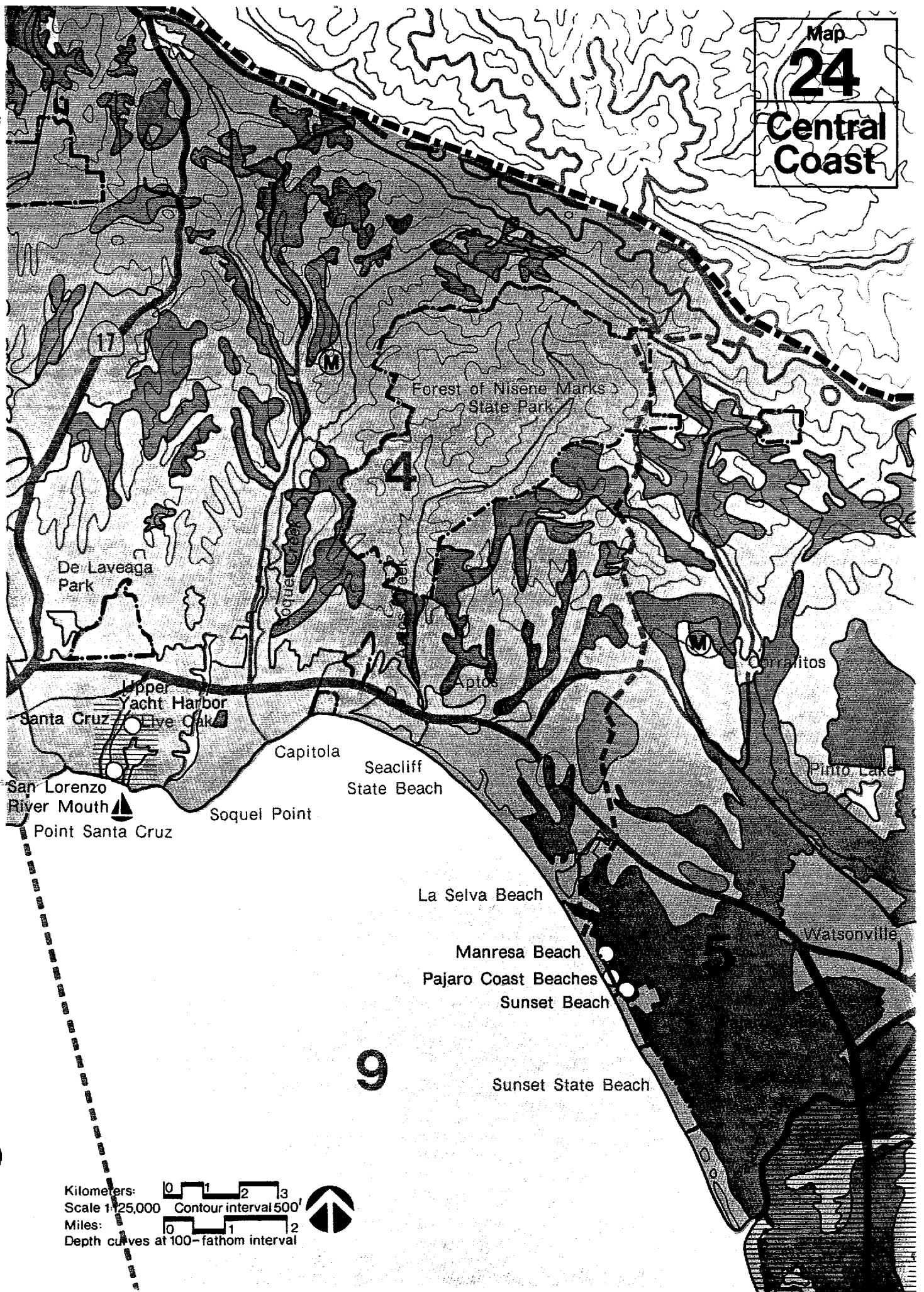
### SUPPLEMENTAL NOTES

**Coastal Bluffs.** Eroding cliffs form the seaward face of much of the Santa Cruz and San Mateo coasts. Together with the adjacent sandy beaches and the nearshore ocean currents, the bluffs are part of the natural system called the littoral cell, supplying sand to the beaches of the region. Down the bluffs—along the gullies that drain upland areas or on the face of the bluffs themselves—people gain access to the shoreline. But the cliffs are often hazardous. Waves eat away at their bases, and landslides constantly reshape the bluff face. Urbanization may accelerate erosion by increasing runoff, encouraging indiscriminate construction on bluff edges, and increasing use of the unstable bluff face.

Coastal Plan bluff policies must be carefully applied to a wide range of bluff types. Beach access points must be designated and made safe, helping at the same time to prevent new erosion of bluff faces. Public use areas, such as blufftop trails, parking and viewing areas, must be provided. And a range of techniques must be used to reduce future need for costly, unattractive seawalls (such as setback requirements, drainage improvements, innovative shore protection designs).

In the Santa Cruz area, many of the bluffs have been altered by residential, road, and seawall construction. Public enjoyment of spectacular blufftop vantage points can be improved with landscaping, benches, and litter control (San Lorenzo Point); coastal access can be increased through blufftop dedication and public acquisition (Manresa Beach); and the appearance of bluffs can be enhanced through restoration and strict controls over height, setback, and design of new buildings and seawalls (Capitola, East Cliff Drive).

Map  
**24**  
Central  
Coast



Kilometers: 0 1 2 3  
Scale 1:25,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



## PLAN MAP 25: MAP NOTES

### SUBREGION 5: PAJARO-ELKHORN [CONTINUED]

**Pajaro Valley.** Encourage reclamation of wastewater for irrigation and groundwater recharge.

**Elkhorn Slough.** Create an Estuarine Sanctuary and Wildlife Refuge. Acquire 2,500 acres to protect this area, the largest saltmarsh in the coastal zone, to protect rare and endangered species, and to provide recreational opportunities.

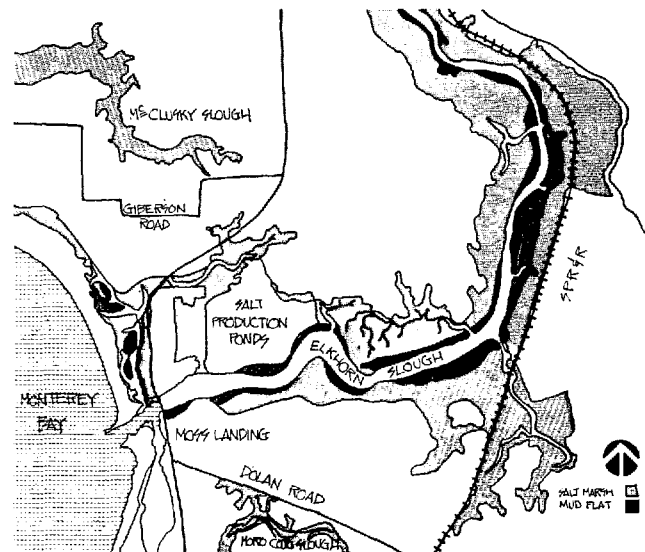
**Elkhorn Slough Special Study Area.** Evaluate plans for the harbor, coastal industries, and roads to assure that these facilities will not degrade sensitive estuarine habitats and valuable agricultural land. Develop comprehensive watershed management program.

**Elkhorn Uplands.** Limit development in slough's critical watershed to protect quality and quantity of freshwater inflow.

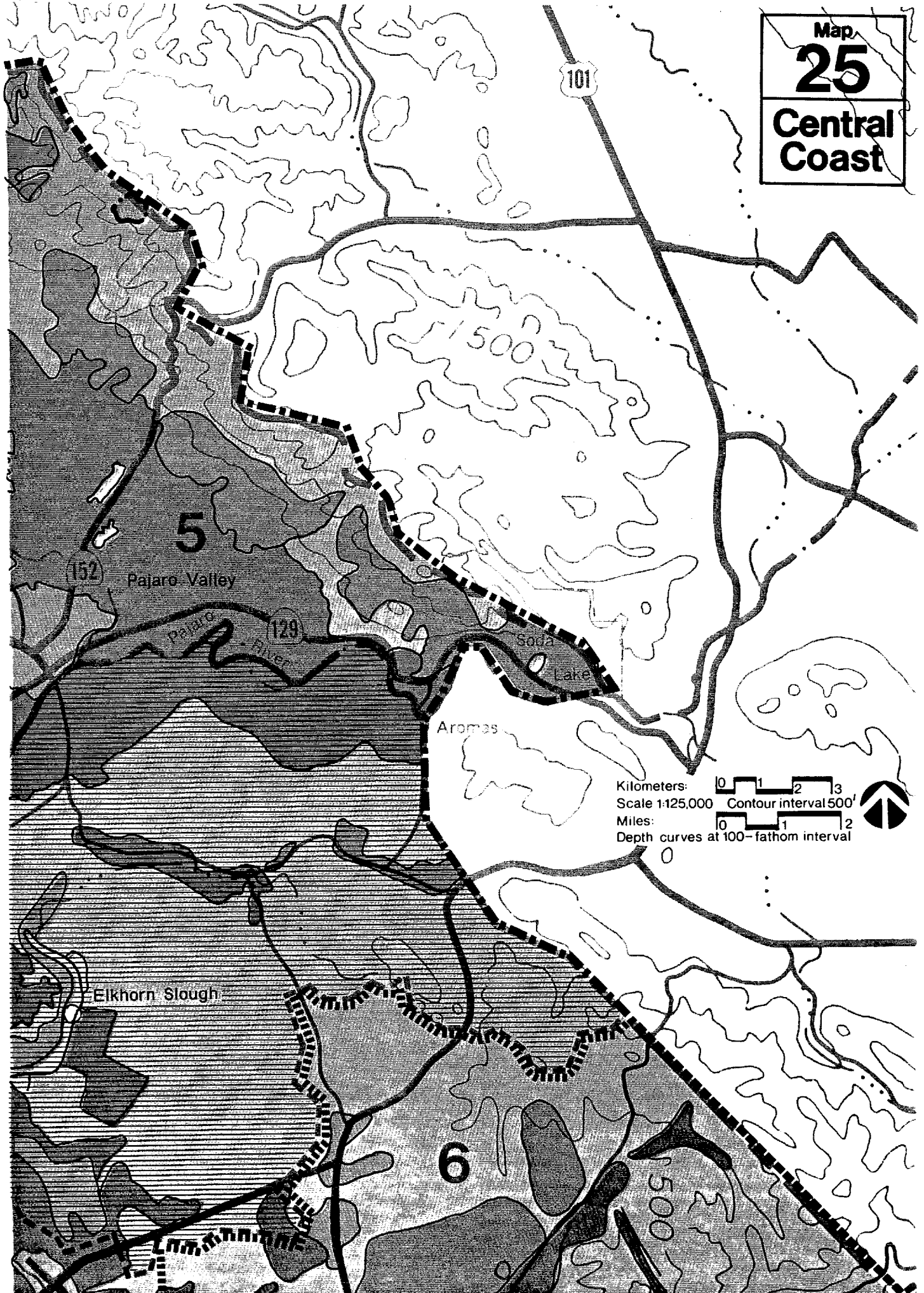
## SUPPLEMENTAL NOTES

**Critical Habitats.** Throughout the coastal zone are land and water areas of special importance to rare, threatened, and highly specialized plant and animal species. The Plan places great stress on protection of such critical habitat areas as salt marshes, tidepools, estuaries, and native plant communities. Protection of these areas not only helps assure that plant and animal populations are adequate for reproduction, but also gives the public an irreplaceable educational resource.

Elkhorn Slough is an estuarine system of immense importance. In recommending that the slough be granted Estuarine Sanctuary status, and that the slough and foreslopes be designated as a wildlife refuge, the Plan follows up on State and Federal studies of the habitat values of the area as a marine life nursery and home of two endangered bird species: the black rail and clapper rail.



Map  
**25**  
Central  
Coast



Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



## PLAN MAP 26: MAP NOTES

### SUBREGION 5: PAJARO-ELKHORN [CONTINUED]

**Zmudowski State Beach Addition.** Acquire 100 acres to complete a continuous strip of State Beach from the Pajaro River to Moss Landing.

**Elkhorn Slough.** See Map Notes facing Plan Map 25.

### SUBREGION 6: LOWER SALINAS VALLEY

**Castroville.** Eliminate sewage discharge to Tembladero Slough.

**Salinas River Dunes.** Acquire 200 acres of dunes and beach for landscape preservation and recreational use.

**Monterey Bay Dunes Special Study Area.** Establish preservation program, restoration priorities, and recreational use levels to prevent population growth, sand mining, and increased recreation use from damaging sensitive habitats and scenic areas.

**Marina Dunes.** Protect rare dune vegetation and representative vernal ponds. Enact legislation authorizing purchase of this 169-acre dune area to protect the endangered habitat and landform and to provide beach recreation.

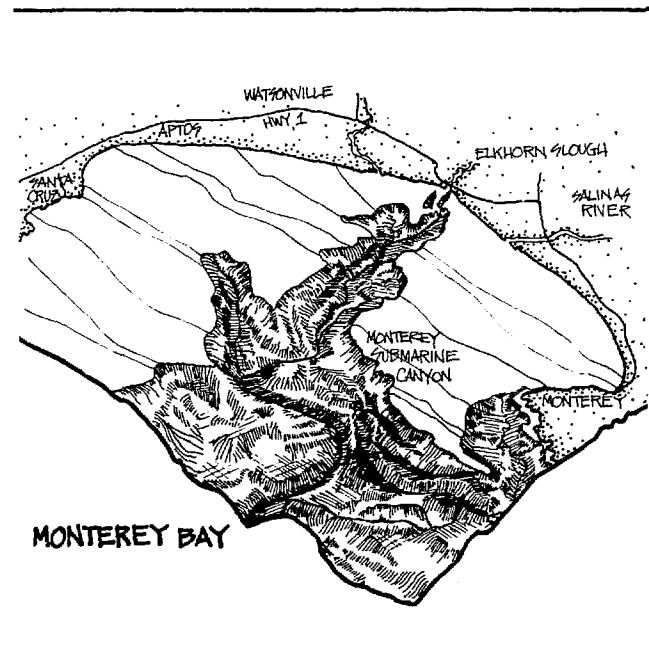
### SUBREGION 9: MONTEREY BAY

**Monterey Bay.** Develop adequate information on bay currents, sand supply, and water quality impacts for decisions on oil leasing, new sewage discharges, and level of sand mining.

## SUPPLEMENTAL NOTES

**Monterey Bay.** Natural features of Monterey Bay include a mile-deep submarine canyon, rich kelp beds, and a revitalized sea otter population. Although the great sardine fleets have disappeared, the Bay remains important for commercial fishing, skin diving, sand mining, seawater mineral extraction, and as a receptacle for nine municipal sewage outfalls. Three marinas, a boardwalk, commercial wharfs, and 36 miles of beachfront are primary visitor attractions, essential to local economies. Offshore Outer Continental Shelf lands may be leased for oil exploitation.

An effective resource management program must balance these sometimes conflicting uses of the Bay so that the overall quality of this marine ecosystem is maintained. Allocation of berthing space and harbor expansion, assessment of deep-water port proposals, elimination or upgrading of sewage discharges, oil spill prevention and mitigation, protection of beach sand supply sources, and management of fisheries must be given priority in further investigation.



Map  
**26**  
**Central Coast**

MONTEREY

BAY

Sunset State Beach

Zmudowski State Beach

Moss Landing Harbor  
Moss Landing

Salinas River State Beach

Salinas Lagoon National Wildlife Refuge

Salinas River Dunes

Marina Dunes

Marina

Fort Ord

5

9

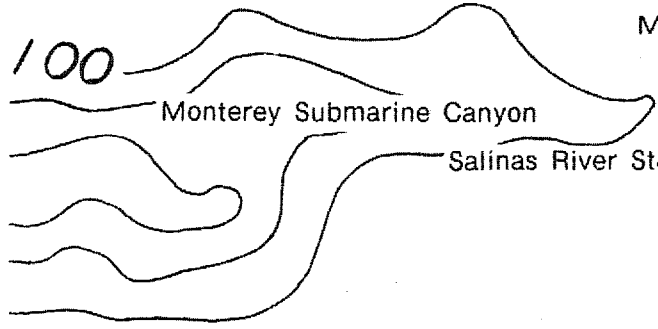
6

Palatio River

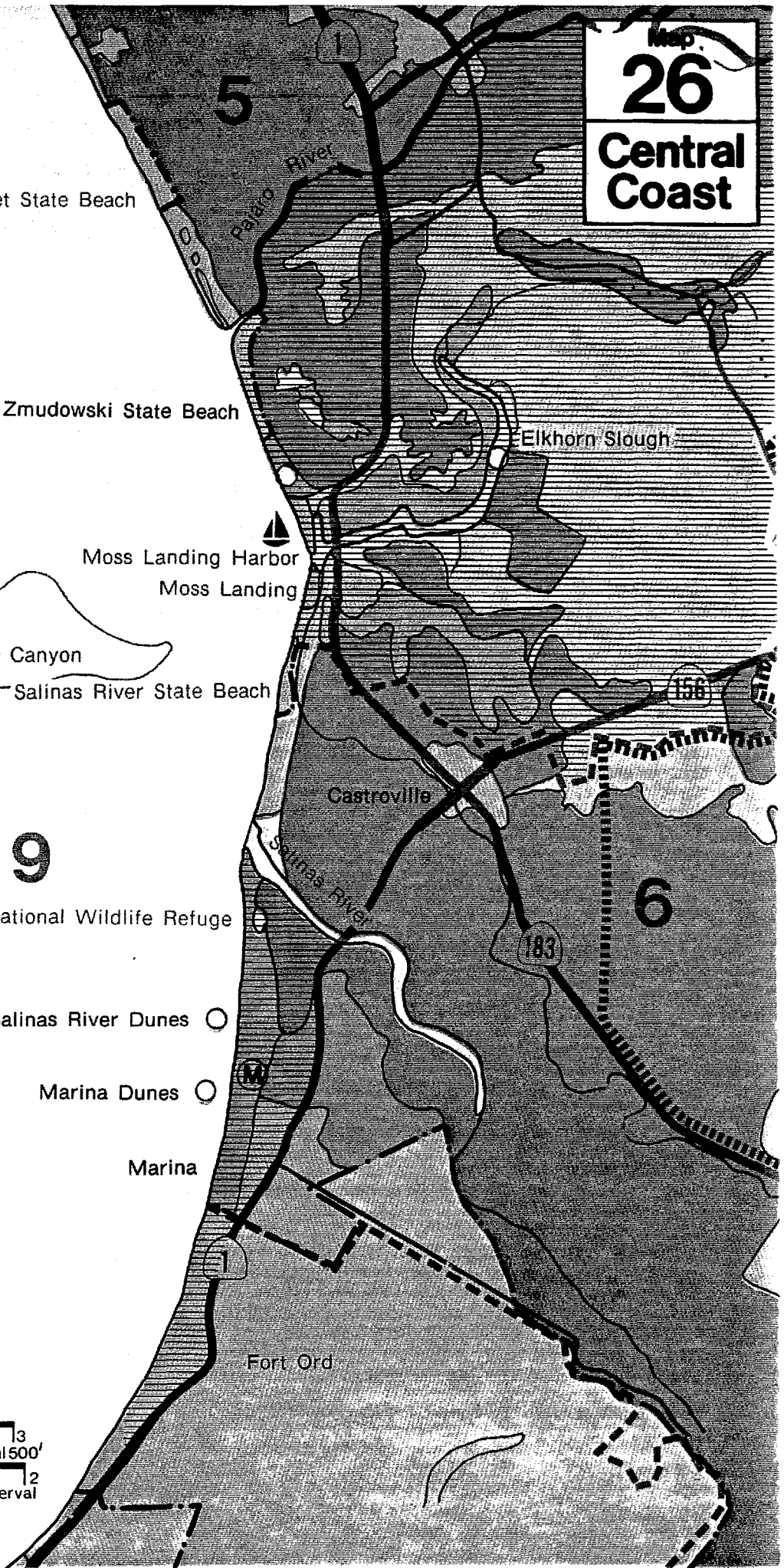
Salinas River

Elkhorn Slough

Castroville



Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



## PLAN MAP 27: MAP NOTES

### SUBREGION 7: MONTEREY PENINSULA

**Sand City to Monterey.** Protect and restore dunes and views of Monterey Bay.

**South Monterey Bay Beaches.** Acquire approximately 100 acres of beach adjacent to the urbanized area for recreation.

**Laguna Grande Lake.** Acquire this 15-acre lake and marsh immediately east of Highway 1 for general recreation.

**Monterey.** Maintain historic character of downtown by restoration of adobes and control of new development.

**Cannery Row.** Provide adequate access for recreation.

**Pacific Grove.** Protect historic architecture.

**Monterey Peninsula.** Protect forested skyline.

**17 Mile Drive.** Protect recreational capacity of road and designate public use areas.

**Del Monte Forest.** Retain pine forest canopy and complete the planned botanic reserve system. Add about 50 acres of cypress grove to the existing system of limited access reserves. Consider public acquisition where necessary to protect small portions of the area from incompatible development.

**Pebble Beach.** Preserve old-growth cypress stands.

**Carmel City Beach.** Add .75 acre to the existing municipal beach for general recreation.

**Carmel Bay.** Protect submarine canyon and pinnacles. Phase out existing outfall and reclaim wastewater. Improve diving safety and control access.

**Carmel Area Kelp Beds.** Limit harvesting to protect integrity of beds and habitat values.

**California Sea Otter Refuge.** Protect pristine natural environment through ASBS designation and avoidance of adverse impacts.

**Carmel Meadows.** Acquire this 35.6-acre undeveloped meadow as an addition to Carmel River State Beach.

**Carmel River-Point Lobos Uplands.** Acquire a minimum of 135 acres and dedicate additional acreage, if possible, along a 2.5-mile stretch of Highway 1 to preserve this area as open space and a scientific reserve.

**Carmel Highlands.** Establish sewer system and phase out near-shore outfalls.

**Yankee Point to Garrapata Beach.** Formulate a program to protect scenic views, tidepools, and pocket beaches from development and from recreational overuse. Complete beach acquisition at Malpaso Beach and establish appropriate public use levels; acquire at least 200 additional acres (a proposed Sobrantes Point Reserve), including about four miles of ocean frontage, as part of the protection program.

**Big Sur Highway Special Study Area.** See Map Notes for Plan Map 29.

### SUPPLEMENTAL NOTES

**Manmade Resources.** The Coastal Plan celebrates the special features of the coast that are man-made. From individual architectural and artistic achievements to the development of community character, from prehistoric cultural remnants to "living" history, the coast offers the resident and visitor a rare opportunity to sample the best of man's works alongside the best of nature's.

Special coastal neighborhoods, defined by their unique features and protected from degradation with development controls, are of several kinds. Old Monterey, the capital of Spanish California, centers on the nearly-forgotten Royal Presidio site and a group of adobes, many of which have been protected and restored as public buildings and private offices. Monterey's colorful waterfront area combines historic features (Custom House Plaza, Sloat Landing) with modern wharves and marina, and a commercial revitalization of Cannery Row (which retains its own historic and literary heritage). Pacific Grove boasts a large collection of stately Victorian homes and churches, whose preservation helps to retain the characteristic atmosphere of this coastal community.

Carmel Mission is one of several designated National Historic Landmarks. It has great historic and architectural value even within the chain of California missions, is in excellent repair, and it occupies a strategic location between the Big Sur Coast and the urban recreational amenities of the Monterey Peninsula. The mission also symbolizes its original religious goals and provides a link to the coastal Indian cultures that once occupied the site.

Archaeological resources abound on the peninsula, and the Plan calls for a systematic survey of these resources so as to prevent their loss.



Map  
**27**  
**Central Coast**

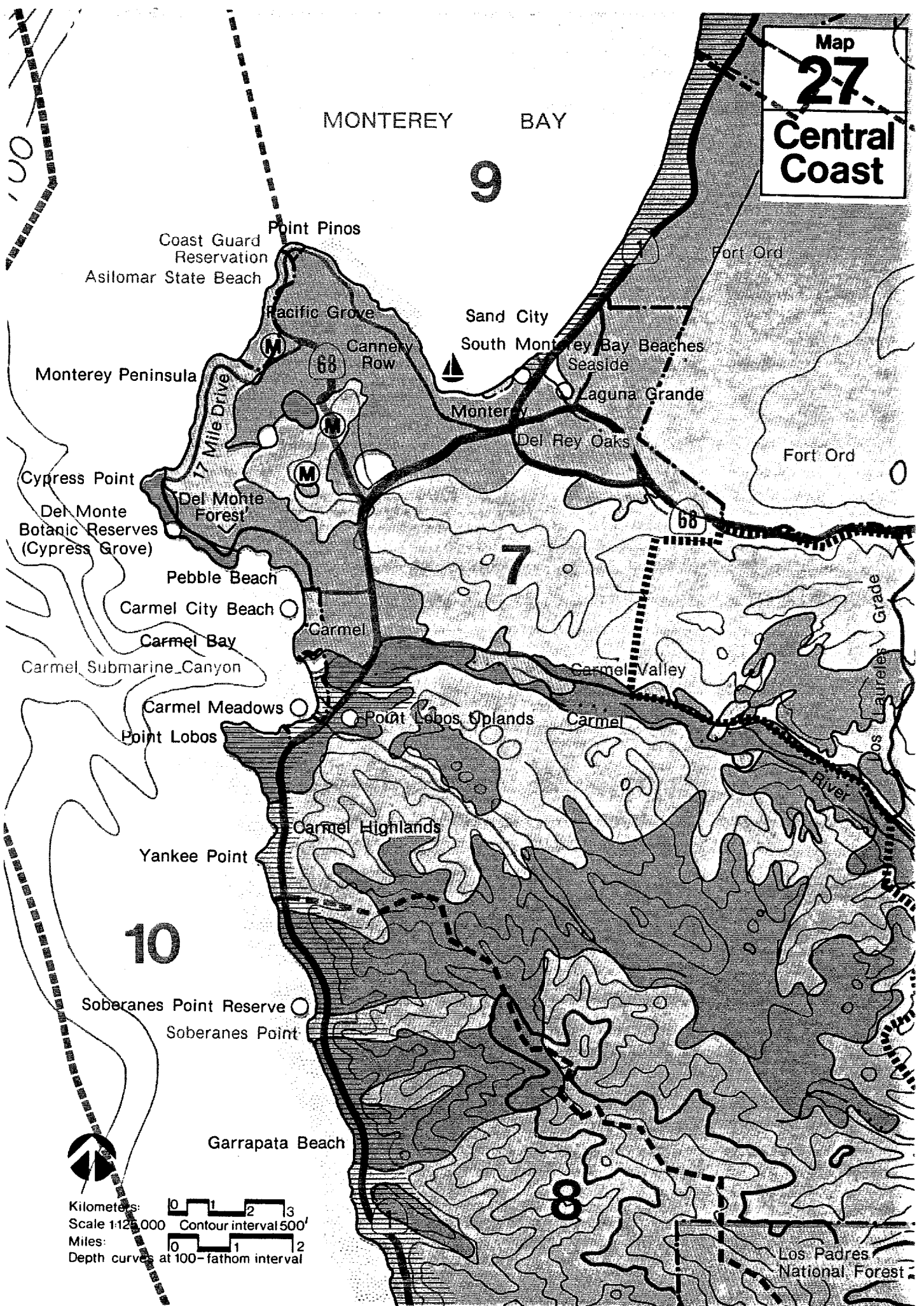
MONTEREY BAY

9

7

10

8



Kilometers: 0 1 2 3  
 Scale 1:125,000 Contour interval 500'  
 Miles: 0 1 2  
 Depth curves at 100-fathom interval

Los Padres National Forest

## PLAN MAP 28: MAP NOTES

### SUBREGION 6: LOWER SALINAS VALLEY [CONTINUED]

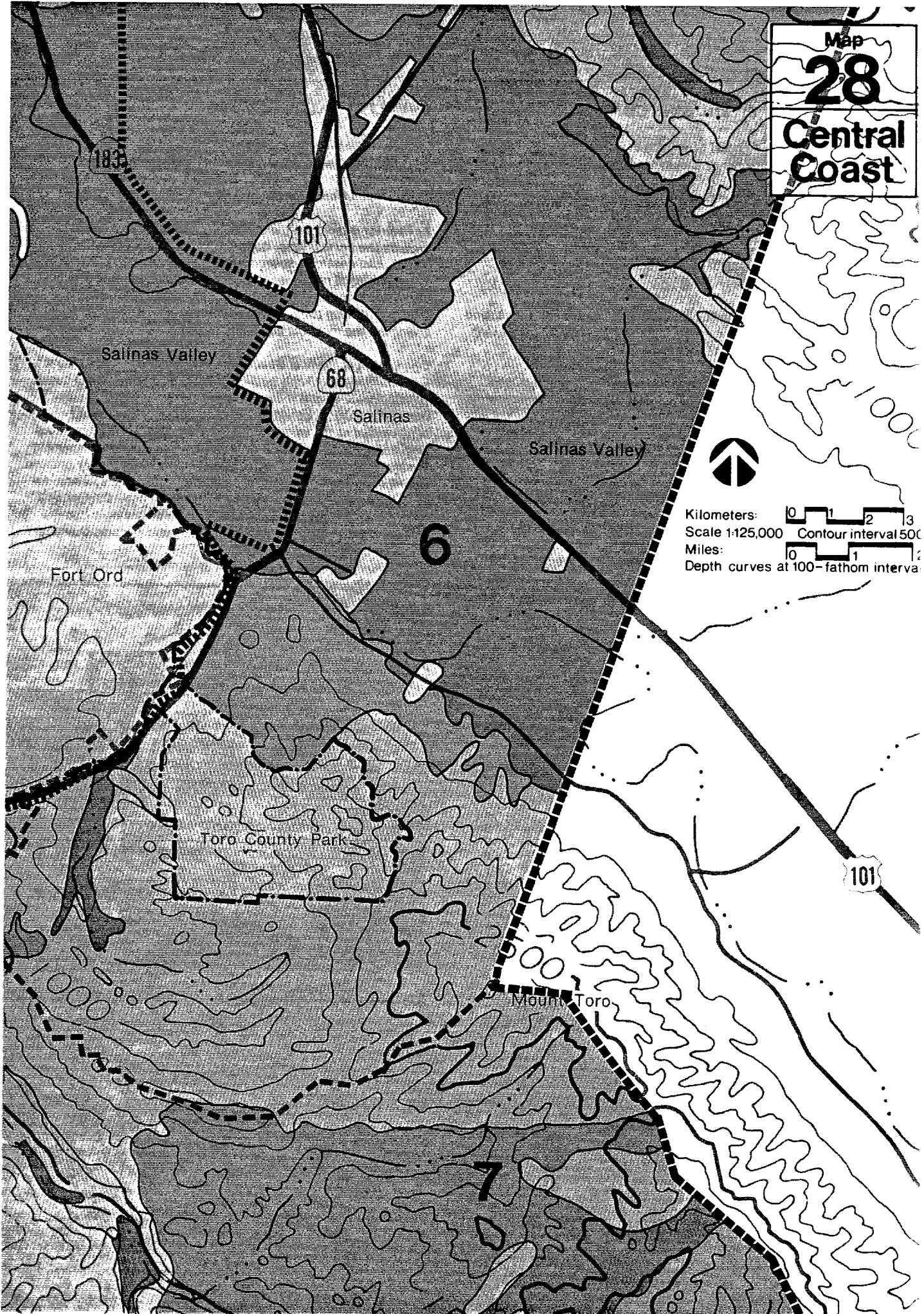
**Salinas Valley.** Encourage reclamation of wastewater for irrigation and groundwater recharge.

### SUPPLEMENTAL NOTES

**Urban Growth.** Several Plan policies recognize the need for protecting resource areas on the edges of growing cities. By concentrating development where services are available, measuring the economic viability of agricultural areas on the urban fringe, and guiding divisions of land according to environmental criteria, the subregional planning process will enable a fairly precise determination of the urban-rural boundary, as well as designation of appropriate areas for growth or intensification.

The growth issue is particularly critical in the fertile coastal valleys of the Salinas and Pajaro Rivers. As the agricultural economies of Salinas and Watsonville thrive, the cities threaten to sprawl into the farmlands around them. Such sprawl would not only reduce the open space and economic base of these communities, but would endanger productive resources of national importance. In the lower Salinas Valley, both the Salinas and Castroville General Plans recognize and respect the value of the agricultural resource by directing growth away from prime lands.

Map  
**28**  
**Central Coast**



Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500  
Miles: 0 1 2  
Depth curves at 100-fathom intervals

## PLAN MAP 29: MAP NOTES

### SUBREGION 8: BIG SUR COAST

**Big Sur Highway Special Study Area.** Retain the unique recreational driving experience by keeping Highway 1 a two-lane road, controlling development along it, and protecting the scenic viewshed. Consider establishing a parkway from Carmel River to Highway 46 in Cambria.

**Notley's Landing.** Acquire 100 acres adjacent to the sea otter refuge for preservation of classic scenic vista and historic features.

**Little Sur-Point Sur.** Acquire 800 acres of beaches, dunes, and wetland for landscape preservation and recreation consistent with the protection of the resources.

**Pico Blanco.** Add 640-2,800 acres, including landmark peak, virgin redwood forest, and deep gorge, to Los Padres National Forest.

**Sycamore Canyon.** Protect scenic corridor. (See the Supplemental Notes on this page)

### SUBREGION 10: CENTRAL COAST OCEAN AREA [CONTINUED]

**California Sea Otter Refuge.** Protect pristine natural environment through ASBS designation and avoidance of adverse impacts.

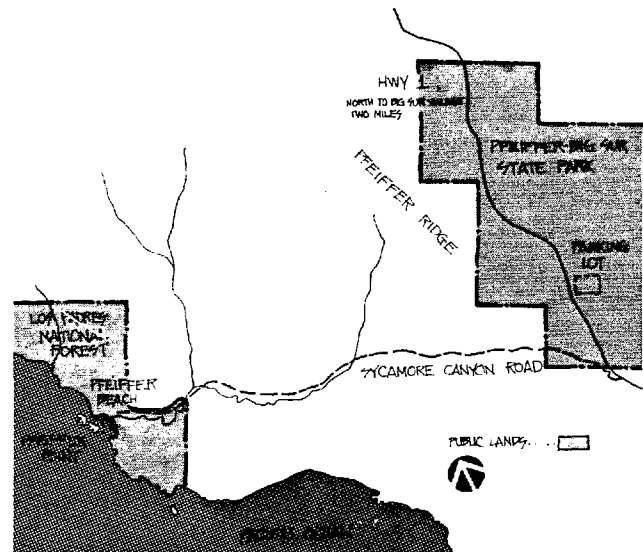
**Bay and Ocean Areas.** Retain and expand oil drilling prohibition zone.

### SUPPLEMENTAL NOTES

**Coastal Access.** Increasing public access to the coast is one of the principal goals of the Plan. But to increase access while adequately protecting resources requires careful management. Point Lobos State Reserve provides a successful illustration.

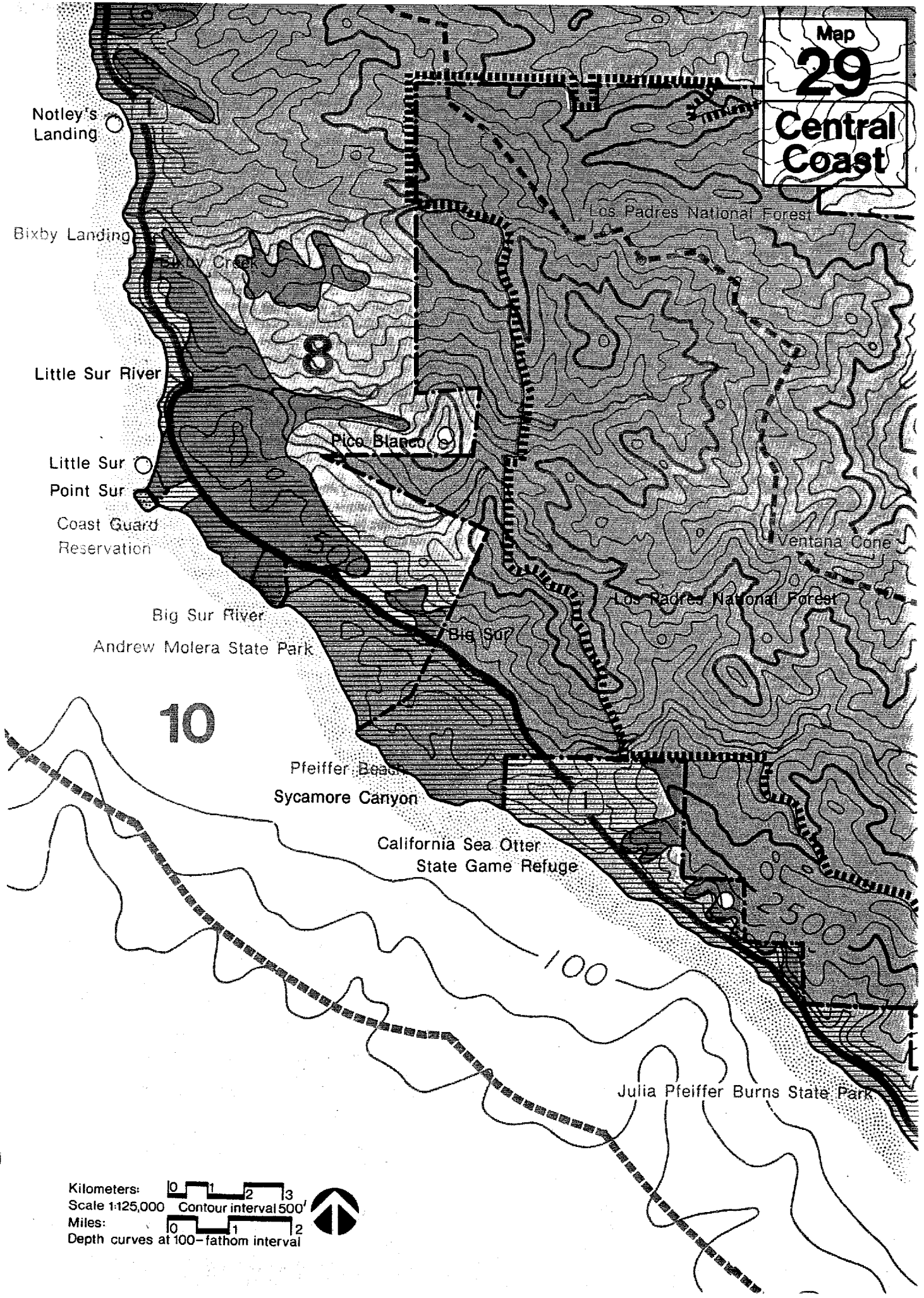
At Pfeiffer Beach, on the other hand, uncontrolled auto access crowds the narrow lane, degrades a once-quiet redwood forest, and destroys solitude along an unspoiled shoreline. The traditional response to excess recreational traffic is to build a higher-capacity road, a bigger parking lot, etc. However, in the long run a greater benefit might be obtained by changing the mode of access.

One option at Pfeiffer Beach would be to convert Sycamore Canyon Road to a high quality bicycle, horse, and foot corridor. Not only would it cost less to implement, but visitor-resident conflicts could be reduced as well. A trailhead could be provided at the existing Forest Service Highway 1 parking area or Pfeiffer-Big Sur State Park, with an underpass beneath the highway. The result would be much like the highly praised Bear Valley Trail at Point Reyes National Seashore, where an existing coastal access road was closed to non-residential traffic; many more people (instead of cars) can now use the route, resources are better protected, and getting there is more fun.





Map  
**29**  
**Central Coast**



Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval

## PLAN MAP 30: MAP NOTES

### SUBREGION 8: BUG SUR COAST [CONTINUED]

**Los Padres National Forest.** Recommend that Congress approve 20,000 acres proposed for addition to the National Forest.

## SUPPLEMENTAL NOTES

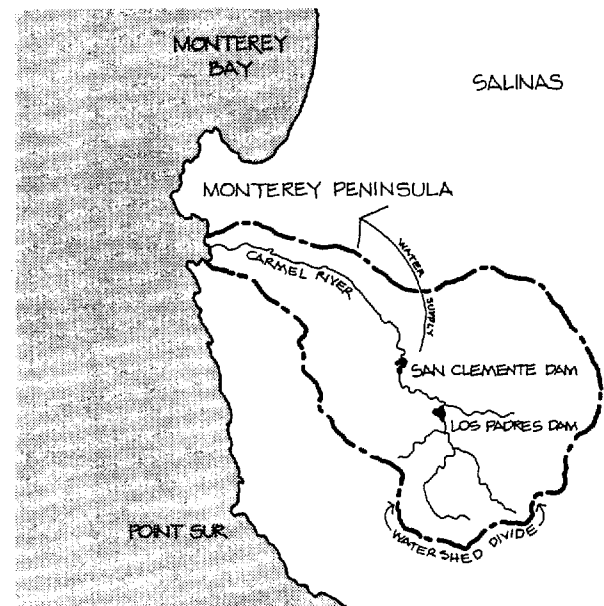
**Watershed Management.** The concept of watershed management—treating areas with common drainage as planning units—is a fundamental principle of the Plan. Several of California's coastal watersheds are fairly small, are contained entirely within coastal counties, and help to define the limits of the coastal zone. Other, more extensive watersheds contribute most beach sand supplies, provide spawning grounds for anadromous fish, supply much of the water for domestic use by coastal residents, and create a hydraulic gradient that keeps coastal groundwaters from becoming saline. Some developments in upper watershed areas, outside coastal jurisdictions, could pollute coastal waters or otherwise adversely affect efforts to protect or improve environmental quality in the coastal zone.

Water is scarce in many parts of the Central Coast. Human settlements and natural habitats compete for and adapt to their particular water supplies. A watershed management plan could determine optimum supplies for all purposes, both from surface and groundwater sources.

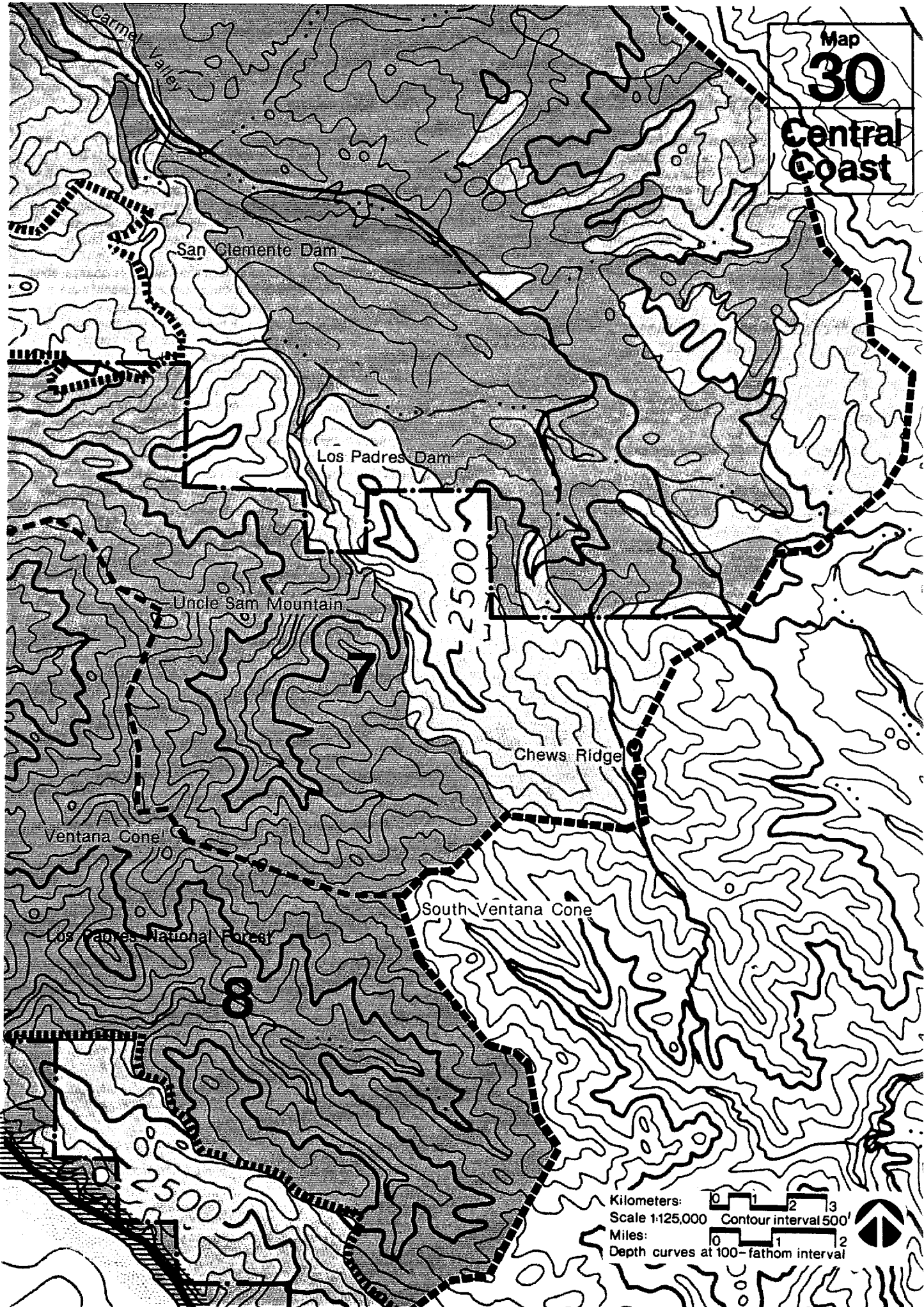
Water quality maintenance is a vital part of watershed management. A cooperative effort among local, State and Federal agencies is needed so that policies encouraging reclamation of waste waters, protection of enclosed waters for recreation and wildlife, improvement of water quality in harbors, estuaries, and the open ocean can be implemented.

Developments in the watershed, such as logging, paving, grading, and dams, may individually and cumulatively affect erosion of the land and the turbidity and sediment load of the receiving waters. Only by examining all such activities throughout a watershed can their impacts be effectively assessed and mitigated.

The Carmel Valley is an example of such a coastal watershed. Many resources and uses, both directly and indirectly related to the shoreline, are affected by development of its land and water resources.



Map  
**30**  
Central  
Coast



Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval





## PLAN MAP 31: MAP NOTES

### SUBREGION 8: BIG SUR COAST [CONTINUED]

**Big Sur Highway Special Study Area.** Retain the unique recreational driving experience by keeping Highway 1 a two-lane road, controlling development along it, and protecting the scenic viewshed. Consider establishing a parkway from Carmel River to Highway 46 in Cambria.

**Los Padres National Forest.** Recommend that Congress approve 20,000 acres proposed for addition to the National Forest.

### SUBREGION 10: CENTRAL COAST OCEAN AREA [CONTINUED]

**California Sea Otter Refuge.** Protect pristine natural environment through ASBS designation and avoidance of adverse impacts.

**Bay and Ocean Areas.** Retain and expand oil drilling prohibition zone.

## SUPPLEMENTAL NOTES

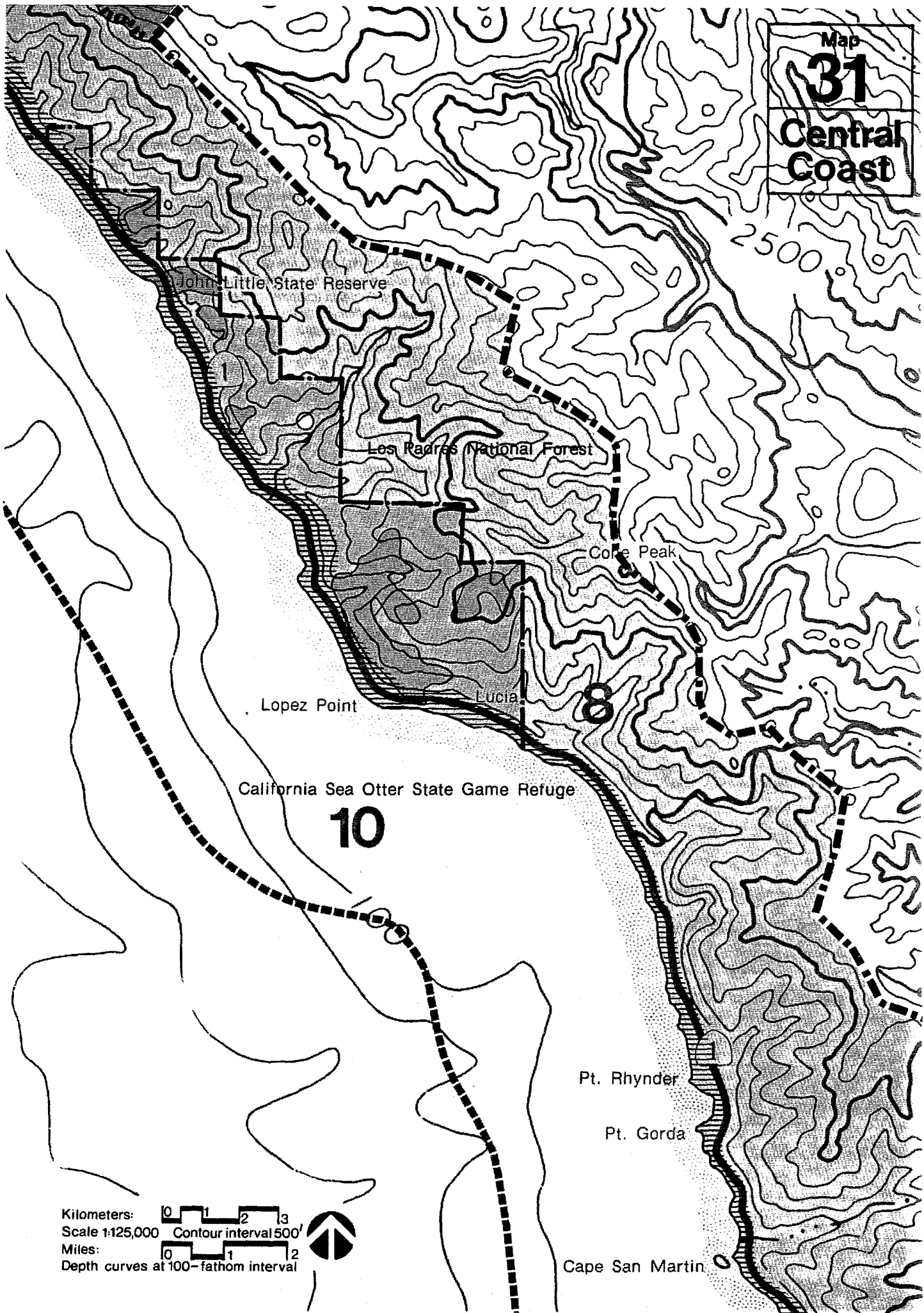
**Federal Role in Coastal Land Management.** California's coast is the nation's shoreline. Accordingly, the California Department of Parks and Recreation has declared: "The protection of natural features of national significance... is the responsibility of the federal government..." Although Coastal Commission jurisdiction is limited to non-federal lands, several current proposals could actually reduce Plan implementation costs.

The largest federal resource area in the California coastal zone is Los Padres National Forest; management concepts are oriented to multiple use. One bill before Congress would authorize the addition of some 18 miles of the Big Sur coast, including critical viewsheds along Highway 1 enjoyed by an average of 1.4 million visitors annually. This proposal is only part of the U.S. Forest Service's 164,000-acre Big Sur Coastal Planning Unit. Other involved agencies include the U.S. Fish and Wildlife Service, responsible for Salinas Lagoon National Wildlife Refuge, and the National Park Service, now beginning an ambitious study covering an estimated 220,000 acres along 65 miles of shoreline between San Francisco and Santa Cruz. Legislation recently introduced could result in the addition of at least part of this acreage to Golden Gate National Recreation Area.

Modes of acquisition and management available to federal resource management agencies differ from those open to the state. For instance, even though National Forest boundaries may be extended, included private lands would not be subject to condemnation. Also, unlike the state, 25 per cent of collected revenues are returned to the county of origin. Large roadless areas have been designated as wilderness, entry and fire permits required, and forest closures imposed during periods of severe fire danger. Recent disastrous fires illustrate the need for a broader application of such authority on the Big Sur coast and Carmel River watershed.

In the National Park System, legislatively established citizen advisory committees commonly play important roles in planning and management. Great flexibility can be exercised in preserving existing open space and residential uses through life estates, various resource easements or purchase-lease-back arrangements, as at Point Reyes National Seashore. Strong new policies will limit recreational use of fragile scenic and habitat areas, and public transit with stops only at designated locations is being favored over the private automobile for access. Thus the alternative of a National Seashore preserve on the Big Sur coast or the Channel Islands merits serious study. Such legislation may be particularly welcome where local and state taxpayers now must bear the entire burden of protecting and maintaining areas which are actually of national significance and receive visitors from all over the nation.

Map  
**31**  
Central  
Coast



John Little State Reserve

Los Padres National Forest

Cole Peak

Lopez Point

Lucia

California Sea Otter State Game Refuge

**10**

Pt. Rhynder

Pt. Gorda

Cape San Martin

Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



## **PLAN MAP 32: MAP NOTES**

### **SUBREGION 8: BIG SUR COAST [CONTINUED]**

**Big Sur Highway Special Study Area.** See Map Notes for Plan Map 31.

### **SUBREGION 10: CENTRAL COAST OCEAN AREA**

**California Sea Otter Refuge.** Protect pristine natural environment through ASBS designation and avoidance of adverse impacts.

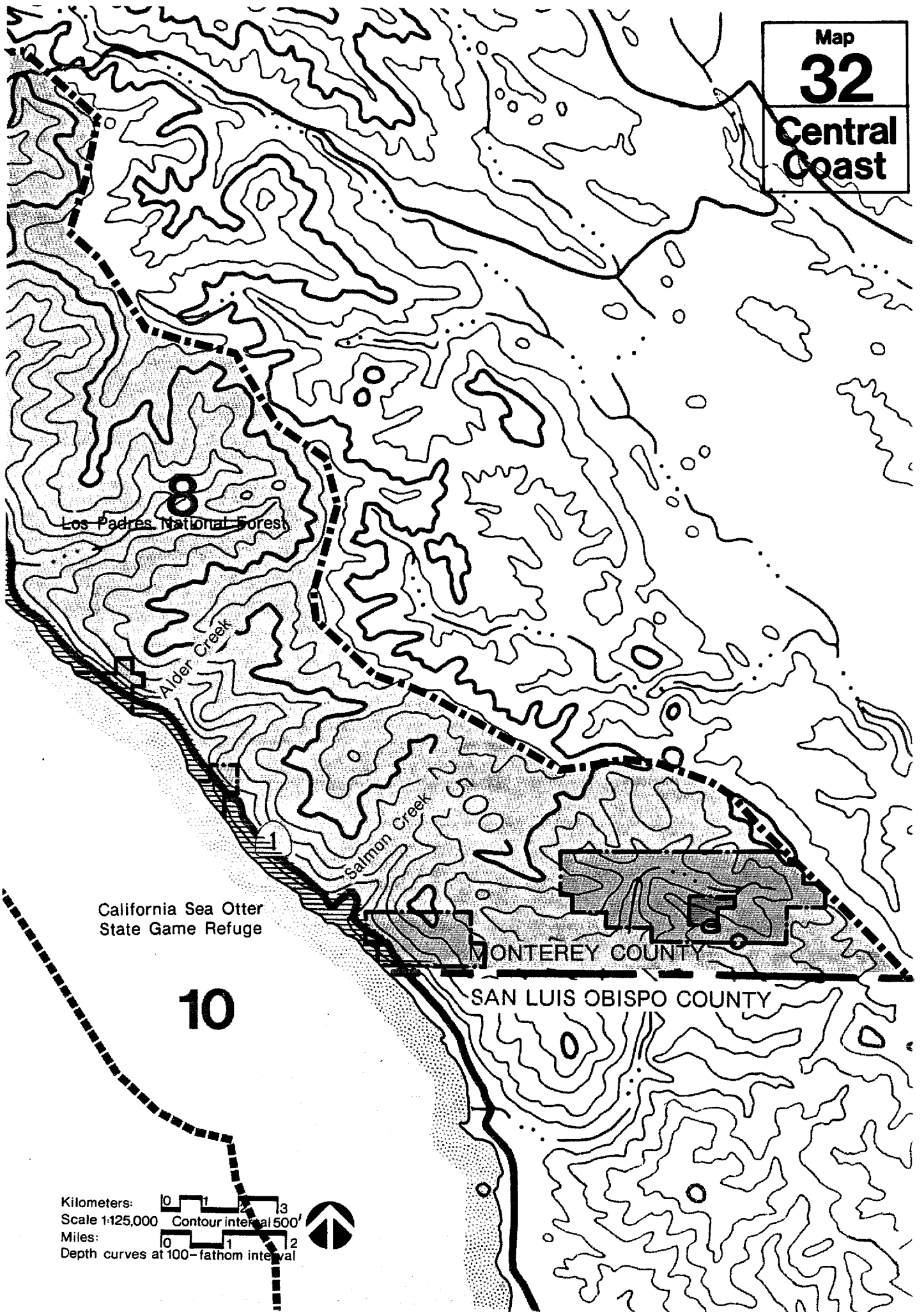
**Bay and Ocean Areas:** Retain and expand oil drilling prohibition zone.

## **SUPPLEMENTAL NOTES**

**Coastal Viewsheds and Scenic Roads.** The Plan designates those areas in public view (from the shoreline, coastal recreational areas, and coastal roads) as the coastal viewshed and sets forth design guidelines that will help to protect the scenic quality of the viewshed. The Plan also calls for maintenance and enhancement of scenic routes along coastal roads.

Some coastal roads are not yet signed, maintained, or officially recognized for their scenic qualities. The Plan recommends designating and improving these roads, wherever possible, as Scenic Highways or Parkways. Such official recognition carries the responsibility to establish viewshed maintenance programs and adequate visitor facilities such as turnouts.

Map  
**32**  
Central  
Coast



8  
Los Padres National Forest

Alder Creek

Salmon Creek

California Sea Otter  
State Game Refuge

10

MONTEREY COUNTY

SAN LUIS OBISPO COUNTY

Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



## CENTRAL COAST REGION SELECTED MAPPING SOURCES

### PRODUCTIVE RESOURCE AREAS

*Aerial Photography*: September 26, 1973; altitude 5,000 ft., Flight 6, NASA. September 27, 1973; altitude 5,000 ft., Flight 41 and 40, NASA.

*Atlas of Urban and Regional Changes*. U.S. Geological Survey, 1972.

*Conservation/Open Space Element, Monterey County General Plan*. Monterey County Planning Department, 1974.

*Cultivated Land* (maps), *Real Estate Atlas for Santa Cruz and Monterey Counties*. Real Estate Data Inc., 1974.

*General Vegetation Map for San Mateo County*. Forest Resources Committee, San Mateo County Planning Department, 1971.

*Grazing maps*, Tri-County Study. Agricultural Extension Service, University of California, 1972.

*Mine and Mineral Resources of Monterey County*. Division of Mines and Geology.

*Open Space and Conservation Element*. San Mateo County Planning Department, 1972.

*Parks, Recreation and Open Space Plan*. Santa Cruz County Planning Department, 1974.

*Regional Ocean Coastline Plan*. Association of Bay Area Governments, prepared by Sedway/Cooke, 1972.

*Resource Production Maps*, San Mateo Coast Corridor Evaluation Study. Metropolitan Transportation Commission and Association of Bay Area Governments, 1975.

*Soil Survey* for San Mateo, Santa Cruz, and Monterey Counties. U.S. Soil Conservation Service, 1974.

*The Physical Setting of San Mateo County*. San Mateo County Planning Department, 1972.

*Tri-County Soil Capability Maps*, Tri-County Coastline Study. Sedway/Cooke, 1972.

### HABITAT AREAS

*Coastal Marine Resources*. Association of Bay Area Governments, 1972.

*Significant Marine Habitats* (Work Sheets). California Department of Fish and Game, 1975.

*Urban Core Study maps*. U.S. Geological Survey, 1972.

### RECREATION-DEVELOPED AREAS-PUBLIC OWNERSHIP

*Los Padres National Forest Maps*. U.S. Department of Agriculture, 1969.

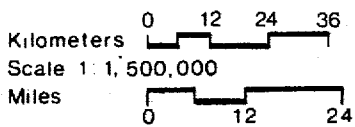
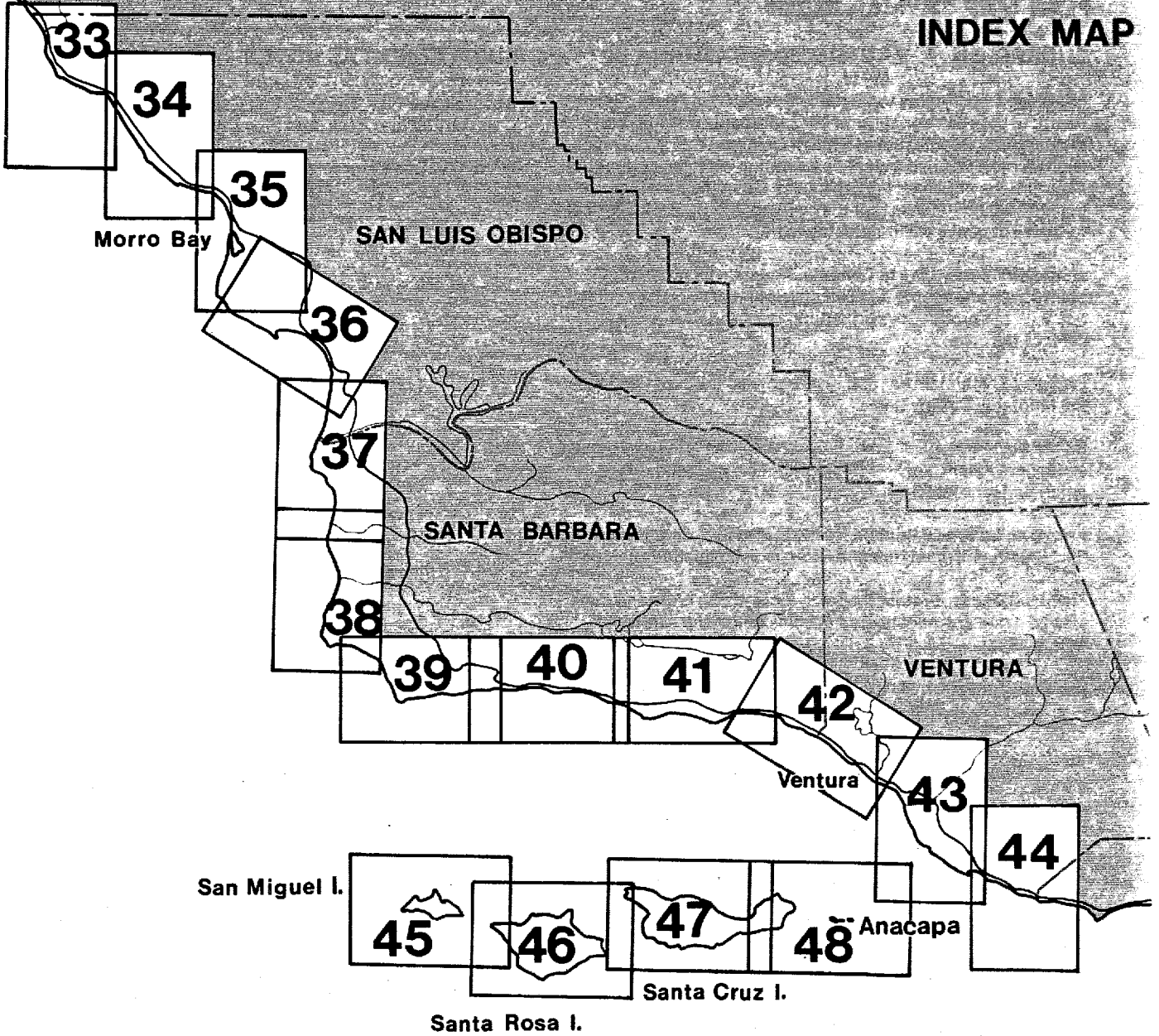
*San Mateo County State Park Boundary Maps*. San Mateo County Parks and Recreation Department, 1972.

Various local, State, and Federal land use maps.

MONTEREY

# SOUTH CENTRAL COAST REGION

INDEX MAP



## PLAN MAP 33: MAP NOTES

### SUBREGION 1: SAN SIMEON-CAMBRIA

**Monterey County Line to Cayucos Special Study Area.** Resolve conflicts between agricultural uses (primarily grazing) and the residential and recreational uses of Cambria, San Simeon, and Highway 1. Establish a clear demarcation between agricultural uses and the public recreational uses along the coastline. Locate coastal trails so that they will not interfere with agricultural use or cause environmental degradation.

**Monterey County Line to Cambria.** Maintain as productive open space and scenic area; all development must be compatible with the productive agricultural uses and scenic character of the area.

**Highway 1.** Maintain as rural two-lane road north of Cayucos to the Monterey County line.

**Rocky Butte Botanical Area.** Protect area that includes rare and endangered plant species (including local endemic, disjunct, and relic species).

**Arroyo de La Cruz.** Maintain freshwater marsh, anadromous fish stream, adjacent uplands and rare and endemic species.

**Piedras Blancas.** Protect the freshwater marsh and sand dune area as a rare and endangered species range and as a highly scenic area.

**San Simeon.** Protect as a community of historic significance.

### SUPPLEMENTAL NOTES

**Anadromous Fish Streams.** San Carpoforo Creek, Arroyo de la Cruz, Little Pico Creek, and Pico Creek.

**Wetlands.** San Carpoforo, Arroyo de la Cruz, and Pico Creek.



MONTEREY COUNTY

SAN LUIS OBISPO COUNTY

Map  
**33**  
 South  
 Central

Ragged Point

California

Sea

Coast Guard  
Reservation

Point Piedras Blancas

Otter

San Simeon

Refuge

San Simeon State Beach

San Carpoforo Creek

Arroyo de la Cruz

Rocky Butte  
Botanical Area

Hearst Castle State  
Historical Monument

Pico  
Creek

Kilometers: 0 1 2 3  
 Scale 1:125,000 Contour interval 500'  
 Miles: 0 1 2  
 Depth curves at 100-fathom interval



100

## PLAN MAP 34: MAP NOTES

### SUBREGION 1: SAN SIMEON-CAMBRIA (CONTINUED)

**Monterey County Line to Cayucos Special Study Area:** Resolve conflicts between agricultural uses (primarily grazing) and the residential and recreational uses of Cambria, San Simeon, and Highway 1. Establish a clear demarcation between agricultural uses and the public recreational uses along the coastline. Locate coastal trails so that they will not interfere with agricultural use or cause environmental degradation.

**Monterey County Line to Cambria.** Maintain as productive open space and scenic area; all development must be compatible with the productive agricultural uses and scenic character of the area.

**San Simeon Creek.** Protect the estuary from overuse from adjacent State Park; the watershed includes coastal grasslands and Monterey-pine forest (a restricted natural community).

**Cambria Pines.** Preserve as one of the last native Monterey-pine forests (*pinus radiata*) found in the world (although the Monterey pine is used throughout the world as a timber pine) and as a highly scenic area.

**Cambria.** Protect and maintain the rural-town atmosphere of the community with developments compatible in size and character.

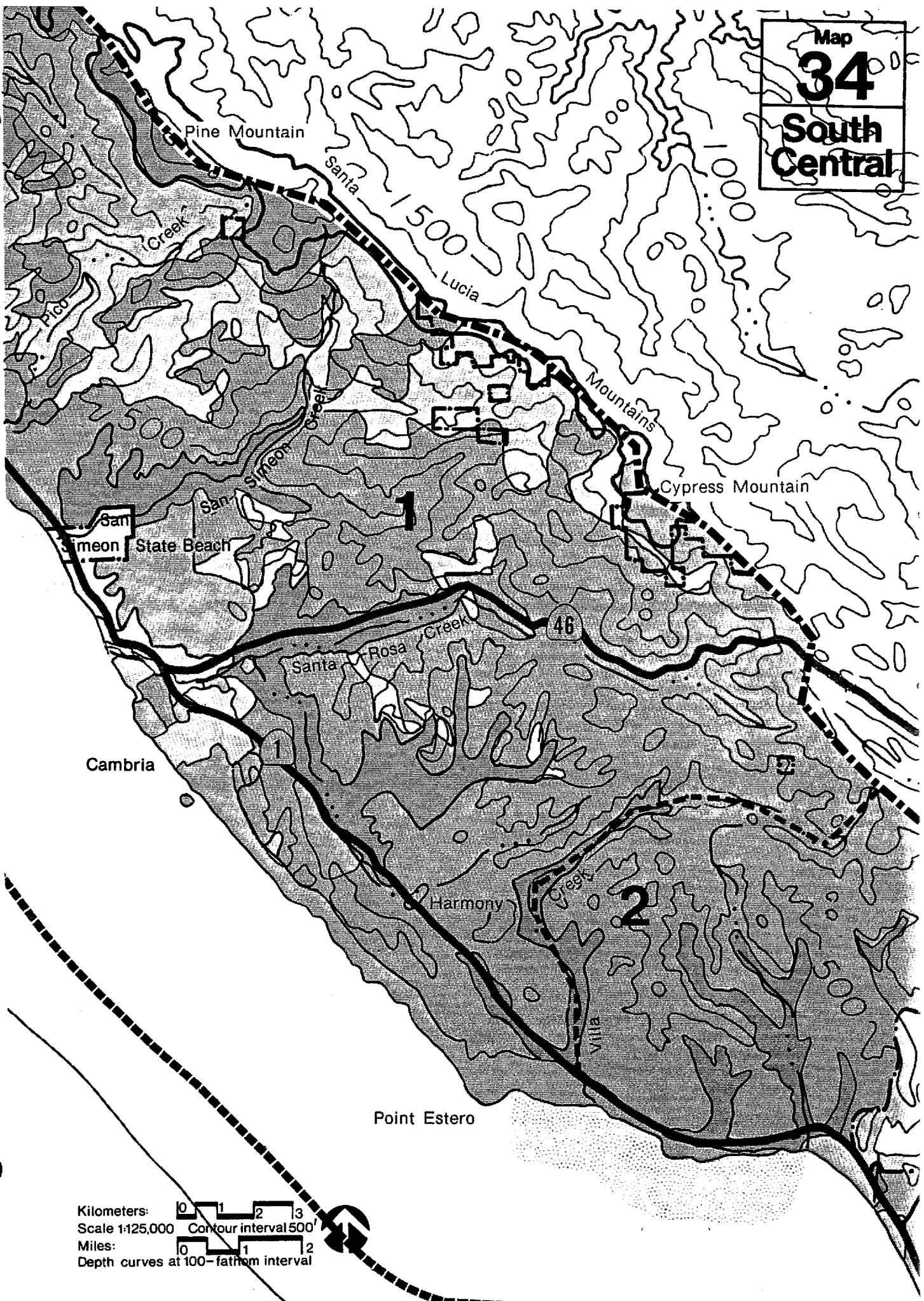
**Highway 1.** Maintain as rural two-lane road north of Cayucos to the Monterey County line.

### SUPPLEMENTAL DATA

**Anadromous Fish Streams.** San Simeon Creek, Santa Rosa Creek, and Villa Creek.

**Wetlands.** San Simeon and Santa Rosa Creek Estuaries.

Map  
**34**  
South  
Central



Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval

## PLAN MAP 35: MAP NOTES

### SUBREGION 2: ESTERO/MORRO BAY

**Cayucos.** Maintain small beach-community atmosphere by developing within the size and scale of the existing town.

**Estero Bay.** Maintain the productive offshore fisheries.

**Morro Bay.** Preserve as an estuary of statewide significance (listed as one of the top 10 priority wetlands in the state by the California Department of Fish and Game and the U.S. Bureau of Sport Fisheries and Wildlife). Recommendations for the estuary include (1) support of the Morro Bay inter-governmental watershed study; (2) creation of an ecological reserve of lands within and around the bay; and (3) public acquisition of privately held wetlands and the perimeter of the bay, including a 50-acre wetland area as an addition to the existing State Park (a State Department of Fish and Game proposal) and 90-100 acres of scattered parcels between Morro Bay and Montana de Oro State Parks as buffer areas to protect the bay and upland areas for general recreational use. Control siltation through careful monitoring of sand inflow from littoral drift and the upland watershed.

**Morro Rock Nesting Site.** Protect as one of the few nesting sites of the peregrine falcon, an endangered species.

**Fairbanks Point.** Protect as a specialized wildlife habitat and an important heronry.

**Morro Bay Watershed Special Study Area.** Using the Morro Bay Watershed Study to establish primary policies, develop a sub-regional plan which balances present and future land uses with available resources such as water, waste disposal, and available land. Primary objectives will be the preservation or enhancement of the Morro Bay estuary, regulation of land uses within the watershed that ensure this objective, protection of the existing recreational resources from overuse, and balancing the growth rate so that these resources will not be negatively impacted.

**Warden and Eto Lakes.** Preserve as a freshwater marsh habitat and an area for migratory birds.

**Baywood Park-Los Osos.** Maintain character of the community by conserving the natural vegetation, in particular the pygmy oak groves. Monitor the groundwater quality to assure no contamination of Morro Bay from septic systems. Include Sweet Springs freshwater marsh and the Cathedrals (landmark trees) as part of Morro Bay buffer area acquisitions. Protect the highly visible landmark trees south of Sunset Terrace, east of Pecho Road, and south of Los Osos Valley Road. Provide a buffer zone between developed areas and sensitive habitat areas such as Morro Bay, the pygmy oaks, and rare and endangered species.

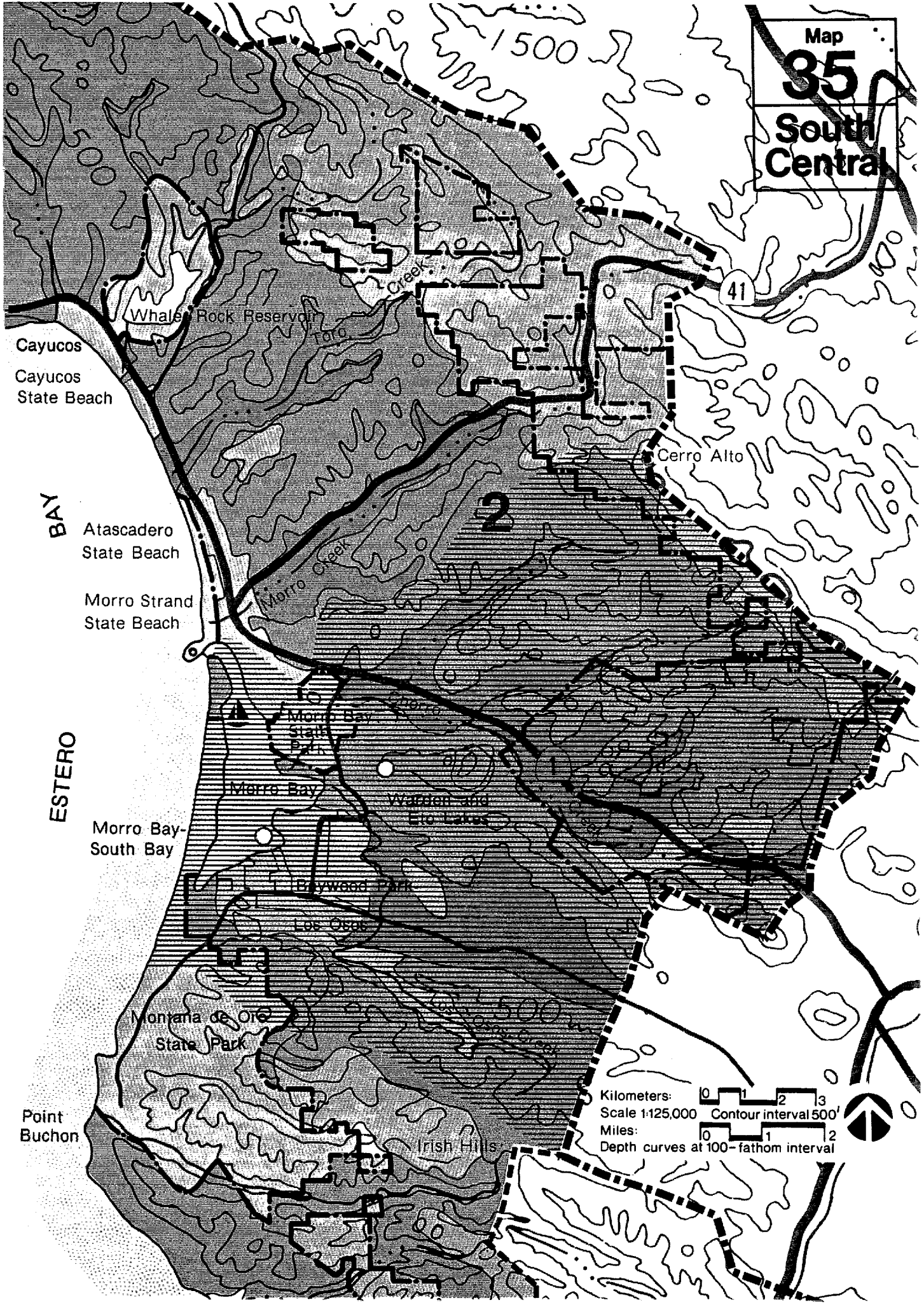
**Montana de Oro State Park.** Expand to include Hazard Canyon, which contains a rare and endangered plant species and Morro Bay kangaroo rat habitat (a rare and endangered species). Protect the Bishop-pine forest adjacent to Coon Creek; explore feasibility of eventual acquisition.

**Point Buchon to Point San Luis.** Protect seal rookeries.

### SUPPLEMENTAL NOTES

**Anadromous Fish Streams.** Toro Creek, Morro Creek, Chorro Creek, and Los Osos Creek.

Map  
**35**  
South  
Central



Cayucos  
Cayucos  
State Beach

BAY

Atascadero  
State Beach

Morro Strand  
State Beach

ESTERO

Morro Bay-  
South Bay

Point  
Buchon

Whaler's Rock Reservoir

Toro  
Creek

Morro  
Creek

Morro Bay  
State  
Park

Morro Bay

Wagon and  
Eto Lakes

Brywood Park

Los Osos

Montana de Oro  
State Park

Irish Hills

Cerro Alto

41

2

Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



## PLAN MAP 36: MAP NOTES

### SUBREGION 2: ESTERO/MORRO BAY (CONTINUED)

**Montana de Oro to Avila Beach.** Establish a controlled access coastal hiking trail.

**Diablo Canyon.** Study long term effects of thermal outfall on the marine environment. Maintain the upper canyon as a representative area of mixed evergreen forest.

### SUBREGION 3: SAN LUIS BAY AND PISMO DUNES

**Port San Luis.** Expand facilities to serve recreational and commercial fishing.

**Avila Beach.** Maintain small beach-community atmosphere by developing consistent with the size and character of the existing town.

**Mallagh Landing.** Acquire 10 acres of bluffs and beaches for water recreation and guaranteed access to the beach.

**Dinosaur Caves.** Acquire 2-3 acres in the City of Pismo Beach for preservation of bluffs and sea caves.

**Pismo Lake and Oceano Lagoon.** Protect and restore the freshwater marshes of the Meadow Creek drainage. Acquire 20 acres of the marsh between Pismo Beach and Grover City for wetland preservation and add the five-acre marsh at Oceano Lagoon to Pismo State Beach for preservation.

**Pismo-Nipomo Dunes.** Protect stabilized dune vegetation and natural area, retain existing recreational uses and support additions to Pismo State Beach called for in the 1974 Park Bond Program.

**Dune Lakes.** Preserve the unique freshwater riparian habitats of the lakes and Black Lake Canyon. Support the private owners' maintenance and preservation of the lakes and surrounding habitat.

### SUPPLEMENTAL NOTES

**Anadromous Fish Streams.** Pismo Creek, Arroyo Grande Creek, and San Luis Obispo Creek and tributaries.

**Wetlands.** Arroyo Grande Creek Estuary, Oceano Lagoon, San Luis Obispo Creek Estuary, Pismo Lake, and Dune Lakes (including Black Lake).



Map  
**36**  
South  
Central

Diablo Canyon

Rookeries  
Seal

2

Irish Hills

3

Point San Luis

Port San Luis

San Luis Obispo Bay

Mallagh Landing

Avila Beach

Obispo Creek

101

227

Dinosaur Caves

Pismo Beach

Oceano Lagoon

Pismo-Nipomo  
Dunes

Grover  
City

Pismo Lake

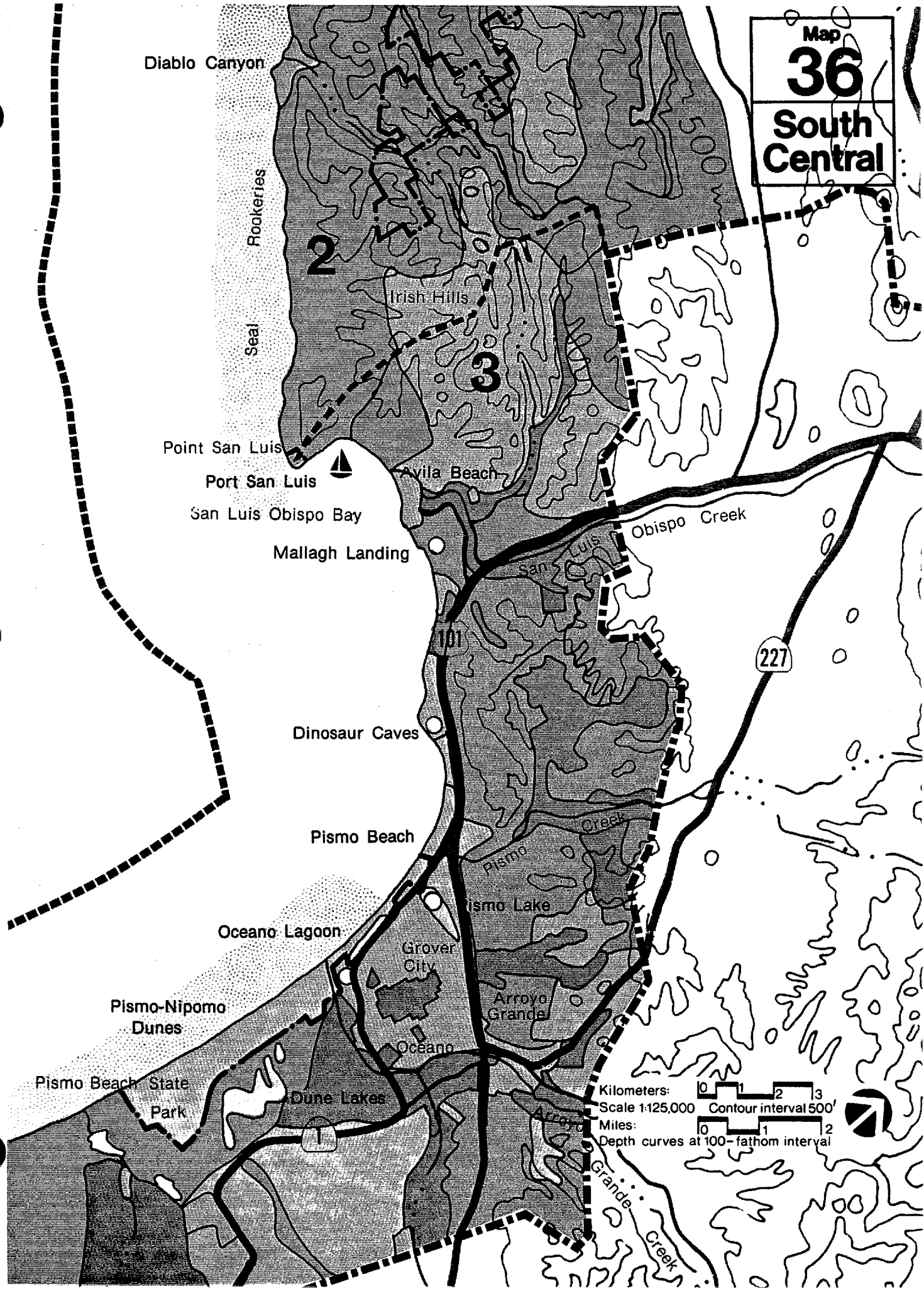
Arroyo Grande

Oceano

Pismo Beach State  
Park

Dune Lakes

Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval





## **PLAN MAP 37: MAP NOTES**

### **SUBREGION 3: SAN LUIS BAY/PISMO DUNES (CONTINUED)**

**Oso Flaco Lake.** Protect the lakes and adjacent habitat areas from overuse through on-site control and control of drainage water quality.

**Santa Maria Dunes, Pismo Beach.** Add this dune area to the existing State Park for intensive recreational use and the development of support facilities.

**Point Sal (Guadalupe Dunes).** Expand Point Sal State Beach to include the Guadalupe Dunes north to the Santa Maria River, and increase the area available for preservation and recreational use.

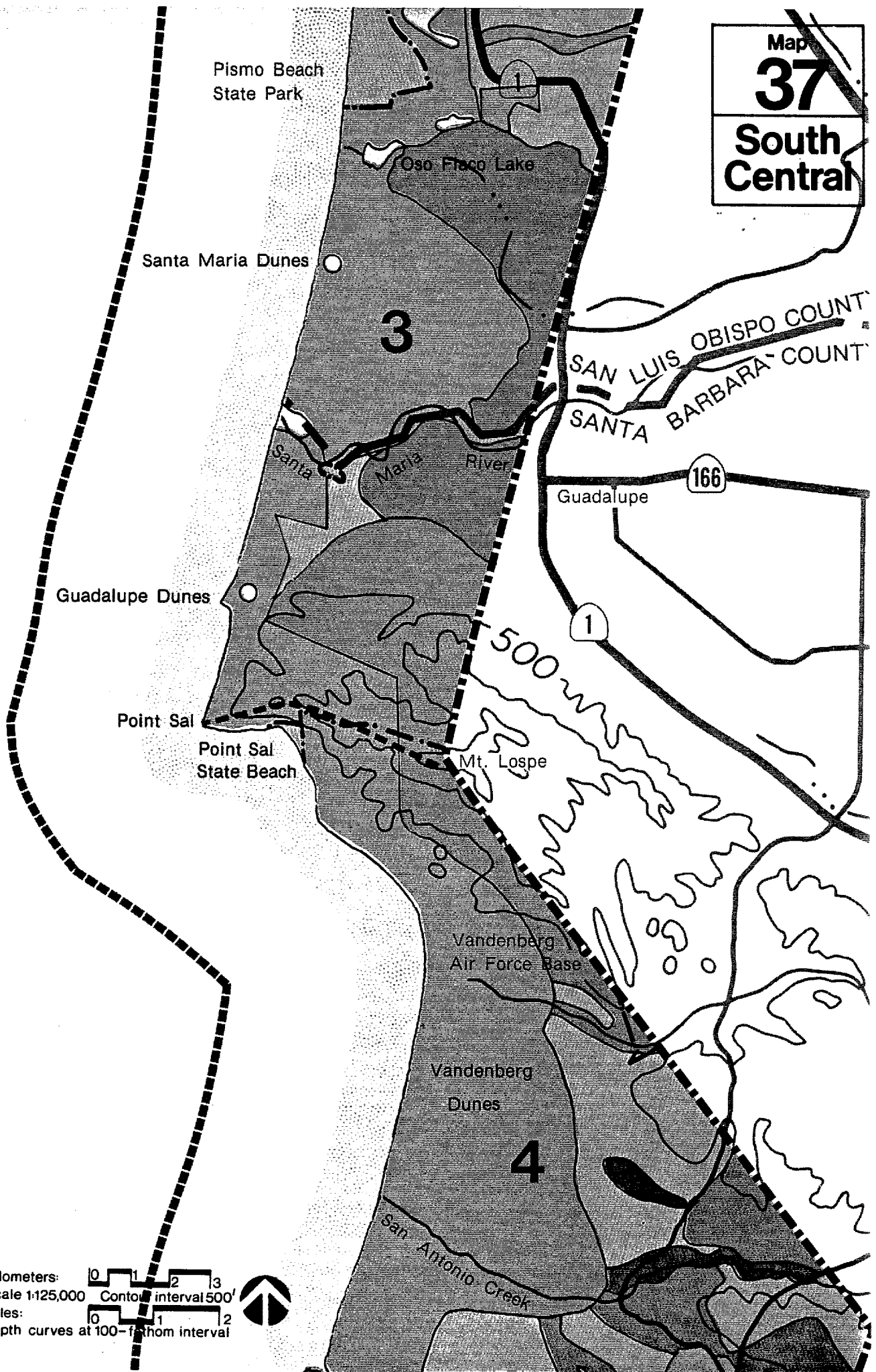
### **SUBREGION 4: NORTH SANTA BARBARA COUNTY**

**Vandenberg Dunes.** Protect the dune vegetation and adjacent uplands.

## **SUPPLEMENTAL NOTES**

**Wetlands.** San Antonio Creek and Santa Maria River.

Map  
**37**  
 South  
 Central



Kilometers: 0 1 2 3  
 Scale 1:125,000 Contour interval 500'  
 Miles: 0 1 2  
 Depth curves at 100-fathom interval



## PLAN MAP 38: MAP NOTES

### SUBREGION 4: NORTH SANTA BARBARA COUNTY [CONTINUED]

**Santa Ynez River Estuary.** Protect and maintain the river mouth estuary consistent with the adjacent recreational use.

**Surf Dunes.** Protect dunes and adjacent upland areas as relatively undisturbed natural areas.

**Surf to Jalama.** Investigate the feasibility, within the constraints of Vandenberg Air Force Base, of establishing a controlled access footpath. Locate and design coastal trails so that they will not interfere with agricultural use or cause environmental degradation.

**Vandenberg Air Force Base.** Support efforts to protect rare or unique plant and animal species such as remnant Bishop-pine stands on Tranquillon Mountain, the coastal dune and strand, coastal salt marsh, and the intertidal zone.

Map  
**38**  
**South  
Central**

Purisma Point

Vandenberg  
Air Force Base

Santa Ynez  
River Estuary

Santa  
Ynez  
River

Surf

Surf Dunes

246

Lompoc

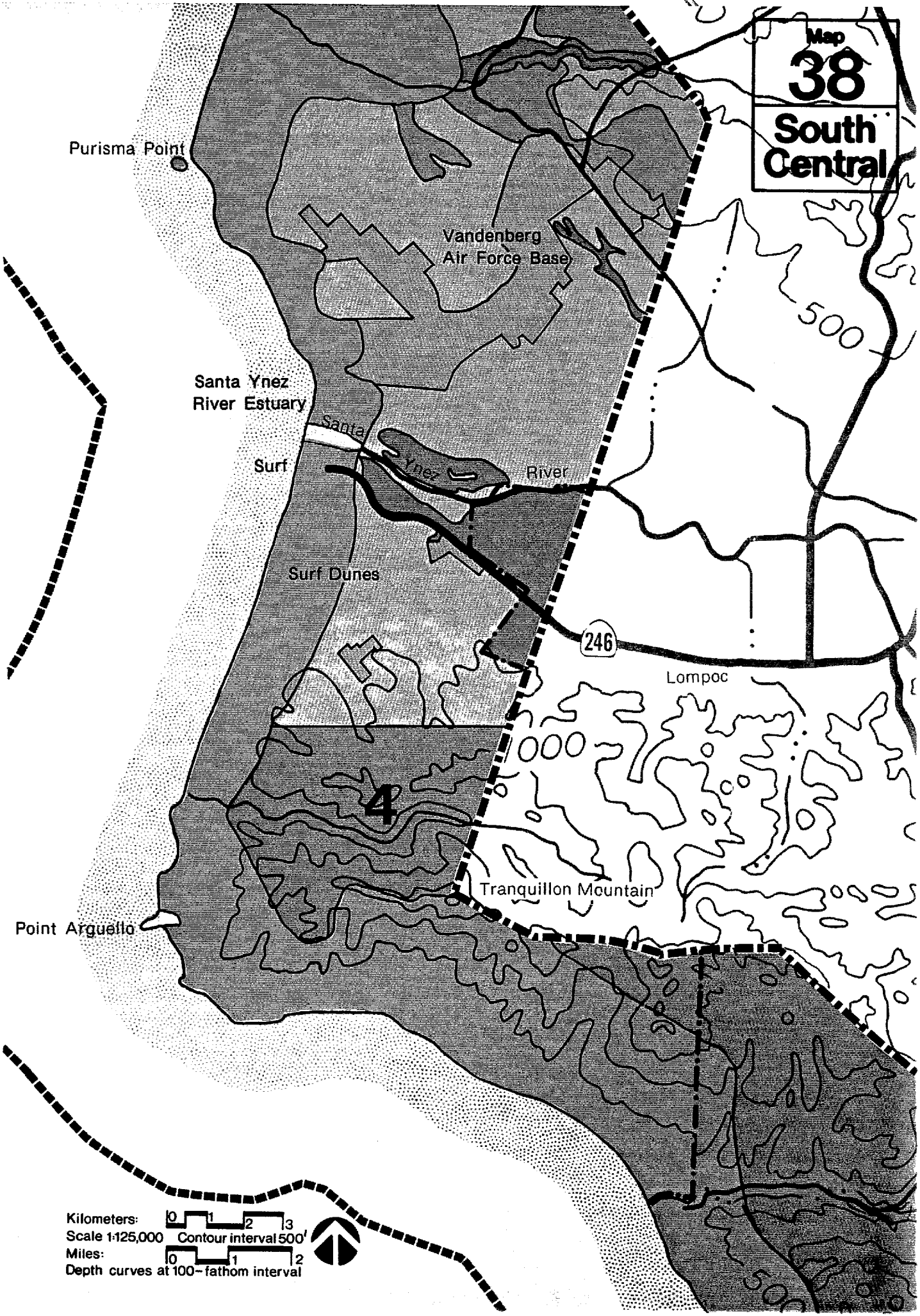
500

4

Tranquillon Mountain

Point Arguello

Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



## PLAN MAP 39: MAP NOTES

### SUBREGION 4: NORTH SANTA BARBARA COUNTY (CONTINUED)

**Jalama to Gaviota.** Investigate establishment of a controlled-access footpath. Locate and design coastal trails so that they will not interfere with agricultural use or cause environmental degradation.

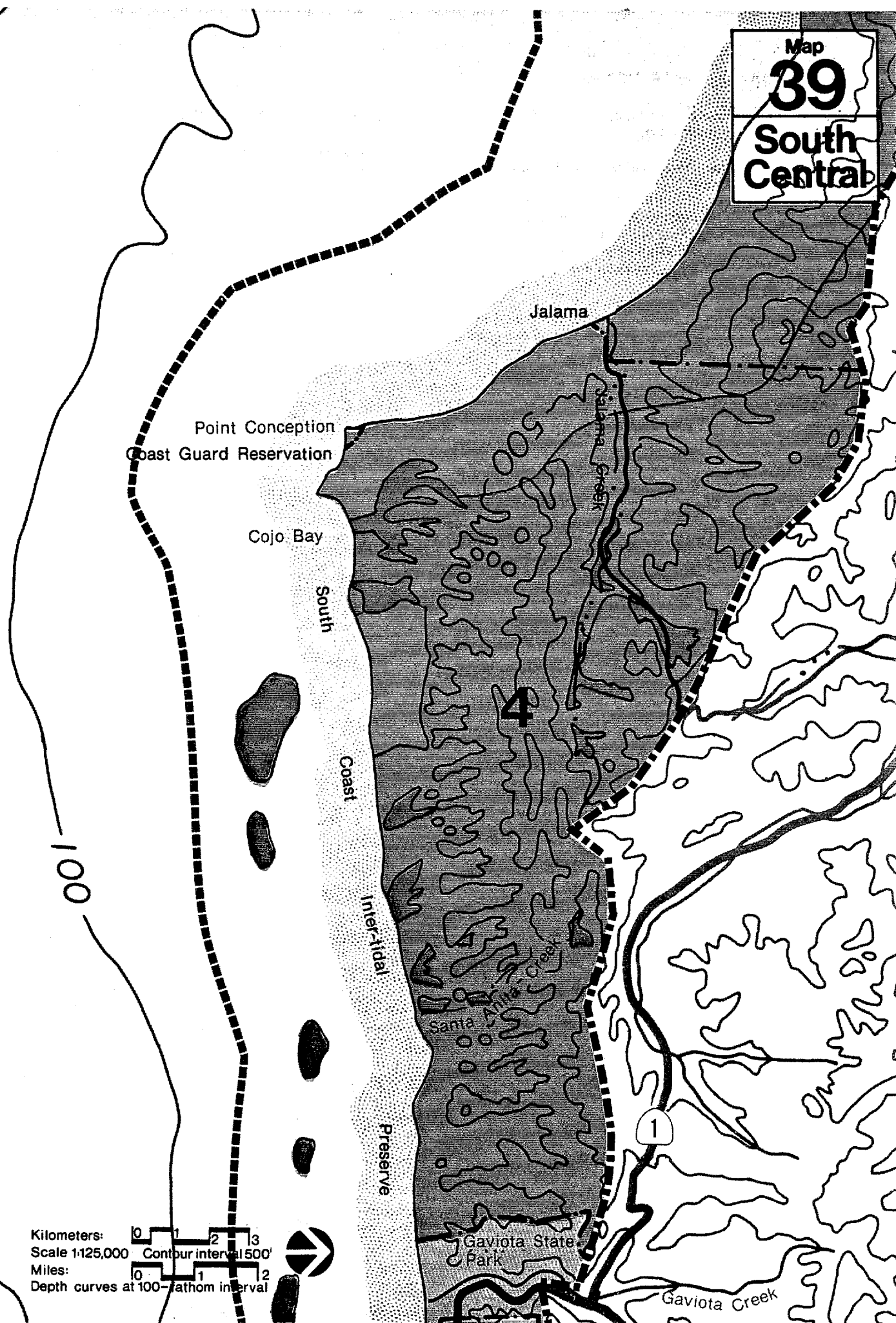
**Jalama Creek.** Protect the creek and adjacent watershed to preserve the anadromous fish resources, the remnant southern oak woodland, and the highly scenic character. Do not expand the present two-lane road along the creek.

**South Coast Intertidal Preserve.** Protect the intertidal zone, including extensive kelp beds, from overuse and maintain the high level of productivity from Point Conception to Ellwood.

### SUPPLEMENTAL NOTES

**Anadromous Fish Streams.** Jalama Creek and Santa Anita Creek.

Map  
**39**  
South  
Central



Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-foot interval



Gaviota Creek

## PLAN MAP 40: MAP NOTES

### SUBREGION 4: NORTH SANTA BARBARA COUNTY (CONTINUED)

**Gaviota to Isla Vista.** Develop coastal hiking and bicycle trail primarily along the bluffs.

**Gaviota State Beach Park.** Increase available camping and provide a hostel on the coastal terrace west of the existing campground. Expand the State Park downcoast along the bluff to preserve the adjacent resource areas and to expand the park's recreational use.

**El Capitan to Refugio State Beach.** Acquire the bluff and beach down-coast from El Capitan and upcoast from Refugio State Beach for general recreation and improved beach access.

**South Coast Intertidal Preserve.** Protect the intertidal zone, including extensive kelp beds, from overuse and maintain the high level of productivity from Point Conception to Eilwood.

**Haskell's Beach.** Acquire Eilwood pier and upland support areas eastward to Tecolote Creek to expand opportunities for fishing and other water-related recreation.

**Haskell's Beach to Hope Ranch.** Acquire accessways along the blufftops for public access to the beach.

**Santa Barbara Channel Special Study Area.** See Map Notes for Plan Map 45.

## SUPPLEMENTAL NOTES

**Anadromous Fish Streams.** Gaviota Creek and Tecolote Creek.



Map  
**40**  
**South Central**

Gaviota Creek

Gaviota State Park

Gaviota

101

South

Coast

SANTA

BARBARA

CHANNEL

200

Refugio State Park

Intertidal

El Capitan State Park

Preserve

Los Padres  
National  
Forest

Kilometers: 0 1 2 3  
 Scale 1:125,000 Contour interval 500'  
 Miles: 0 1 2  
 Depth curves at 100-fathom interval



Ellwood Pier

Haskell's Beach

Terrace



## PLAN MAP 41: MAP NOTES

### SUBREGION 5: SOUTH SANTA BARBARA COUNTY

**Santa Barbara Channel Area.** See Map Notes for Plan Map 45.

**Haskell's Beach to Hope Ranch.** Acquire accessways along the bluffs for public access to the beach. Acquire and restore Goleta Slough (see below).

**Ellwood.** Protect Devereux Creek drainage and major eucalyptus groves south of Coronado Drive and Hollister Avenue.

**Devereux Slough.** Continue to protect the slough and dunes under the University of California's Natural Land and Water Reserve System. Establish an education and information program to inform the public of the fragility of the slough and dune ecosystems.

**Isla Vista.** Acquire and develop remaining blufftop lots into community parks in support of the Parks and Recreation District.

**Goleta Slough.** Restore and preserve all remaining areas of the slough and adjacent freshwater marshes.

**More Mesa.** Establish public access to and along the blufftop. Preserve as much grassland habitat as feasible.

**Wilcox Property (Santa Barbara).** Acquire this 66-acre blufftop adjacent to Arroyo Burro State Beach for low-intensity use.

**Santa Barbara.** Support increased public recreational use of the Harbor and adjacent Stearns Wharf. Provide public transit along the beach front from the downtown commercial areas and peripheral automobile parking lots.

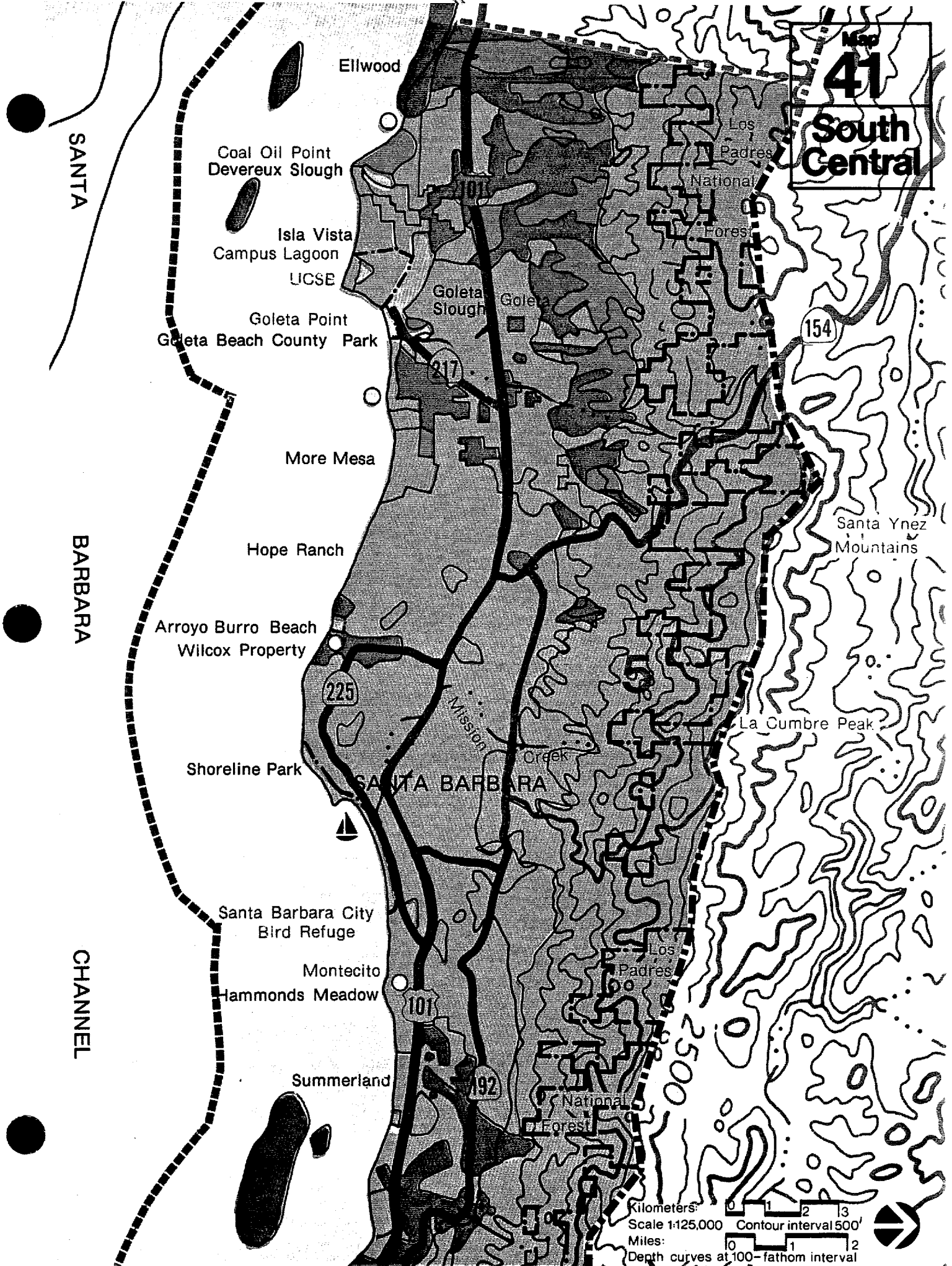
**Hammonds Meadow.** Acquire this 22-acre beach for surfing and general recreation.

**Summerland.** Maintain community character by developing at the same size and scale and within the established urbanized area.

### SUPPLEMENTAL NOTES

**Wetlands.** Devereux Slough, Goleta Slough, Campus Lagoon, and Santa Barbara City Bird Refuge.

Map  
**41**  
**South  
Central**



SANTA

BARBARA

CHANNEL

Ellwood

Coal Oil Point  
Devereux Slough

Isla Vista  
Campus Lagoon  
LICSE

Goleta Point  
Goleta Beach County Park

More Mesa

Hope Ranch

Arroyo Burro Beach  
Wilcox Property

Shoreline Park

Santa Barbara City  
Bird Refuge

Montecito  
Hammonds Meadow

Summerland

Goleta  
Slough

Goleta

SANTA BARBARA

Mission  
Creek

Los  
Padres

National  
Forest

Los  
Padres  
National  
Forest

Santa Ynez  
Mountains

La Cumbre Peak

Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



## PLAN MAP 42: MAP NOTES

### SUBREGION 5: SOUTH SANTA BARBARA COUNTY (CONTINUED)

**Santa Barbara Channel Area.** See Map Notes for Plan Map 45.

**Carpinteria Valley Special Study Area.** Prepare a subregional plan with the primary objectives to (1) resolve the conflict of competing uses of prime agricultural lands between urban, agriculture, and greenhouses; (2) determine the total available water supply within the coastal watershed; and (3) establish a system of preservation and restoration of the El Estero (Carpinteria Slough).

**El Estero.** Preserve remaining large acreages of relatively undisturbed wetland, and correct degradation from siltation and poor water circulation. Acquire this privately owned wetland of statewide significance for preservation and restoration. Allow compatible low-intensity uses adjacent to the wetland to provide some protection from encroachment.

**Carpinteria Intertidal Reef.** Preserve and protect the fragile reef, the most diverse intertidal area in Santa Barbara County south of Point Arguello. While access to the rocky beach area should be restricted or difficult, improve access to and along the blufftop.

### SUBREGION 6: RINCON

**Rincon Beach Communities.** Allow development of existing subdivided lots consistent with the scale of the existing houses in La Conchita, Mussel Shoals, Seacliff, Faria, and Solimar Beach.

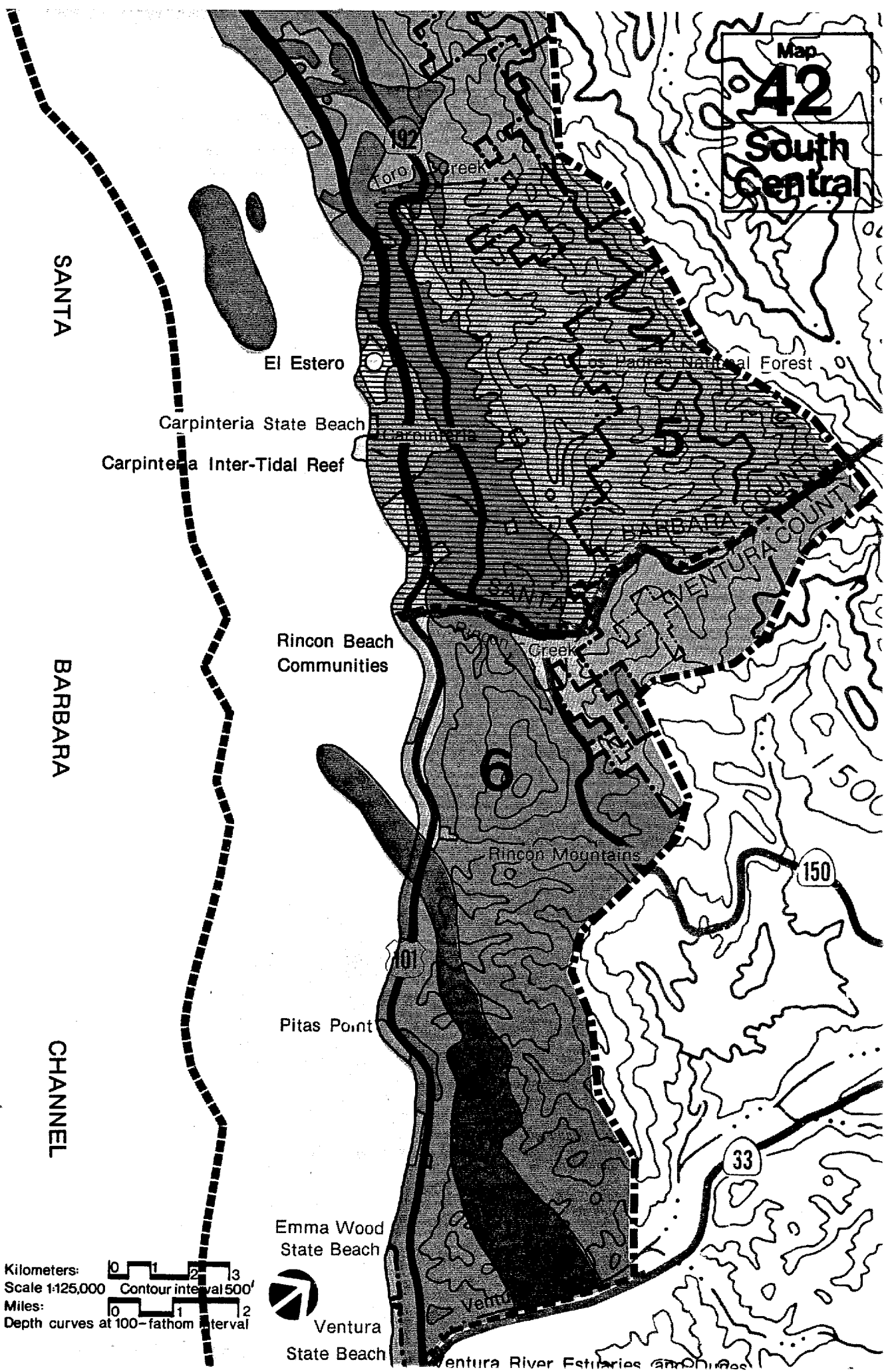
**Ventura River.** Manage, protect, and restore the fishery and encourage water-related recreation by improving water quality through control of upstream discharges.

### SUPPLEMENTAL NOTES

**Anadromous Fish Stream.** Ventura River.

**Wetlands.** El Estero (Carpinteria) and Ventura River (first and second mouths).

Map  
**42**  
**South  
 Central**



SANTA

BARBARA

CHANNEL

El Estero  
 Carpinteria State Beach  
 Carpinteria Inter-Tidal Reef

Rincon Beach  
 Communities

Pitas Point

Emma Wood  
 State Beach



Ventura  
 State Beach

Kilometers: 0 1 2 3  
 Scale 1:125,000 Contour interval 500'  
 Miles: 0 1 2  
 Depth curves at 100-fathom interval

Ventura River Estuaries (and other)

## PLAN MAP 43: MAP NOTES

### SUBREGION 7: VENTURA AND OXNARD PLAIN

**Santa Barbara Channel Area.** See Map Notes for Plan Map 45.

**Ventura-Oxnard Plain Special Study Area.** Resolve conflicts between projected urban growth and prime agricultural land. The primary objectives will be to (1) determine a reasonable amount of additional development necessary for the logical completion of existing neighborhoods within the cities of Oxnard and Ventura; (2) ensure that all other prime agricultural lands will remain in agriculture; and (3) develop further programs for tax equity for agricultural lands. Preserve two agricultural areas in productive use through acquisition of scenic easements, development rights, or a sale-leaseback program developed in conjunction with local agencies.

**Ventura River Estuaries and Dunes.** Manage and restore the wetlands; develop a total management plan for low intensity recreation for the dunes and wetlands complex south of Highway 101.

**Ventura Marina.** Provide public access and recreation, in particular on the parcels in the area known as the "peninsula." The Port District is in the process of reassessing its master plan to reflect these issues.

**Pierpont Beach Community.** Maintain the beach community by developing within the existing size and scale. The problem of the lack of public parking near and adjacent to the public beach should be addressed by the City of Ventura.

**Santa Clara River and Estuary.** Protect the water quality by controlling surface water discharges during periods of low flow.

**McGrath State Beach.** Acquire McGrath Lake, a 10-acre freshwater marsh, for preservation and limited recreation.

**Mandalay Beach Dunes.** Preserve one of the last remaining dunes of regional significance by acquiring 40 acres of dune and beach area for preservation and recreational use.

**Oxnard Shores.** Develop a joint erosion control program with the in-progress City-County-Corps of Engineers program. In the interim, control beachfront development until stabilization of the beach and protection of the public investment can be assured.

**Silver Strand and Hollywood Beaches.** Development shall be consistent with the size and scale of the beach communities.

**U.S. Naval Battalion Construction Center.** Utilize the existing port to the maximum practical capacity.

**Port Hueneme.** Revise beachfront redevelopment plan to emphasize public recreational uses and access.

**Ormond Beach.** Provide public access to and along the beach but provide low-intensity recreation consistent with dune and habitat preservation.

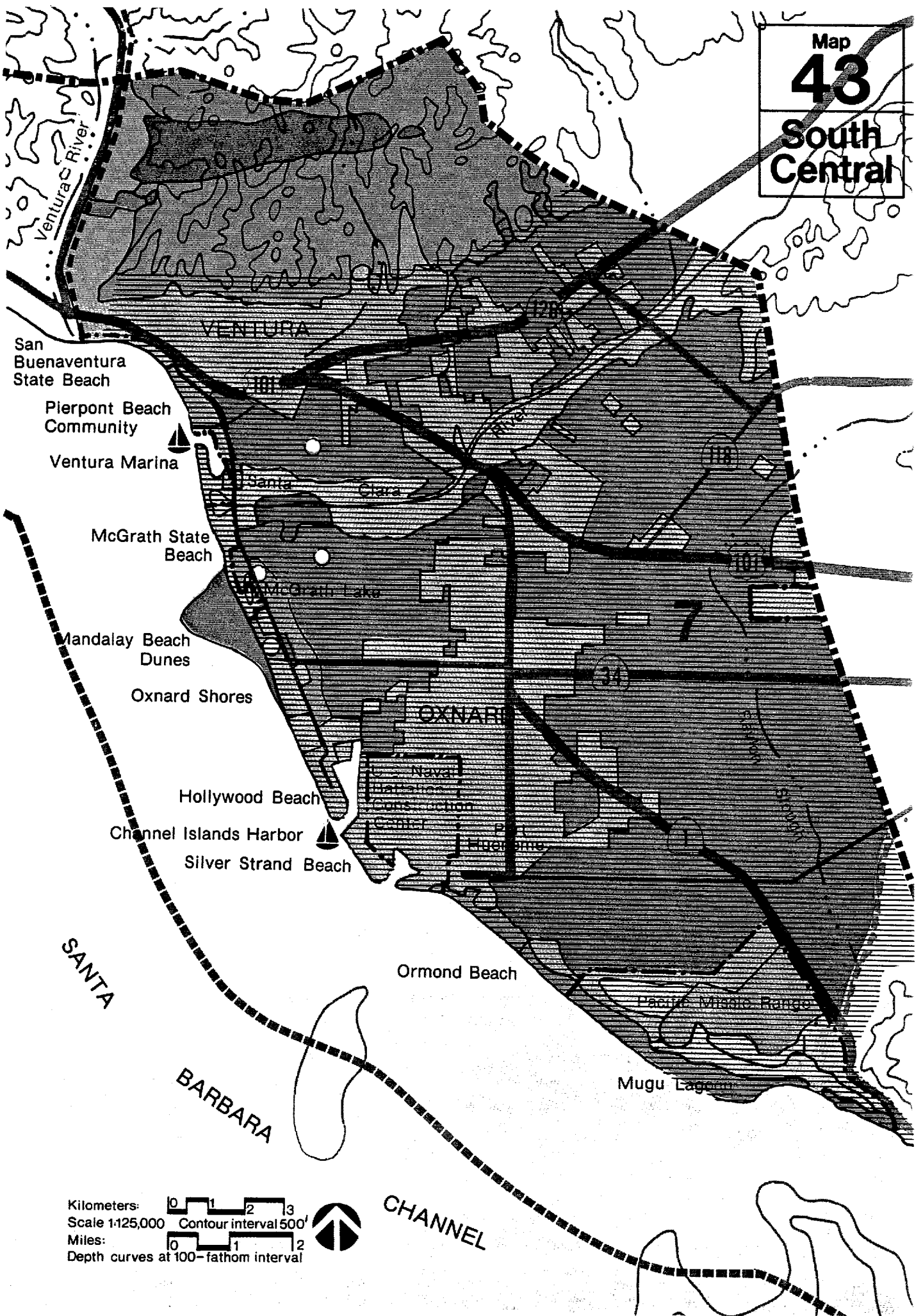
**Mugu Lagoon.** Protect and restore water quality by improving control of upstream discharges of urban and agricultural wastewater.

### SUPPLEMENTAL NOTES

**Wetlands.** Allesandro Lagoon, Santa Clara River Estuary, McGrath Lake, Mugu Lagoon, and wetlands adjacent to Mugu Lagoon.



Map  
**43**  
 South  
 Central



Kilometers: 0 1 2 3  
 Scale 1:125,000 Contour interval 500'  
 Miles: 0 1 2  
 Depth curves at 100-fathom interval



SANTA  
 BARBARA  
 CHANNEL



## **PLAN MAP 44: MAP NOTES**

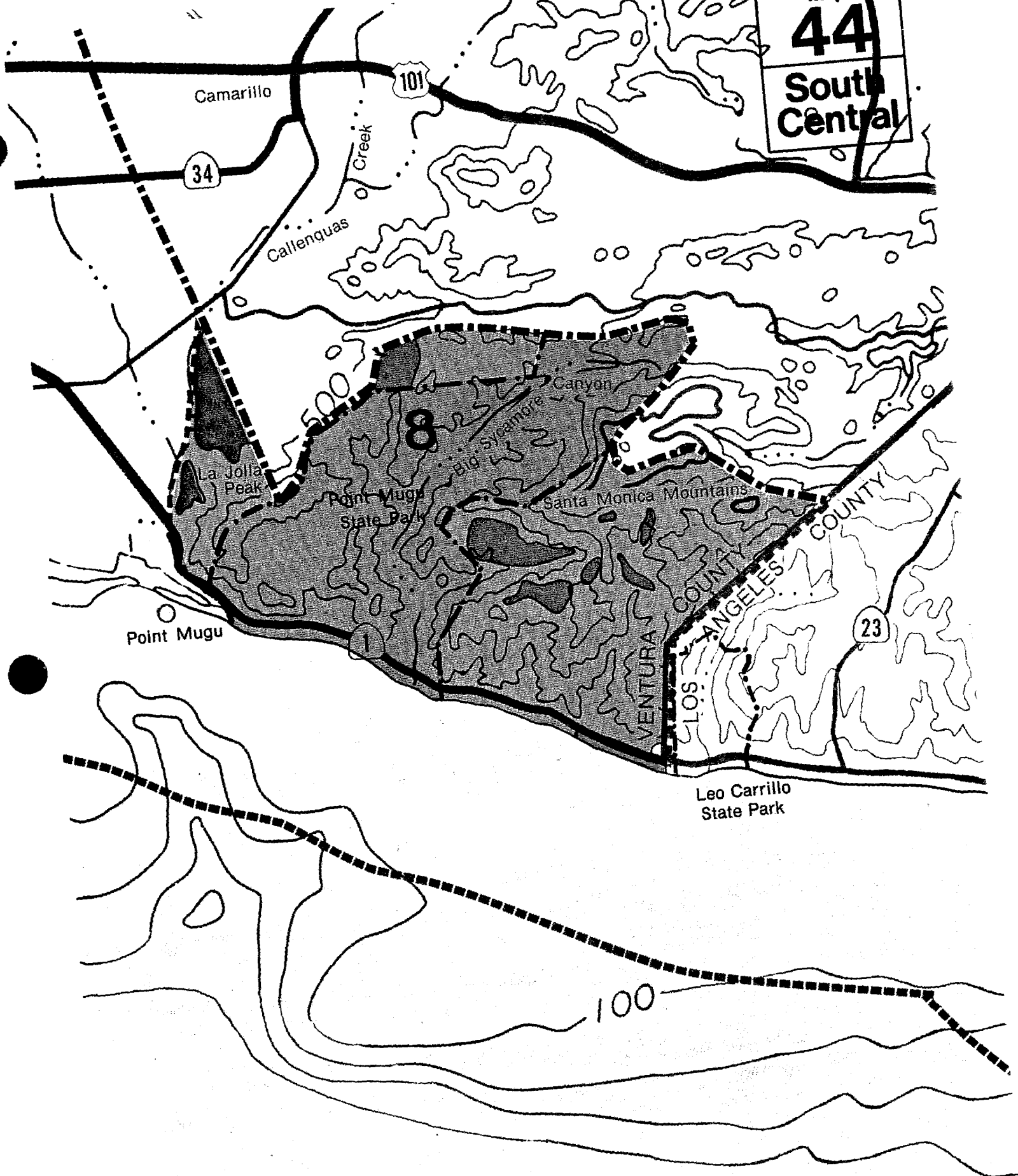
### **SUBREGION 8: POINT MUGU SOUTH**

**Point Mugu to the Los Angeles County Line.** Protect the natural resource values, extensive kelp beds, nearshore rocks, and the good water quality of this offshore area, designated by the State Water Resource Control Board as an Area of Special Biological Significance.

**Point Mugu State Park.** Expand State Park to preserve the marsh and uplands and to develop recreational support areas. Develop low-intensity recreation consistent with environmental constraints.

**Leo Carrillo State Park.** Expand the park by 49 acres in Ventura County and south of Highway 1 to provide additional beach and blufftop area for access and general recreation.

Map  
**44**  
South  
Central



Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



## **PLAN MAP 45: MAP NOTES**

### **SUBREGION 9: SANTA BARBARA CHANNEL AND CHANNEL ISLANDS**

**Santa Barbara Channel Special Study Area.** Study the Santa Barbara Channel and the adjacent onshore areas, on both the islands and the mainland, to determine (1) the offshore and onshore Impacts of State and/or Federal Outer Continental Shelf (OCS) oil and gas development; (2) the impacts on the social and economic structure of the South Coast area of Santa Barbara County (Ellwood to Carpinteria); (3) the cumulative impact of all existing and proposed energy production and distribution facilities (such as two proposed liquefied natural gas facilities, a proposed oil and gas separation facility, and additional oil production platforms on Federal OCS lands); and (4) the impact and safety of increased tanker traffic within channel waters. Other study objectives will be established at the time the study is initiated.

**San Miguel Island.** Preserve the offshore and onshore habitats in their presently undisturbed condition. Protect the sea lion rookeries and the nesting sites for the Northern Elephant Seal.

Map  
**45**  
South  
Central

SANTA

BARBARA

CHANNEL

San Miguel Island

Santa Rosa  
Island

Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



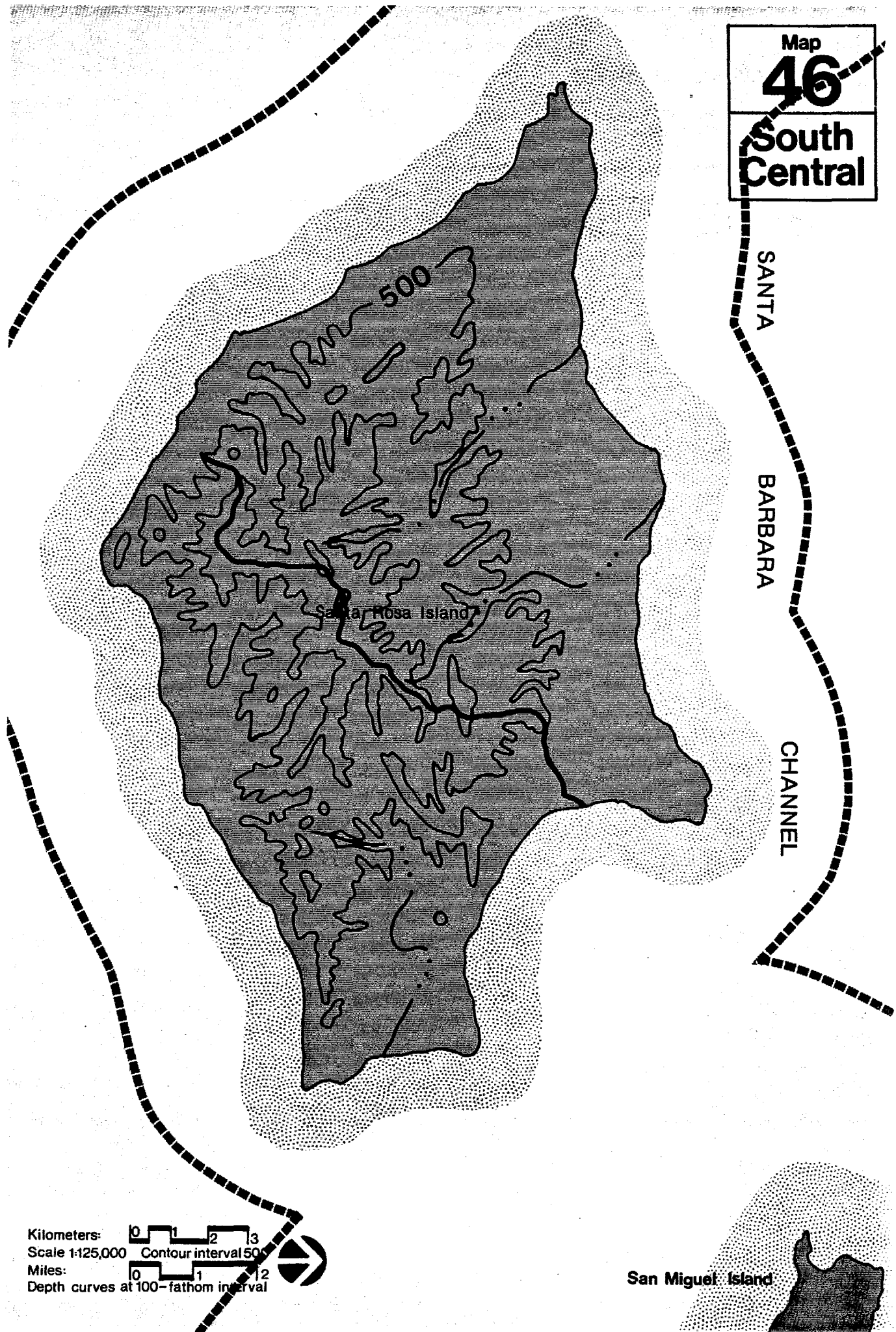
## **PLAN MAP 46: MAP NOTES**

### **SUBREGION 9: CHANNEL AND CHANNEL ISLANDS (CONTINUED)**

**Santa Barbara Channel Area.** See Map Notes for Plan Map 45.

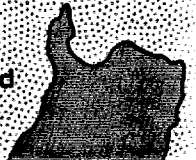
**Santa Rosa Island.** Preserve the island habitats which contain the Torrey pine and the rare island fox. Manage the island grasslands for cattle grazing and endemic plants and animals through private ownership.

Map  
**46**  
South  
Central



Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 50  
Miles: 0 1 2  
Depth curves at 100-fathom interval

San Miguel Island



## **PLAN MAP 47: MAP NOTES**

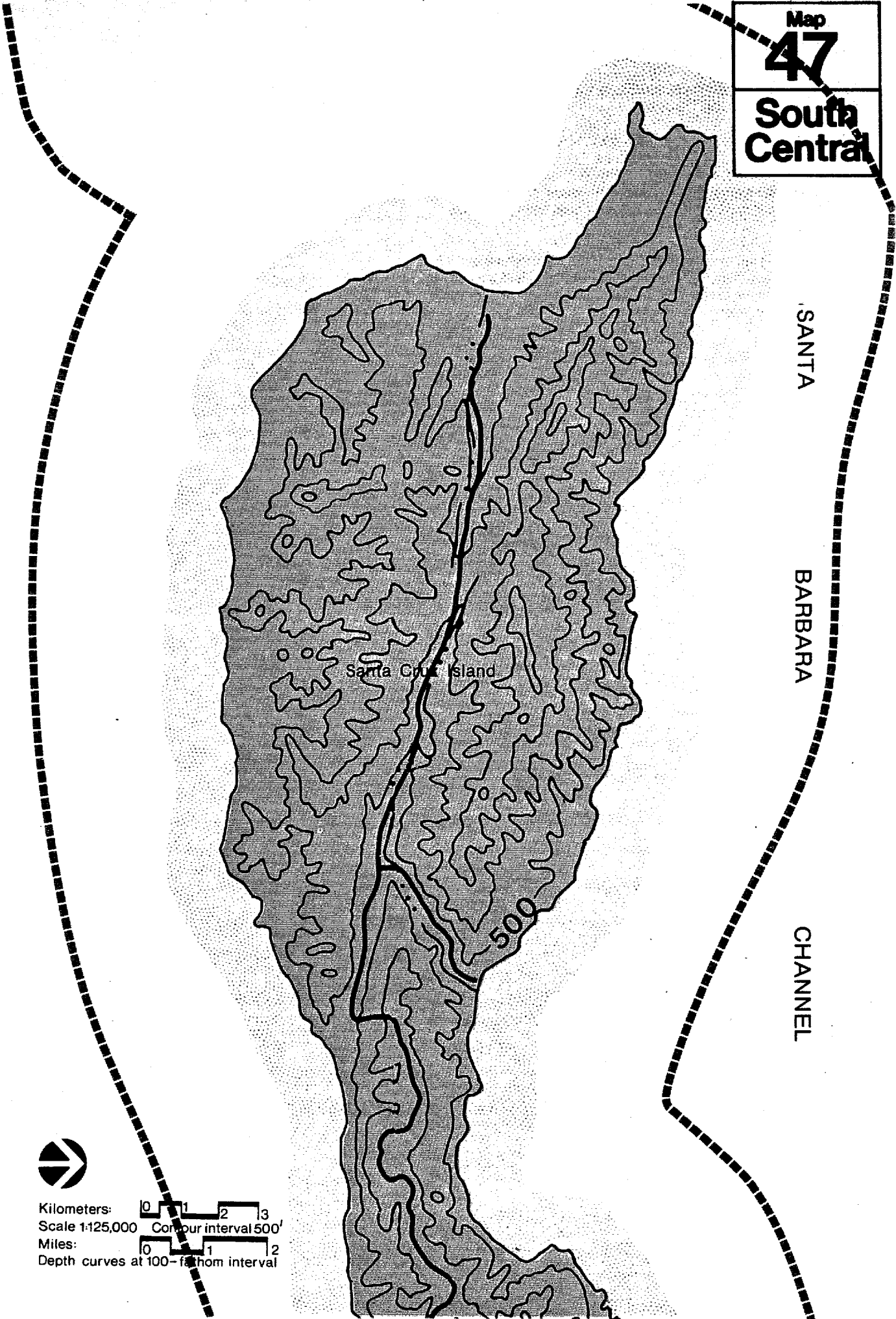
### **SUBREGION 9: CHANNEL AND CHANNEL ISLANDS (CONTINUED)**

**Santa Barbara Channel Area.** See Map Notes for Plan Map 45.

**Santa Cruz Island.** Preserve the island habitat and its diversity, including the Bishop pine. Manage the island grasslands for grazing and the endemic plants and animals through private ownership.



Map  
**47**  
South  
Central



Santa Cruz Island

SANTA

BARBARA

CHANNEL



Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval

## **PLAN MAP 48: MAP NOTES**

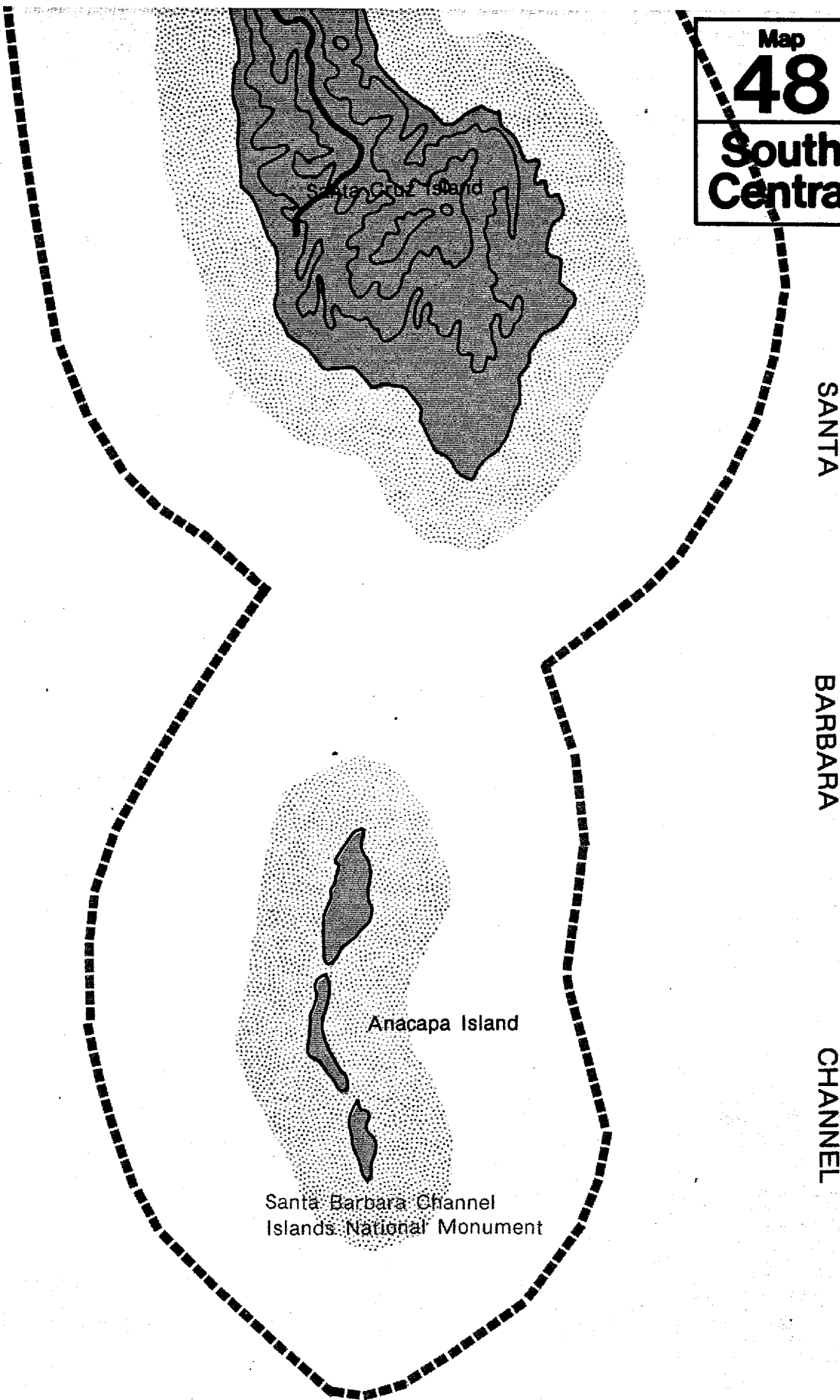
### **SUBREGION 9: CHANNEL AND CHANNEL ISLANDS (CONTINUED)**

**Santa Barbara Channel Area.** See Map Notes for Plan Map 45.


**Santa Cruz Island.** Preserve the island habitat and its diversity, including the Bishop pine. Manage the island grasslands for grazing and the endemic plants and animals through private ownership.

**Anacapa Island.** Control public impact on the offshore and on-shore habitats. Support continued controlled public access and limited development by the National Park Service for the National Monument.

Map  
**48**  
South  
Central



Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



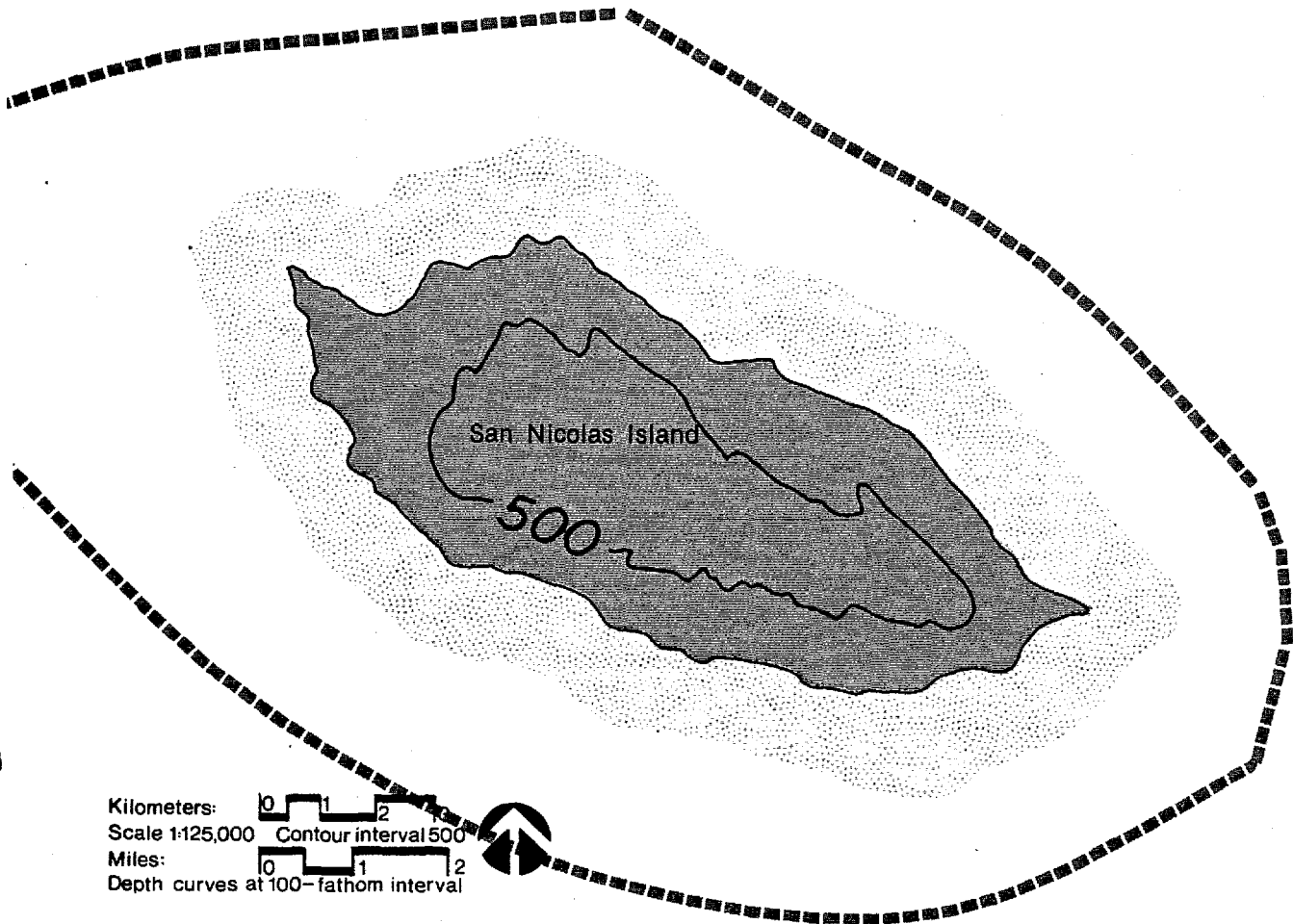
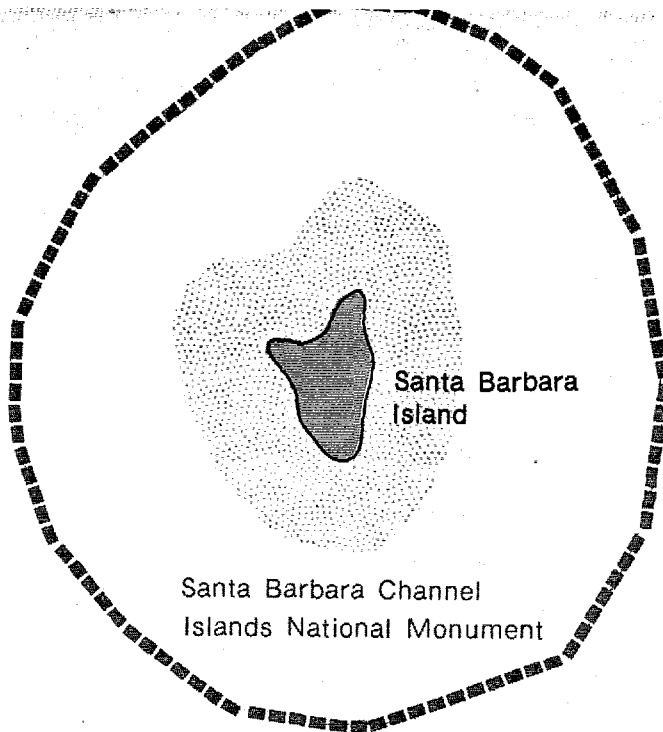
**PLAN MAP 49: MAP NOTES**

**SUBREGION 9: CHANNEL AND CHANNEL ISLANDS  
(CONTINUED)**

**Santa Barbara Channel Area.** See Map Notes for Plan Map 45.

**Santa Barbara and San Nicholas Islands.** Protect the endemic species and habitats.

Map  
**49**  
South  
Central



Kilometers: 0 1 2  
Scale 1:125,000 Contour interval 500  
Miles: 0 1 2  
Depth curves at 100-fathom interval

## **SOUTH CENTRAL COAST REGION SELECTED MAP SOURCES**

### **PRODUCTIVE RESOURCE AREAS**

*Aerial Photography:* Color infrared and conventional color. April 4, 1974; 1:125,000, Flight No. 74-049, NASA. November 22, 1974; 1:125,000, Flight No. 74-199, NASA. January 24, 1975; 1:62,500, Flight No. 75-006, NASA. UCSB Geography Remote Sensing Unit, Santa Barbara.

*Bulletin 150, Santa Barbara County.* Division of Mines, 1950.

*Conservation Element - Santa Barbara County Comprehensive Plan.* 1974.

*Regional Wildcat Map.* Division of Oil and Gas, 1970.

Santa Barbara County Farm Advisor's office miscellaneous maps.

*Soil Survey for Northern Santa Barbara Area.* U.S. Soil Conservation Service, 1972.

*Soil Survey for San Luis Obispo County (coastal section).* Soil Conservation Service, 1974.

*Soil Survey for Southern Santa Barbara Area.* U.S. Soil Conservation Service, 1970.

*Urban/Agriculture Land Use Maps.* City of San Buenaventura - Department of Community Development, 1974.

*Ventura Area Soil Survey.* U.S. Soil Conservation Service, 1970.

*Ventura County Open Space and Conservation Element.* Ventura County Planning Department, 1973.

*Water Quality Planning Project.* Department of Fish and Game, 1972.

### **HABITAT AREAS**

*Inventory of Potential Natural Landmarks of Santa Barbara and Ventura Counties.* National Park Service, 1972.

*Pismo State Beach and Pismo Dunes.* Department of Parks and Recreation, 1974.

*Priority Siting List.* South Central Regional Coastal Commission staff, 1974.

*Water Quality Planning Report, Tasks 3 and 6.* Department of Fish and Game, 1972.

### **RECREATION-DEVELOPED AREAS-PUBLIC OWNERSHIP**

*Land Use Maps.* San Luis Obispo County Planning Department, 1974.

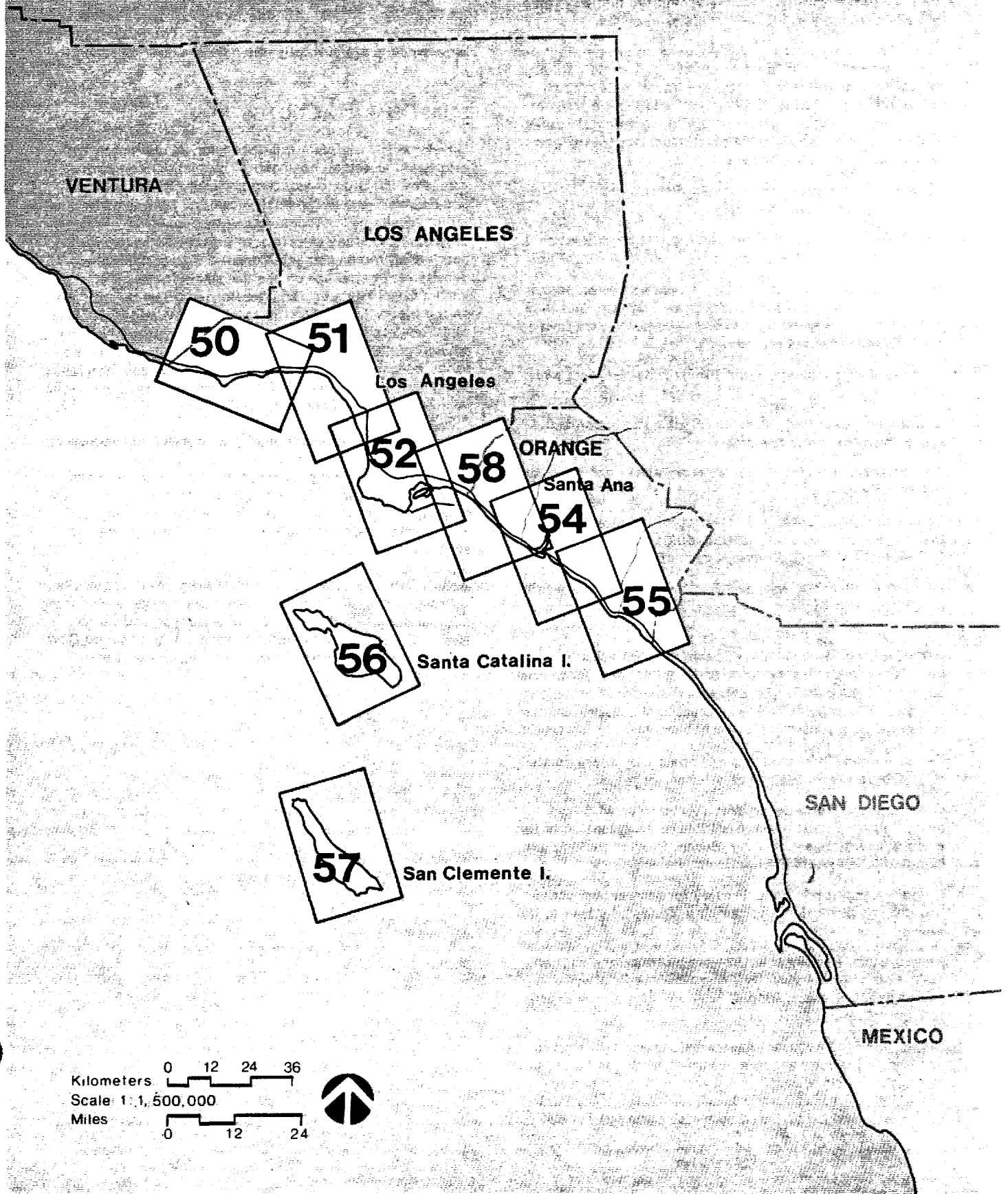
*Los Padres National Forest Recreation Maps.* U.S. Department of Agriculture, 1969.

Santa Barbara County Assessor's office.

Ventura County Assessor's office.

# SOUTH COAST REGION

## INDEX MAP





## PLAN MAP 50: MAP NOTES

### SUBREGION 1: MALIBU

**Los Angeles County Line to Sunset Boulevard.** Give highest priority to acquisition of vacant land, preferably in larger than single-lot parcels, adjacent to the beach

**Pacific Coast Highway.** Avoid widening the highway; give priority to recreation for the remaining capacity.

**Santa Monica Mountains.** Designate as an area of high geologic risk; require stringent safety standards and minimize alteration of landforms. Discourage lateral road access through the mountains. Develop foot and bicycle trails as part of State coastal trails system, linking mountain parks with each other and with the coast. Consider trams from mountain parks to the beaches.

**Los Angeles County Line to Malibu Point.** Establish marine reserve and an underwater park.

**Leo Carrillo State Beach.** Use parking lots for recreational vehicle camping in the winter.

**Nicholas Canyon to Zuma Beach.** Acquire selected parcels totaling 72 acres between Pacific Coast Highway and the beach for improved public access to the beach and development of needed support facilities.

**Nicholas Canyon County Park.** Provide roadside rest and picnic site.

**Charmlee County Park.** Provide for such recreation activities as picnicking and camping.

**Zuma Beach.** Use parking lot for recreational vehicle camping in the winter.

**Point Dume.** Acquire this 37.7-acre blufftop site with commanding ocean views (an upland addition to Point Dume State Beach) to provide day-use recreational facilities.

**Dume Cove Beach to Paradise Beach.** Acquire this 19-acre beach and cove shoreline to preserve the marine habitat area.

**Paradise Beach to Escondido Beach.** Acquire selected parcels and the entrance road, parking lots, and beach area adjacent to the existing Paradise Cove pier to improve public access and provide needed recreational support facilities consistent with protection of the habitat value of the area.

**Paradise Cove.** Increase mooring capacity by approximately 100 boats for overnight use as a harbor of refuge.

**Corral-Solstice State Beach West.** Acquire an 11.6-acre strip of undeveloped beach front lots as an extension of the existing county-operated State Beach. Provide parking and camping landward of Pacific Coast Highway.

**Century Ranch State Park.** Provide for recreational activities such as picnicking and camping; connect by trail to the beach.

**Malibu Bluff.** Acquire this 152-acre blufftop area with an outstanding coastal view for general recreational use and development of beach support facilities including inexpensive overnight lodgings.

**Malibu Lagoon.** Acquire three parcels totaling 43.4 acres adjacent to Malibu Lagoon and Surf-rider Beach State Park to protect the significant habitat area and to expand and provide support area for the beach. An interagency land use plan should be prepared addressing the conflict be-

tween possible need for a community service center and the need to protect habitat and recreational resources of Malibu Lagoon and Creek. Consider establishing an interpretive center adjacent to Malibu Lagoon. Restrict a sewer system to coastal shelf properties east of the Civic Center, and prohibit new point source discharges.

**La Costa Beach West.** Acquire five beachfront parcels totaling 1.3 acres to improve beach access. (The nearest public access points are currently one mile in either direction.)

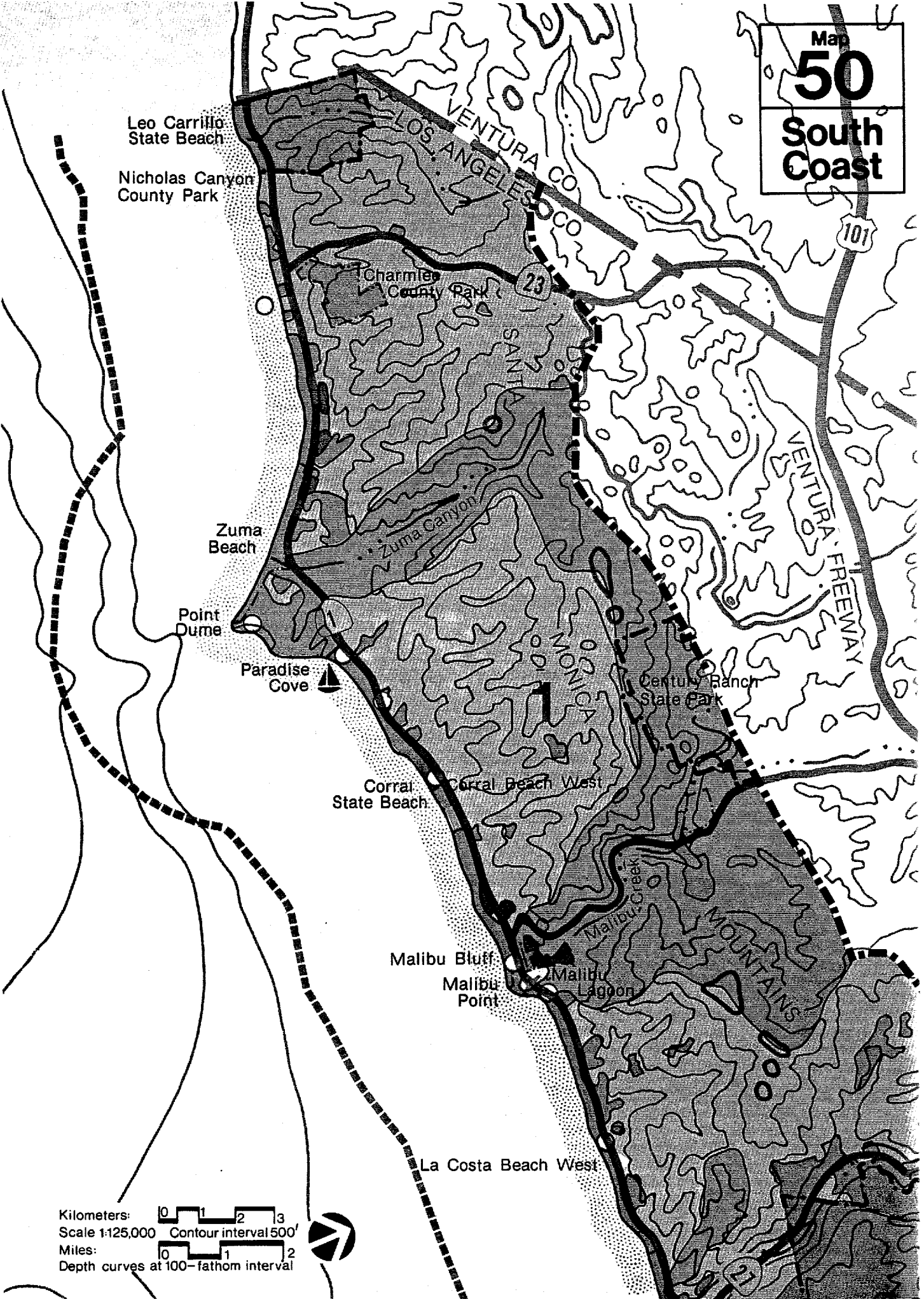
### SUPPLEMENTAL NOTES

**Development.** Maintain this subregion as non-urban with priorities focused on open space, recreation, and agriculture. Prohibit growth-inducing projects such as dams, industrial facilities, and shopping centers; limit expansion of public services. Protect natural watersheds from intensive development; study the effect of streambed structures on beach sand replenishment. Consider appropriate low-density residential use on the low rolling hills inland of Pacific Coast Highway, and possibly very low-density use on the higher hills, after full review of relevant Plan policies. Relate development to improved transit and the amount of parkland. Prohibit new private development on sandy beaches. Consider appropriate tourist commercial development east of Point Dume. Cluster general commercial facilities inland of Pacific Coast Highway.

**Access.** Promote greater use of public transit for recreational and non-recreational trips; institute shuttle systems to beaches from upland parking areas. Assure access from the nearest public road to the shoreline at least every one-half mile, where priority public acquisitions are not proposed. Retain lands used for public or semi-public recreation in such use.

**Acquisition.** Undertake a long-term program to acquire land for coastal habitat, recreation, and view corridors, including additional parcels between Nicholas Canyon and Zuma Beach, Escondido Creek to Latigo Shores, the Malibu Cove Colony Bluff, Las Tunas Beach, and Los Liones Canyon.

Map  
**50**  
 South Coast



Kilometers: 0 1 2 3  
 Scale 1:125,000 Contour interval 500'  
 Miles: 0 1 2  
 Depth curves at 100-fathom interval

## PLAN MAP 51: MAP NOTES

### SUBREGION 1: MALIBU [CONTINUED]

**Las Tunas Beach.** Monitor the effect of groin construction to determine downdrift effect on Topanga Beach and up-drift on private residences. Consider long-term acquisition of 100 developed parcels.

**Topanga Beach and Lower Topanga Canyon.** Acquire this 51.5-acre canyon and hill area to link Topanga Canyon State Park and Topanga State Beach and to serve as a multiple use support area for beach users. Study the potential for removable breakwater to protect beach-launched boats in winter.

**Pacific Palisades.** Designate as an area of high geologic risk; development in this area should meet stringent safety standards without major alteration of landforms.

### SUBREGION 2: SANTA MONICA, VENICE, AND MARINA DEL REY

**Santa Monica to Marina del Rey.** Increase beach and shoreline use south of the Santa Monica Freeway by developing a pedestrian and bike path system linking existing public beaches, upland parking, and Marina del Rey sites that are now public use areas or that may revert to public use in the future.

**Santa Monica.** Concentrate high-density development in downtown Santa Monica to encourage mass transit improvement. Consider possible long-term acquisition of private lands seaward of Palisades Beach Road.

**Ocean Park-Venice Peninsula.** Encourage rehabilitation of older homes; recycle residential land uses to be compatible with neighborhood character and to maintain social diversity. Prohibit intensification of land uses in areas severely impacted by traffic congestion unless measures are undertaken to relieve the congestion; possibly relocate residential density from the Marina peninsula to the eastern portion of Marina del Rey.

**Venice Canals.** Retain land bridge for bicycle and tram links; restrict to shallow dredging, if dredging is allowed at all; provide public walkways along the canals.

**Marina del Rey.** Restore the original development concept of the Marina as a public recreation area, giving priority to public uses in second generation Marina development and providing free public access to all waterfront areas via continuous public walkways. Encourage development of dry storage facilities for boats. Investigate the feasibility of an internal transit system, and site hotel-motel facilities to be easily served by such a system. Limit the amount and location of commercial office development, with the bulk of new office space planned for areas with better mass transit potential such as downtown Santa Monica and the Los Angeles International Airport area.

**Ballona Lagoon.** Acquire this 28-acre site adjacent to Marina del Rey entrance channel and Ballona Lagoon as a view and water-related park and support area for the public beach on the Venice Peninsula. Provide pedestrian and bicycle routes adjacent to the lagoon; provide additional parking and open space, as feasible, on the west side of the lagoon.

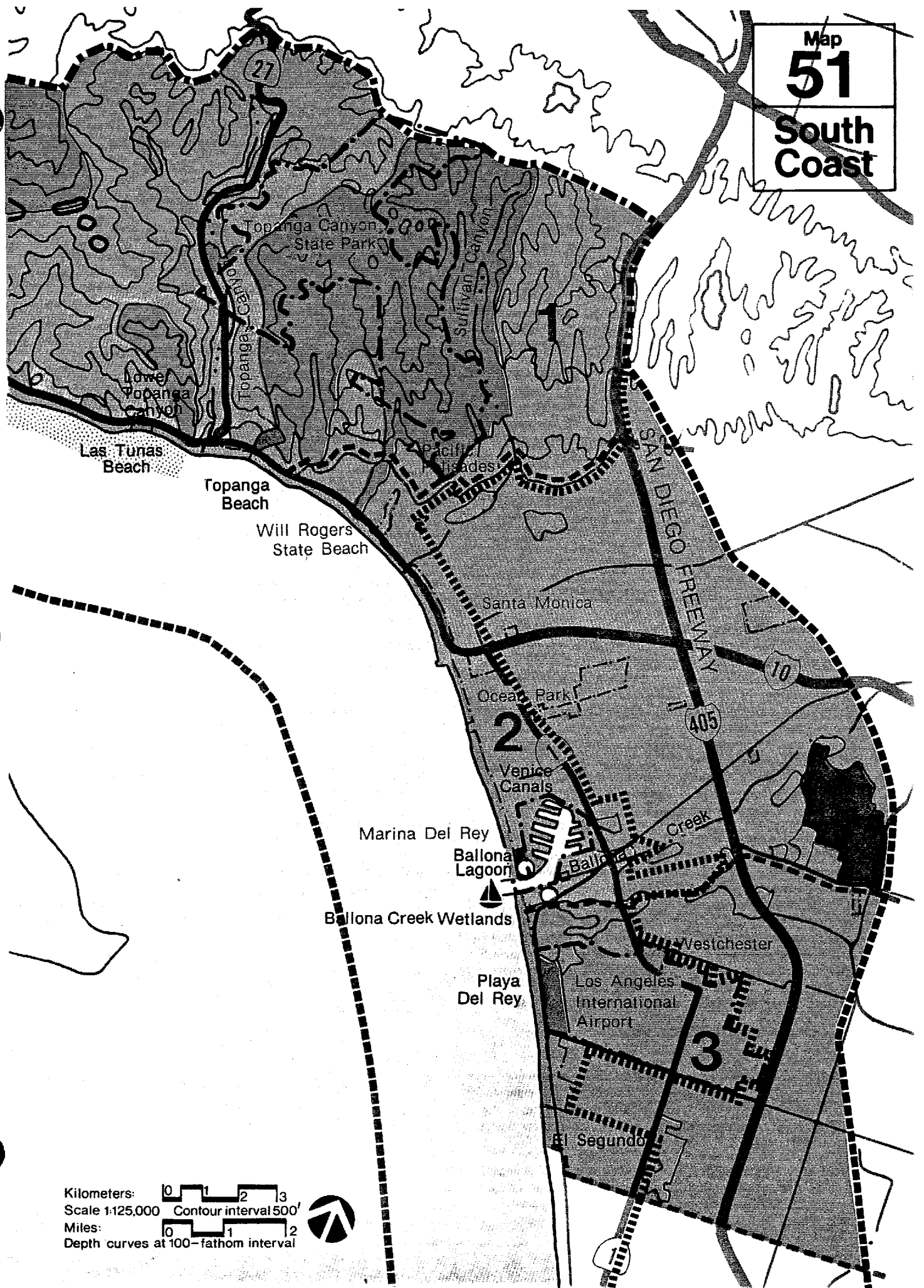
**Ballona Creek Wetlands.** Acquire this 350-acre degraded salt marsh area, a critical habitat for three endangered bird species, for restoration.

### SUBREGION 3: PLAYA DEL REY TO EL SEGUNDO

**Playa del Rey to El Segundo.** Preserve stable single-family neighborhoods and protect them from pressures for recycling to higher densities. Maintain adequate buffer lands between residential areas and incompatible uses such as Los Angeles International Airport and heavy industrial facilities; promote recreation in these buffer areas. Assure that any proposed airport expansion, development of major commercial or industrial facilities, or development of offshore petroleum is consistent with Plan policies and that any such permitted development is sited, designed, and operated to minimize adverse environmental effects, particularly air, noise, and water pollution.

**Playa del Rey.** Preserve dune landforms and habitat. Consider possible long-term acquisition of development adjacent to Del Rey Lagoon.

Map  
**51**  
 South  
 Coast



Kilometers: 0 1 2 3  
 Scale 1:125,000 Contour interval 500'  
 Miles: 0 1 2  
 Depth curves at 100-fathom interval



## PLAN MAP 52: MAP NOTES

### SUBREGION 4: SOUTH BAY

**Manhattan Beach to Torrance.** Recycle and rehabilitate housing at existing densities, retaining opportunities for social diversity. Prohibit intensification that would be incompatible with community character or with the ability of the transportation, water, and sewer systems to provide an adequate level of service. Do not permit development (public or private) to inhibit free access to the shoreline. Concentrate commercial uses in upland centers, incorporating pedestrian circulation and providing access links to the coast. Improve access from inland areas to increase use of beach areas as a major regional recreation asset. Develop local transit and upland parking to relieve the pressure on Pacific Coast Highway and to connect shoreline facilities.

**Redondo Beach.** Improve access to shoreline recreation and tourist commercial facilities, including King Harbor; tie additional buildout to improved transit to and along the shoreline. Protect existing low and moderate income housing. Maintain stable single-family housing between Pacific Coast Highway and the beach from Pearl Street to the city boundary.

**Torrance Beach.** Acquire eight blufftop parcels to extend the usable public beach area and to provide additional picnic area.

### SUBREGION 5: PALOS VERDES PENINSULA

**Palos Verdes Peninsula.** In planning new residential or commercial development, provide increased recreational opportunities, assure maximum retention of open space and scenic qualities, protect and restore valuable habitats and productive resources (especially water quality and marine life), and avoid natural hazard areas (e.g., unstable coastal bluffs). Limit commercial uses to neighborhood and community-serving unless a regional shopping center could be adequately served by the public transportation system. Prohibit major new employment centers, such as industry and service facilities, that would encourage significant population growth or traffic generation.

**Palos Verdes Drive West and South.** Expand public shoreline access and recreational opportunities, where appropriate, by establishing a perimeter coastal trail seaward of Palos Verdes Drive West and South, linking existing and proposed recreation areas, and by retaining a substantial portion of the remaining capacity of the road for scenic drive use. On remaining undeveloped areas seaward of the drive, allow very low density residential projects that meet Plan design criteria and provide substantial permanent open space for recreational and view corridor purposes. Protect bluffs; study sand supply in pocket beaches.

**Resort Point to Point Vicente.** Establish rocky shore reserve.

**Point Vicente North.** Retain the lighthouse property in public ownership for historic, scenic, and recreational purposes. Acquire 182 acres of undeveloped blufftop and rocky shoreline to protect an important marine habitat and for educational purposes.

**Inspiration Point to Point Fermin.** Acquire land or regulate uses to protect scenic and productive agricultural values; the agricultural lands constitute a possible long-term acquisition.

**Portugese Bend Coast.** Acquire approximately 50 acres adjacent to the recent 40-acre Los Angeles County acquisition to preserve and protect critical marine habitats.

### SUBREGION 6: SAN PEDRO HARBOR AREA

**Fort MacArthur.** Acquire, through purchase or transfer, federally owned lands consisting of White's Point and Lower and Upper Reservation parcels (totaling about 300 acres) as multiple-use recreation areas. Tie with regional trail system and provide camping, bicycle, and hostel facilities.

**Royal Palms.** Consider possible long-term acquisition of blufftop.

**Point Fermin.** Consider possible long-term acquisition of lands east and west of Point Fermin.

**Cabrillo Beach.** Preserve and expand existing recreational areas, such as Cabrillo Beach and the Marine Museum, and link them by trails to other parts of the harbor and to the Palos Verdes Peninsula.

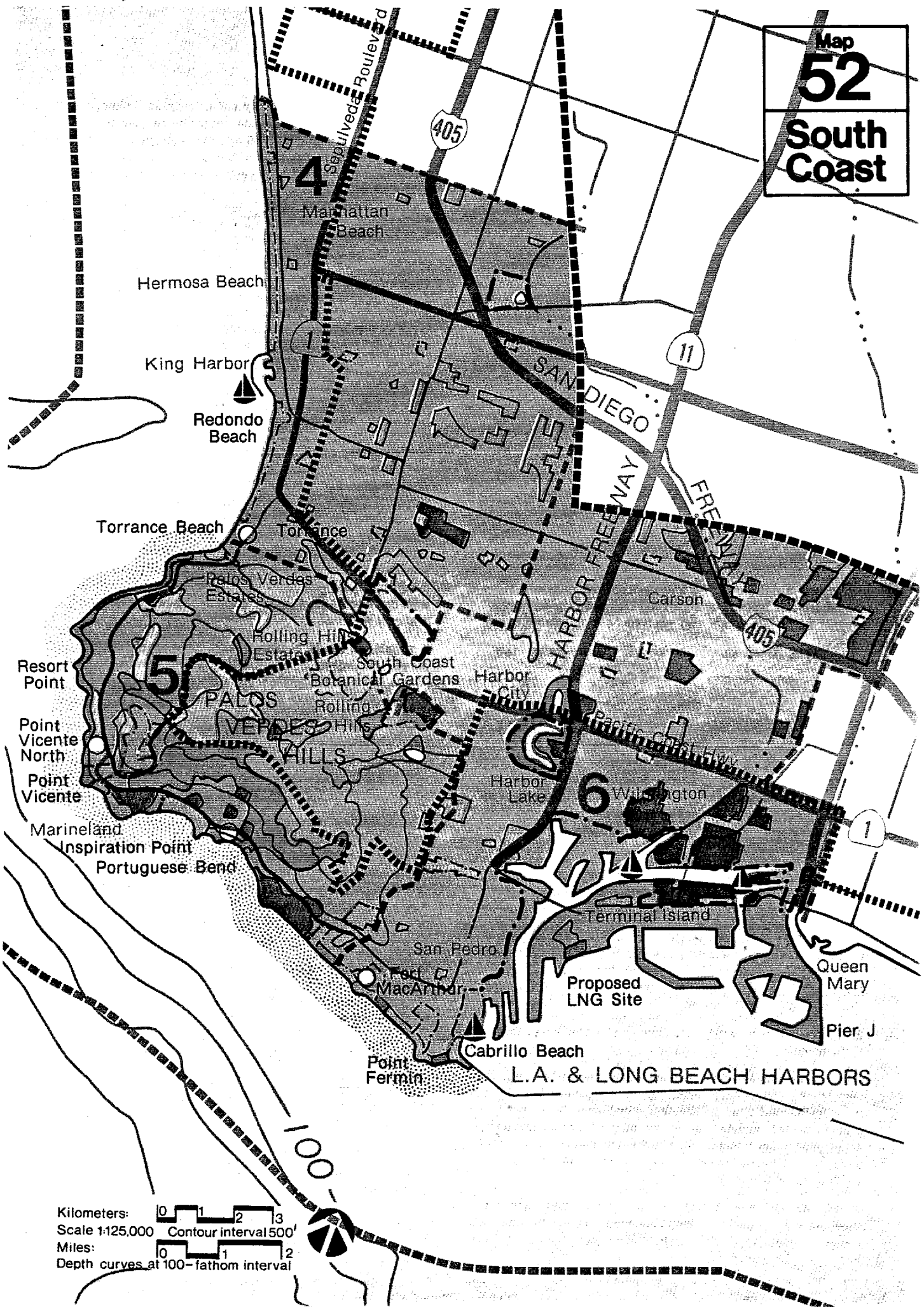
**San Pedro.** Preserve the unique character of San Pedro and its major role as a recreational destination for low-income and minority group persons. Local plans should be updated and should take into account the community's close ties with the harbor and its residential/recreational use by low- and moderate-income families. Channel additional commercial development into the downtown area.

**Los Angeles Harbor.** Give priority for port expansion to port-related industrial, energy, and shipping uses and to tourist commercial and marina developments (encouraging dry storage and other efficiency measures in marinas) in suitable harbor areas. Provide public access to the shoreline and offer public boat tours of harbor activities where consistent with public health and safety, port operations, and security. Minimize the need for additional landfill or dredging by requiring efficient use of existing land and water areas. Link the harbor with Alamitos Bay by ferry.

**Port Energy Facilities.** Review tanker terminal proposals for conformity with Plan policies (e.g., limiting harbor facilities to tankers of about 150,000 dwt or equivalent). Review major oil-related and LNG development proposals for conformity with Plan policies.



Map  
**52**  
 South Coast



Kilometers: 0 1 2 3  
 Scale 1:125,000 Contour interval 500'  
 Miles: 0 1 2  
 Depth curves at 100-fathom interval

## PLAN MAP 53: MAP NOTES

### SUBREGION 7: LONG BEACH

**Long Beach to Alamitos Bay.** Increase public access to beaches; provide linkages including pedestrian and bicycle paths, along the shoreline between the central business district, the harbor, and Alamitos Bay.

**Long Beach.** Encourage recycling and rehabilitation of residential areas at present densities. Concentrate highrise development in the immediate downtown area, west of Alamitos Avenue. Stress pedestrian access to the shore in the design of new development. Support city policy to convert oil islands to recreational uses after resource depletion.

**Pier J.** Consider development of a regional marina as well as a possible major tourist commercial recreation project. Stress joint use of existing downtown and shoreline parking facilities linked by a local shuttle system, and provide public vista points.

**Signal Hill.** Incorporate major open space and vista points into replacement land uses.

**Belmont Shore and Naples.** Protect the existing character of these special communities, and include units designed for a wide range of income and age groups in residential development.

**Alamitos Bay.** Permit intensification of land uses only if adequate and environmentally acceptable concurrent measures to handle traffic and appropriate measures to safeguard the water quality of the bay are implemented; protect Cerritos Lagoon and spotted bass spawning areas.

**San Gabriel River.** Continue existing bicycle trail to the beach.

### SUBREGION 9: NORTH ORANGE COUNTY

**Pacific Coast Highway.** Reserve a portion of the remaining capacity on the highway for recreation and as a scenic drive; stress trails, transit and upland parking areas to alleviate congestion in the oceanfront area. Redevelop strip commercial development along the highway into planned commercial clusters.

**Seal Beach.** Retain the nine-acre parcel of Department of Water and Power property in public ownership for open space and recreation.

**Anaheim Bay.** Prohibit development of the bay or surrounding lands that would seriously impact the ecological preserves. Support anadromous fish "put and take" program; provide public access consistent with protection of the national wildlife refuge.

**Surfside.** Provide beach access from the nearest public right-of-way.

**Huntington Harbour.** Recreational and visitor-serving facilities (parks, tourist-commercial uses, etc.) shall have priority over residential uses on the remaining undeveloped acreage. Consider possible long-term acquisitions at Bayport and Sunset. Continue to monitor water quality and boating capacity to ensure that water quality is maintained and boating capacity not exceeded.

**Bolsa Bay and Bolsa Chica Marsh.** Prohibit development of the bay or surrounding lands that would seriously impact the ecological preserves. In restorable wetlands, give priori-

ty to restoration over residential or marina development. Provide a buffer area and low-intensity recreation on the periphery, including upland support facilities and trail linkages in the central city park corridor to increase use of the publicly owned beach. Prevent saltwater intrusion in groundwater aquifers.

**Bolsa Chica State Beach.** Prohibit street parking on beach side of Pacific Coast Highway where such parking blocks views of the ocean.

**Huntington Beach Oil Fields.** Remove oil-related structures as the resource is depleted.

**Huntington Beach.** Provide new commercial recreation facilities in the downtown area.

**Huntington State Beach.** Prohibit additional parking lots on the beach. Consider possible long-term acquisition, demolition, or conversion to low-cost housing or overnight lodgings of the Huntington Beach Pier apartments.

**North Side of Santa Ana River.** Restore and maintain the wetlands between the Southern California Edison and county sanitation district plants. Acquire the 38.2-acre degraded wetland area owned by the Department of Transportation for wetland restoration and preservation as habitat and open space, and acquire the 13.5-acre degraded wetland at Talbert Channel and Brookhurst Street as a recreational support area for nearby Huntington Beach State Park. Consider additional longterm acquisition of the Edison property and the Huntington Beach Channel at Magnolia Street for wetland restoration.

**Agricultural lands.** Evaluate and where appropriate preserve and protect agricultural uses.

### SUPPLEMENTAL NOTES

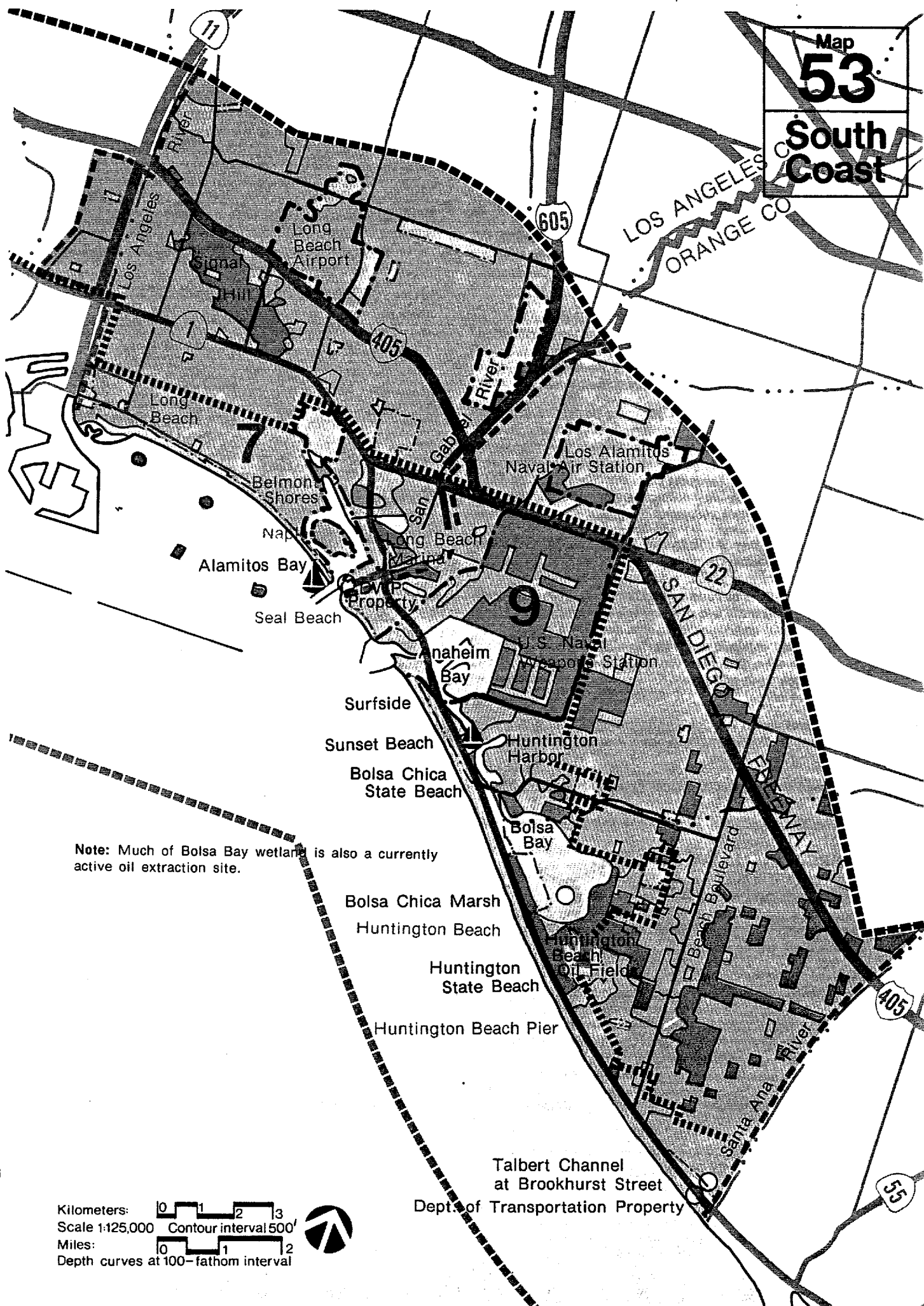
**Recreation and Access.** Increasing public recreation access and use are key policies in the North Orange County coastline.

**Development.** Encourage recycling and rehabilitation of residential areas at present densities in all areas of Long Beach and in most areas of North Orange County. Protect and expand opportunities for low and moderate income families and minorities to reside in the subregions and to enjoy recreational facilities. No intensification of land use should be permitted that is incompatible with the existing character of development.

**Bluffs and Open Space.** Protect bluffs and provide vista points, incorporated into public open spaces when feasible. Provide additional public open space in residential and commercial areas.



Map  
**53**  
**South Coast**



Note: Much of Bolsa Bay wetland is also a currently active oil extraction site.

Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



Talbert Channel  
at Brookhurst Street  
Dept. of Transportation Property

## PLAN MAP 54: MAP NOTES

### SUBREGION 10: NEWPORT

**South Side of Santa Ana River and River Corridor.** Acquire the 506-acre fresh and salt water marsh, bluff, and archaeological site as a multiple use regional park combining wetland restoration, general recreation and beach support, and archaeological preservation. Marina development would not be compatible with this use. Protect last tern nesting sites. Continue coastal trail in the flood channel to the beach and connect to the Santa Ana Greenbelt Corridors; consider possible location for hostel.

**Pacific Coast Highway.** Reserve a portion of the capacity of the highway for recreational traffic. Prevent intensification of uses in areas severely impacted by traffic congestion. Give priority to resort and recreational development over other commercial developments along the highway.

**Newport Peninsula and Lower Newport Bay.** Give priority to resort and recreational development over other commercial developments on the peninsula. Protect the marine repair industry from displacement. Improve visual and physical access to Lower Newport Bay. Provide inland parking areas served by trails and public transportation to the beaches and shoreline recreation facilities.

**Upper Newport Bay.** Acquire five separate blufftop parcels totalling 363 acres surrounding Upper Newport Bay as buffer areas for the bay and to provide open space, habitat, compatible recreation, and scenic benefits. (This is in addition to areas recently acquired by the Department of Fish and Game.) All necessary measures should be undertaken to protect and enhance the water quality of the bay, including waste discharge controls in the watershed. Support anadromous fish "put and take" fishing program; establish an interpretive center.

**Agricultural lands.** Protect significant agricultural lands by concentrating development in areas already committed to development.

**San Diego Creek Area.** Consider possible long-term acquisition.

### SUBREGION 11: IRVINE COAST

**Irvine Coast.** Determine overall growth on basis of protecting air quality, protecting wildlife habitat and other natural resources, providing recreational opportunities, and providing adequate traffic circulation.

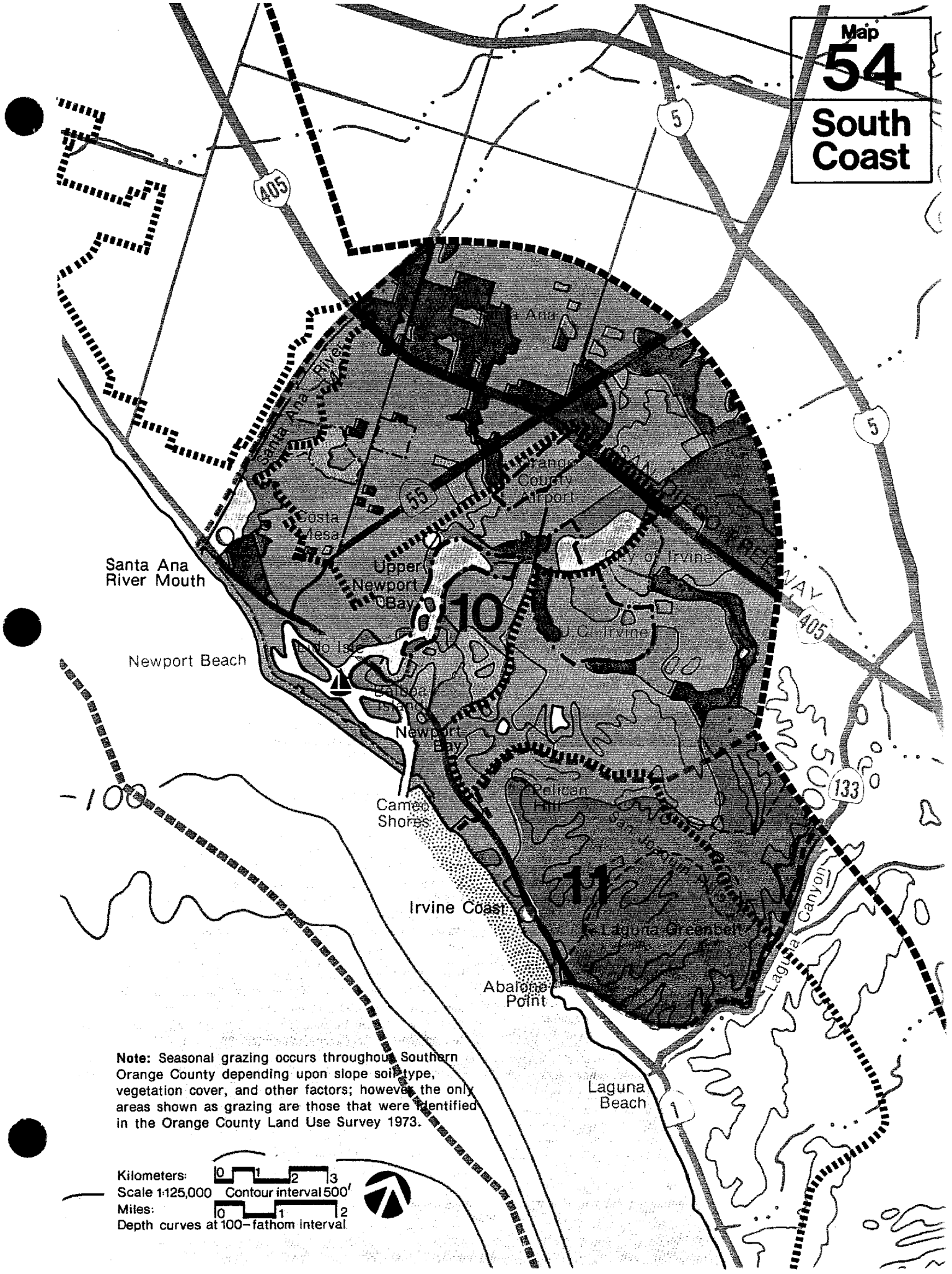
**Seaward of Pacific Coast Highway.** Acquire the land west of the highway, not currently being acquired by the Department of Parks and Recreation, as permanent open space for active and passive public recreation and highway view corridors, possibly excluding an area for the potential development of water-oriented commercial recreational facilities (e.g., restaurants, hotels, and boating facilities) serving the general public. If permitted, such facilities must be in planned clusters, carefully sited to protect views and open space.

**East of Pacific Coast Highway.** Retain the steep slopes, deep canyons, and very narrow ridges in the hillside area above the coastal shelf as open space. Some portions of the gentle slopes, elevated terraces, and broad ridges may be used for low density residential communities, including related commercial and institutional developments, provided that these uses are located and designed in a way to protect

the sensitive natural habitats and other resources. Acquire significant acreage east of the highway, primarily on gently sloping terrace land, to provide low-cost tourist facilities, develop vista points of special significance, and expand public access to the canyons and ridgetops, with linkages to the coast by transit and hiking, biking, and equestrian trails. Establish a coastal trail through Irvine, Laguna, and Laguna Canyons. Limit commercial developments to carefully selected sites to serve residents and visitors; sites shall not directly abut the highway.

**Cameo Shores to Abalone Point.** Establish a marine reserve.

Map  
**54**  
 South Coast



**Note:** Seasonal grazing occurs throughout Southern Orange County depending upon slope soil type, vegetation cover, and other factors; however, the only areas shown as grazing are those that were identified in the Orange County Land Use Survey 1973.

Kilometers: 0 1 2 3  
 Scale 1:125,000 Contour interval 500'  
 Miles: 0 1 2  
 Depth curves at 100-fathom interval



## PLAN MAP 55: MAP NOTES

### SUBREGION 12: LAGUNAS

**Lagunas.** Prohibit major commercial centers, industry, or service facilities that would generate significant increases in traffic congestion and change existing scale and character.

**Shoreline and Oceanfront.** Provide pedestrian access to tideland areas through private communities, including opening existing public easements now blocked by private roads. Reserve undeveloped lands seaward of the highway to provide significant open space recreational opportunities, vistas or view corridors, and/or commercial recreational facilities such as resorts, hotels, and campgrounds that serve the general public.

**Pacific Coast Highway.** Reserve a portion of the remaining highway capacity for recreational traffic.

**East of Pacific Coast Highway.** Limit new commercial development to planned clusters inland of the highway. Require maximum retention of open space in permitted residential developments in the lower hill areas. Maintain the higher hills in open space, with probably only very limited low-density residential development in selected locations.

**San Joaquin and Laguna Hills.** Protect watershed, habitat, and open space values. Endorse the local government's Laguna Greenbelt concept for preservation of open space, natural land contours, habitat, and recreational opportunities. Establish hiking and equestrian trails.

**Crescent Bay.** Establish interpretive center; protect seal rock. Consider possible long-term acquisition of Crescent Bay Point.

**Emerald Bay South.** Acquire this 10-acre extension of Crescent Bay Beach and Park to improve access from the highway to the beach and to increase the area available for public recreation.

**Central Laguna Beach Bluffs.** Acquire this 5.1-acre bluff area overlooking Main Beach Park for general recreation and support facilities.

**Aliso Canyon.** As a long-term priority, acquire the mouth of Aliso Canyon for recreation; link with the coastal trail system and the Laguna Greenbelt; investigate restoration possibility.

**Laguna Niguel Coast.** Acquire the 17-acre headland for visitor facilities supporting and complementing the adjacent Laguna Niguel Beach Park and linked with the coastal trail system.

### SUBREGION 13: SOUTH ORANGE COUNTY

**Pacific Coast Highway.** Reserve a portion of the remaining road capacity for recreational traffic. Prohibit major employment centers or other population generators until traffic congestion can be resolved.

**Seaward of Pacific Coast Highway.** Limit undeveloped land above and immediately adjoining coastal bluffs to open space uses for public recreation and view corridors, consistent with Plan policies. Remove housing and trailers from beaches through public acquisition. Prior to this action, public access to the beach should be sought through negotiation.

**East of Pacific Coast Highway.** Maintain higher hills in

open space with possibly very limited low-density residential development in designated locations. Accommodate residential and commercial uses in planned clusters in lower hills, where appropriate, retaining maximum open space.

**Dana Point to San Clemente.** Study the feasibility of relocating the railroad abutting the beaches.

**Dana Strand.** Consider possible long-term acquisition.

**Dana Point Headlands.** Acquire a 111.9-acre headland site to protect magnificent coastal vistas, maintain the existing open space character, and provide a landscaped picnicking and passive-recreation park.

**Dana Point Harbor.** Add new recreational facilities. Retain recreational vehicle camping if possible.

**Dana Point Palisades East.** Acquire a 48-acre upland parcel overlooking Dana Point Harbor and Doheny Beach State Park for recreational support facilities serving and linked with the harbor and State beach. Tourist commercial uses should have priority over residential uses on the remaining Lantern Bay property.

**San Juan Creek.** Limit intensity of development in the floodplain; investigate potential for recreation and consider possible long-term acquisitions.

**Doheny, Capistrano, and Poche Beaches.** Consider possible long-term acquisitions to increase public recreation opportunities.

**San Clemente Coastal Palisades.** Acquire this 153-acre coastal terrace parcel for general recreational support facilities.

**San Clemente Beach.** Consider possible long-term acquisition.

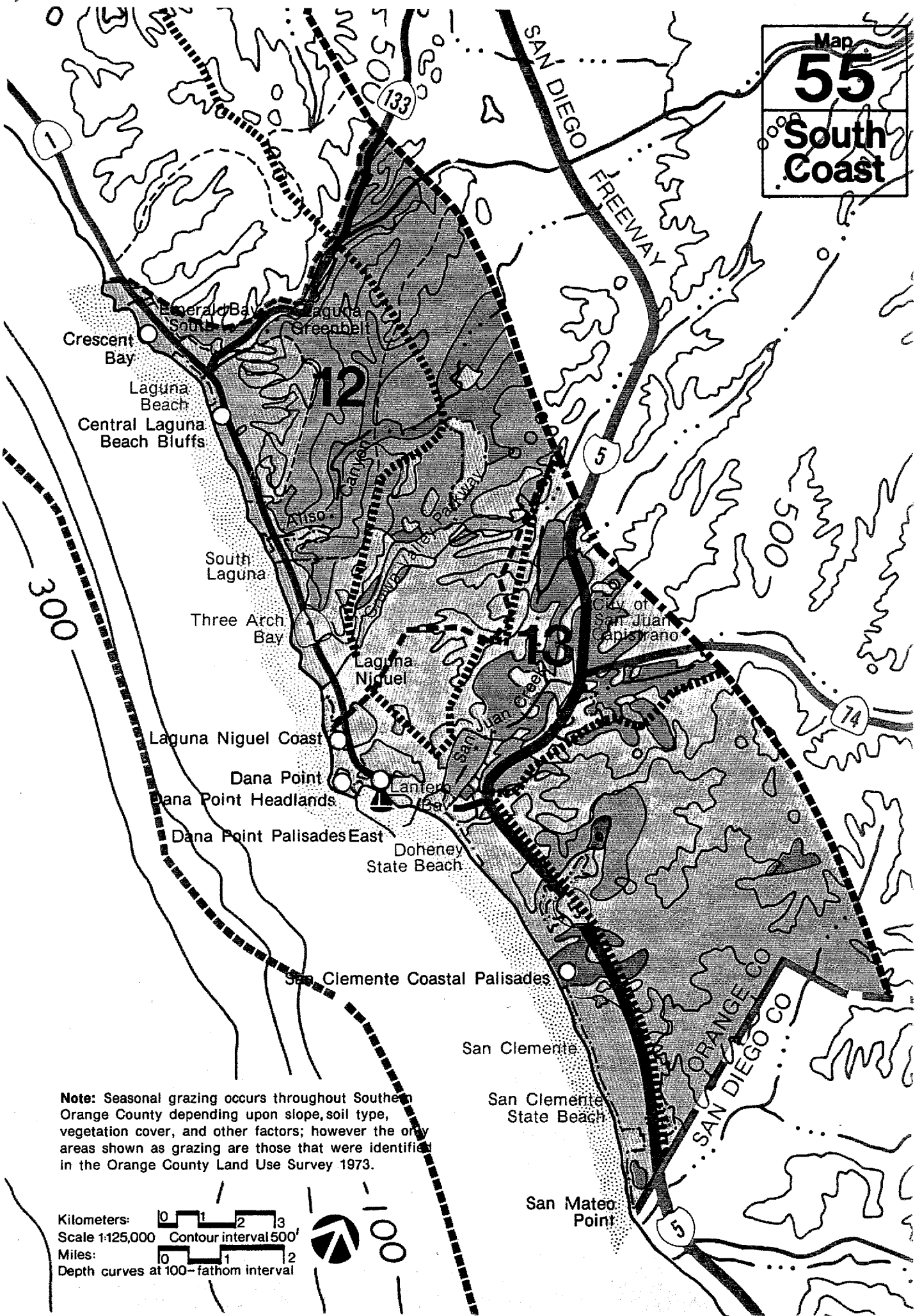
**San Mateo Point.** Establish public overlook. Consider possible long-term acquisition at the beach and point.

### SUPPLEMENTAL NOTES

Meeting Plan goals of protecting air quality, protecting wildlife habitat and other productive resources, meeting recreational needs, providing adequate traffic circulation, and concentrating urban development will necessitate severely limiting residential growth in this subregion. Major growth-inducing developments shall not be permitted; public service improvements should be expanded only if consistent with resource protection.

Protect remaining natural watersheds from intensive development. Prohibit structures such as dams to block streams. Sand supply should be studied in pocket beaches. Agricultural land should be evaluated and, where appropriate, protected from urban encroachment.

Map  
**55**  
**South Coast**



**Note:** Seasonal grazing occurs throughout Southern Orange County depending upon slope, soil type, vegetation cover, and other factors; however the only areas shown as grazing are those that were identified in the Orange County Land Use Survey 1973.

Kilometers: 0 1 2 3  
 Scale 1:125,000 Contour interval 500'  
 Miles: 0 1 2  
 Depth curves at 100-fathom interval



## **PLAN MAP 56: MAP NOTES**

### **SUBREGION 8: SANTA CATALINA AND SAN CLEMENTE ISLANDS**

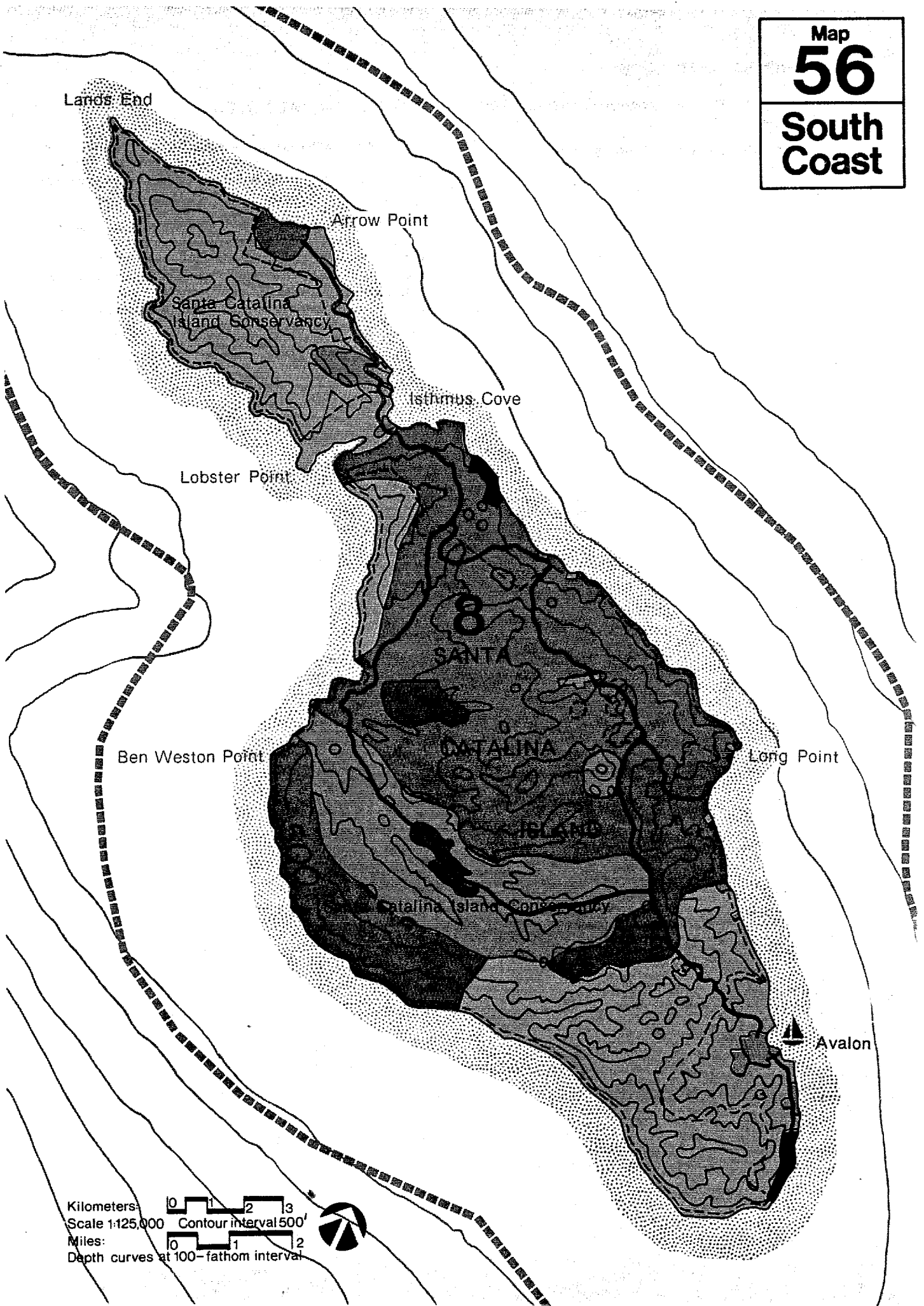
**Santa Catalina Island Conservancy.** Support efforts by conservancy to maintain 42,135 acres of the island for educational and recreational purposes. Increase public access to major recreation areas and support expanded or new recreation/educational areas.

**Avalon.** Maintain existing scale and intensity of development. Increase public access from the mainland.

**Other Island Settlements.** Maintain distinctive character of other settlements on Catalina. Limit new development to the amount that can be supported by local natural resources such as water. Do not allow development to interfere with the visual profile of the islands. In unincorporated areas, limited new residential development might be permitted in a few planned, clustered communities, primarily for permanent residents.



Map  
**56**  
South  
Coast



Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



## PLAN MAP 57: MAP NOTES

### SUBREGION 8: SANTA CATALINA AND SAN CLEMENTE ISLANDS [CONTINUED]

**San Clemente Island.** Explore long-term potential for restoration of habitat areas.

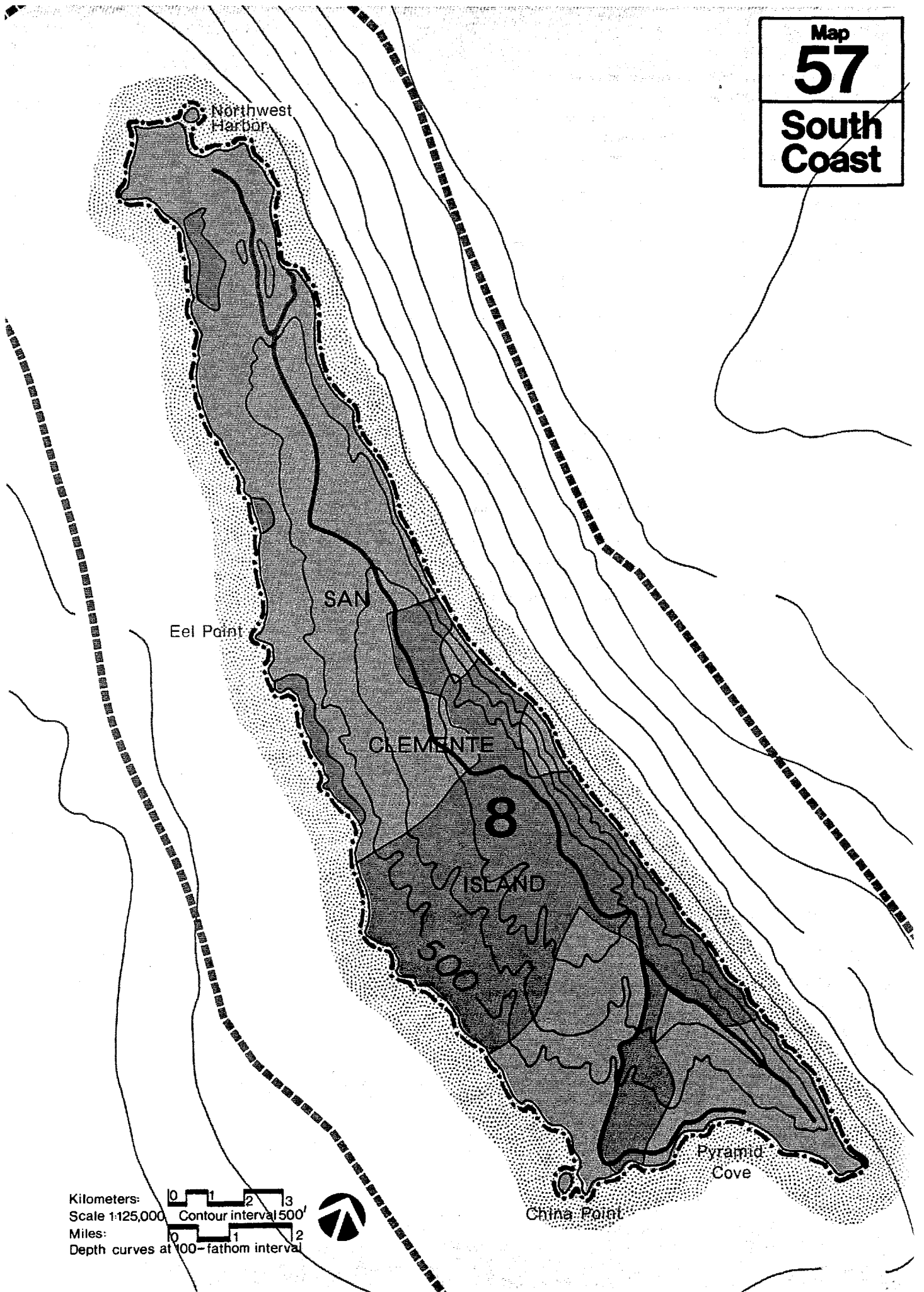
### SUPPLEMENTAL NOTES

Retain island hill areas in permanent open space for recreational purposes to the maximum extent possible. Provide appropriate riding trails and other public recreational facilities.

Control goat, buffalo and wild boar populations to prevent further destruction of native plant species unique to the islands. Maintain natural productivity of intertidal and nearshore areas, and develop a complementary fisheries management program. Protect all islets as sanctuaries for seabirds and marine mammals. Designate selected kelp beds and reefs as natural reserves.

Provide small craft anchorages and moorings where environmentally sound.

Map  
**57**  
South  
Coast



Northwest Harbor

Eel Point

SAN

CLEMENTE

8

ISLAND

500

Pyramid Cove

China Point

Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



## **SOUTH COAST REGION SELECTED MAPPING SOURCES**

### **PRODUCTIVE RESOURCE AREAS**

*Agriculture Preserves.* Orange County Planning Department, 1967.

*General Soil Map.* U.S. Soil Conservation Service, 1969.

*Map of Los Angeles County, Mines and Mineral Product Locations.* Division of Mines & Geology, 1947.

*Mines and Mineral Deposits of Orange County.* Geological Environmental Maps of Orange County. Division of Mines and Geology, 1973.

*Regional Wildcat Map.* Division of Oil and Gas, 1974.

*Soil Capability Map.* Comprehensive Land Related Data Systems, Orange County Planning Department, 1973.

*Soils of the Malibu Area.* U.S. Soil Conservation Service, 1967.

### **HABITAT AREAS**

Map of coastal wetlands. Prepared by Department of Fish and Game field biologist, 1974.

Maps of Pacific Coast kelp groves. Prepared by Department of Fish and Game, Long Beach Office, 1974.

Oil sanctuaries. As defined in sections 6870 through 6872 of Public Resources Code.

### **RECREATION-DEVELOPED AREAS-PUBLIC OWNERSHIP**

*Aerial Photography: 1:6,000.* American Aerial Surveys, Inc., October, 1973.

*Boating Facilities Guide, Southern Area.* Department of Navigation and Ocean Development, 1974.

*Existing Land Use.* Regional Planning Commission, Los Angeles County, 1972.

*Land Use Survey.* Comprehensive Land Related Data Systems, Orange County Planning Department, 1973.

*Land Use Survey.* Department of Water Resources, 1973.

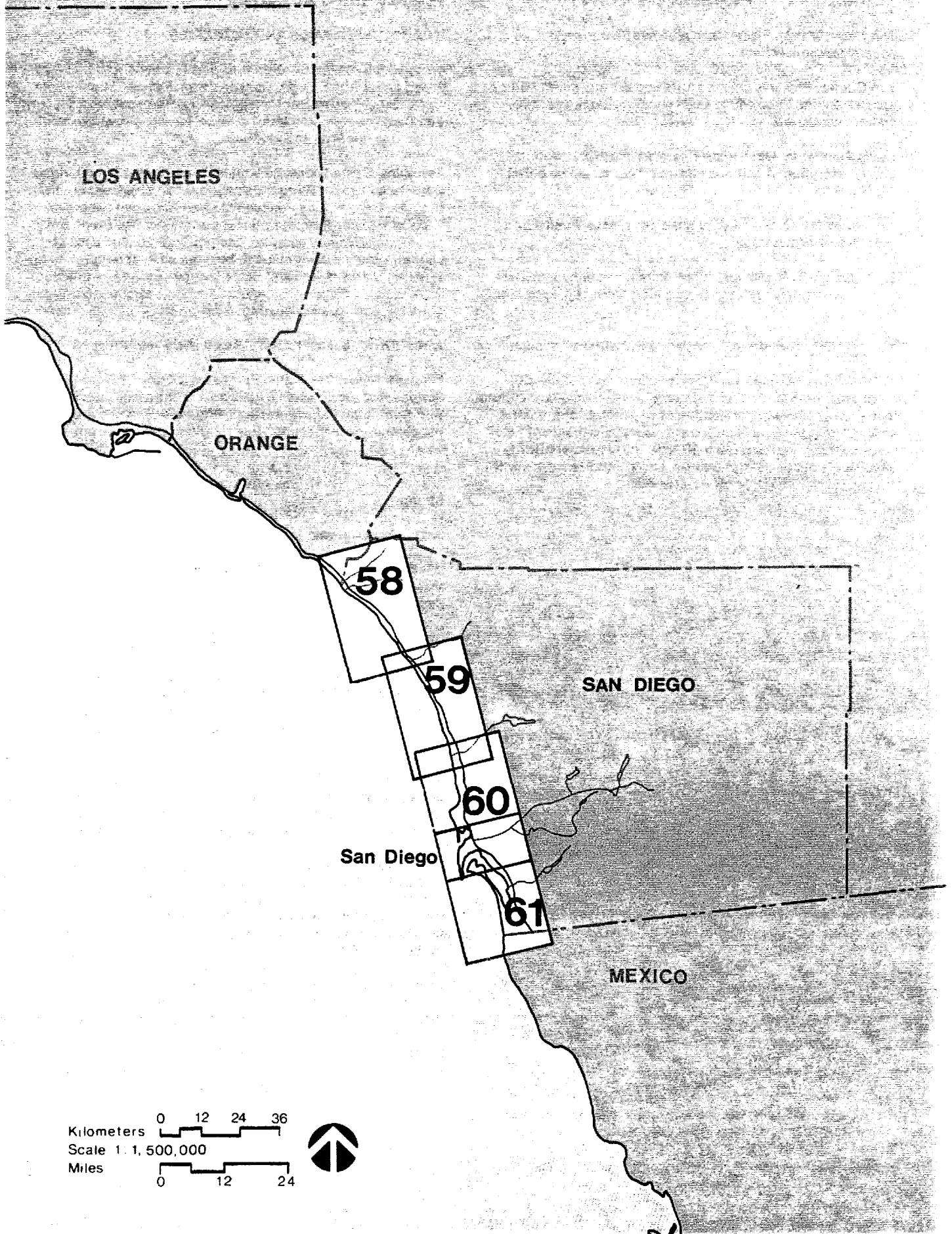
*Surf Break Survey.* National Surf Life Saving Association of America, 1974.

Tax exempt publicly owned lands survey from assessment rolls and map books of Los Angeles and Orange County Assessor's Offices, South Coast Regional Commission, 1974.

*Technical Report on an Outdoor Recreation Plan and Capital Improvement Program.* Southern California Association of Governments, 1972.

# SAN DIEGO COAST REGION

## INDEX MAP



Kilometers 0 12 24 36  
Scale 1:1,500,000  
Miles 0 12 24



## PLAN MAP 58: MAP NOTES

### SUBREGION 1: PENDLETON COAST

**San Mateo Marsh.** Protect and preserve resource value as coastal freshwater body.

**San Onofre.** Preserve scenic bluffs and acquire seven miles of beach frontage to be added to the existing State Beach for general recreation.

**Camp Pendleton.** Open additional shoreline for low-density public recreation. Additional development would be better located inland.

**Las Flores Marsh.** Preserve and protect resource value as a coastal freshwater body.

**Santa Margarita Marsh and River.** Retain and enhance tidal action; investigate restoration of anadromous fish spawning areas.

**North County Park Units.** Link park units with trail system.

**North County Agriculture.** Protect coastal floriculture and other productive and potentially productive coastal agricultural lands; prevent urban encroachment and protect appropriate small parcels especially suitable for coastal-dependent floriculture and agricultural uses. (Due to the characteristically small scale of coastal floriculture, some important sites within urban areas are not shown on the map.)

### SUPPLEMENTAL NOTES

#### COASTAL WETLANDS AND ESTUARIES

**Wetlands:** San Mateo Marsh, Las Flores Marsh, San Luis Rey River, Loma Alta Slough, Canyon de los Encinas Marsh, Soledad Creek, Mission Bay Marsh Reserve, Famosa Street Slough, San Diego river flood control channel marsh, and South San Diego Bay marshes and mudflats.

**Estuaries:** Santa Margarita Marsh, Buena Vista Lagoon, Agua Hedionda Lagoon, Batiquitos Lagoon, San Elijo Lagoon, San Dieguito Lagoon, Los Penasquitos Lagoon, open water portions of Mission Bay, open water portions of San Diego Bay, and Tijuana Estuary complex (including Orinda Lagoon). Lagoon systems designated to be retained in or restored to tidal action in this region are: Santa Margarita Marsh, Agua Hedionda Lagoon, Batiquitos Lagoon, San Elijo Lagoon, San Dieguito Lagoon, Los Penasquitos Lagoon, and Tijuana Estuary.

#### ADDITIONAL SIGNIFICANT AREAS (NOT MAPPED)

**Tidepool Areas:** San Mateo Point area, Torrey Pines area, Scripps Pier area, Point La Jolla area, Windansea Beach area, Bird Rock area, False Point area, Mariners Point area, Ocean Beach Municipal Pier area, Sunset Cliffs area, and Point Loma area.

**Littoral Cells:** Oceanside, Mission/Ocean Beach, and Silver Strand.

**Pocket Beach Areas:** La Jolla and Point Loma.

**Unstable Bluff Areas:** San Onofre, Leucadia/Encinitas, Del Mar Bluffs, Torrey Pines, La Jolla, Sunset Cliffs, and Point Loma.

**Habitat Areas:** Banks of the San Mateo Creek (grassland and riparian woodland), banks of San Onofre Creek (riparian woodland), San Onofre Bluffs and Camp Pendleton Coast from Las Flores Marsh to Oceanside west of I-5 (grassland), Camp Pendleton Coast from Japanese Mesa to Las Flores Marsh east of I-5 (coastal sage), mouth of Las Flores Creek (coastal sage), mouth of Santa Margarita Creek (coastal sage; nesting site of two endangered species, California least tern and Belding's savannah sparrow), mouth of San Luis Rey River (grassland), land surrounding Buena Vista Lagoon (riparian), land surrounding Agua Hedionda (coastal sage and riparian), land surrounding Batiquitos (coastal sage, grassland, and riparian), Encinas Canyon (riparian), Encinitas Boulevard Canyon (coastal sage), Cardiff Canyon (coastal sage), land surrounding San Elijo (coastal sage and grassland), Lux Canyon (riparian), San Dieguito Valley (coastal sage and grassland), Gonzales Canyon (coastal sage), Carmel Valley (woodland), Soledad Valley (coastal sage woodland), Penasquitos (coastal sage and coastal forest), Crest Canyon (chaparral), Del Mar Canyon (chaparral), Torrey Pines Reserve and proposed extension (coastal forest and marshland), Mt. Soledad (coastal sage), Tecolote Canyon (coastal sage), Fort Rosecrans (coastal sage), Cabrillo National Monument (coastal sage), Kendall Frost Reserve (beach strand), U.S. Navy Radio Station, Silver Strand (beach strand), Sweetwater Riverbed (riparian), Paradise Creekbed (riparian), Otay Riverbed (riparian), and Border Field, land surrounding Tijuana Estuary (grassland).

Map  
**58**  
San Diego

ORANGE COUNTY  
SAN DIEGO COUNTY

5

San Mateo Point  
San Mateo Marsh

San Onofre State Park

San Onofre

San Onofre Creek

Camp Pendleton

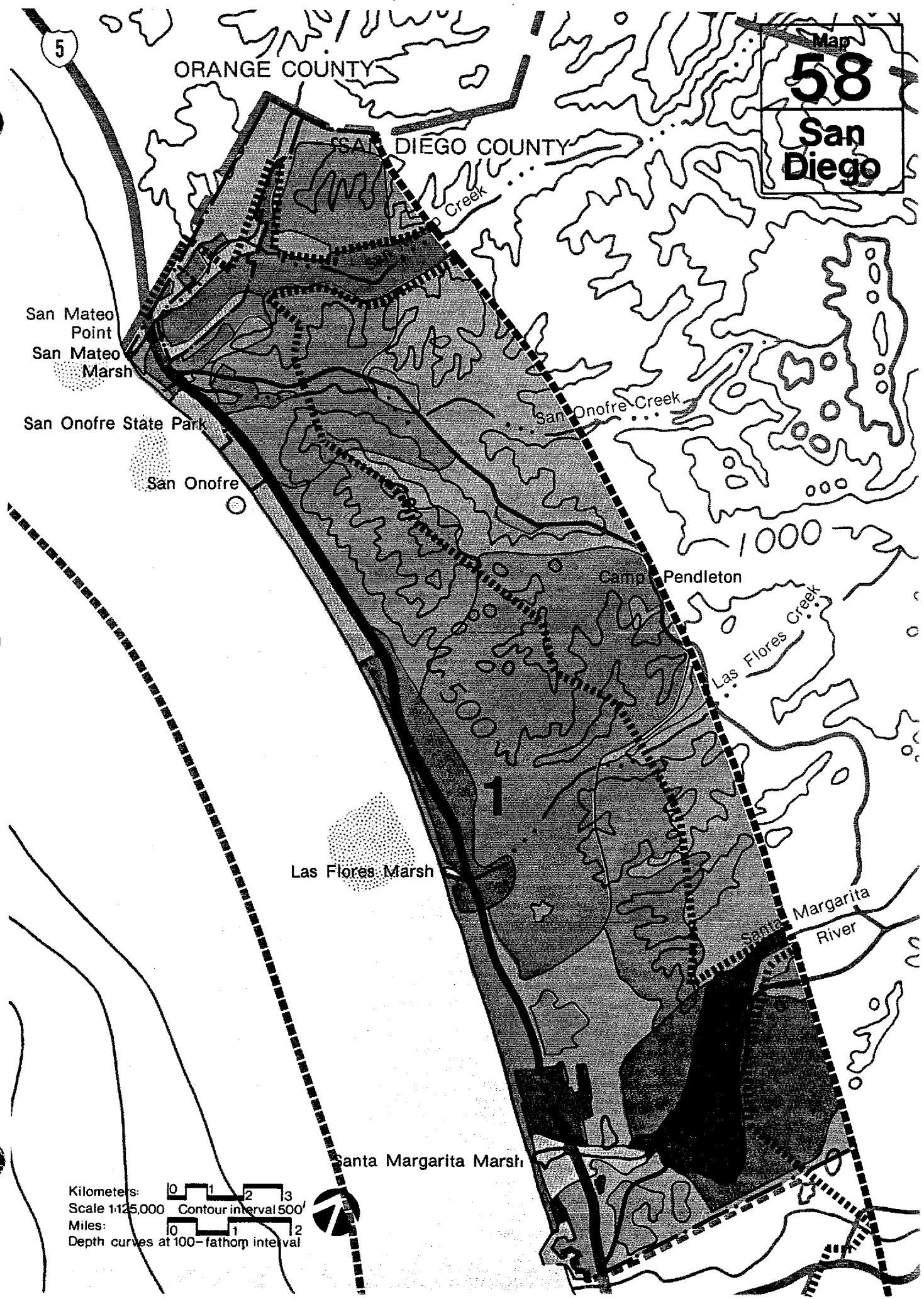
Las Flores Creek

Las Flores Marsh

Santa Margarita River

Santa Margarita Marsh

Kilometers: 0 1 2 3  
Scale 1:125,000 Contour interval 500'  
Miles: 0 1 2  
Depth curves at 100-fathom interval



## PLAN MAP 59: MAP NOTES

### SUBREGION 2: OCEANSIDE

**Oceanside Harbor/Strand.** Undertake a special study, addressing public beach access, urban design, and pedestrian circulation, to create a beach-oriented tourist-commercial area.

**San Luis Rey River Valley.** Protect productive and potentially productive agricultural areas enhanced by coastal climate.

**San Luis Rey River Marsh.** Acquire this 150-acre wetland for preservation of habitat values and passive recreational use.

**Oceanside Beaches.** Devise and implement long-term beach sand maintenance program.

### SUBREGION 3: CARLSBAD

**Buena Vista Lagoon.** Acquire this 113-acre wetland for preservation of habitat values. The acquisition would consolidate the existing State Reserve. Protect surrounding area from incompatible development.

**Carlsbad.** Encourage downtown redevelopment to reduce development pressures on resource areas and implement Plan policies on concentrating development.

**Agua Hedionda Lagoon.** Acquire 85 acres in the lagoon for preservation of the estuarine habitat values. Acquire about 100 acres of dry land surrounding the lagoon for general recreation. Retain tidal action, aqua culture, and recreation, and protect surrounding area from incompatible development.

**South Carlsbad State Beach.** Complete the acquisition of 46 acres currently being carried out by the State Department of Parks and Recreation.

**Ecke Beach Frontage.** Acquire 1,500 lineal feet of beach frontage for general recreation, extending South Carlsbad State Beach.

### SUBREGION 4: SAN DIEGUITO: LEUCADIA, ENCINITAS, CARDIFF, AND SOLANA BEACH

**Encina Power Plant Beach Frontage.** Add 1,800 lineal feet of beach frontage to South Carlsbad State Beach. Investigate techniques other than fee acquisition to gain public use rights for this area.

**Batiquitos Lagoon.** Restore tidal action; enhance resource value; protect buffer areas. Acquire 1,000 acres + as an ecological preserve and regional park.

**North County Beach Access.** Acquire four sites totalling two acres to provide access to the beach.

**Old Highway 101.** Designate highway from Oceanside to Mission Bay as a scenic highway. Emphasize billboard removal in open areas.

**North County Agriculture.** Protect coastal floriculture and other productive and potentially productive coastal agricultural lands; prevent urban encroachment and protect appropriate small parcels especially suitable for coastal dependent floriculture and agricultural uses. (Due to the characteristically small scale of coastal floriculture, some important sites with-

in urban areas are not shown on the map.)

**North County Park Units.** Link park units with trail system.

**San Dieguito Communities.** Retain low-density, semi-rural character.

**Sea Cliff County Park.** Acquire 400 lineal feet along the bluffs overlooking San Elijo Street Beach for recreation support facilities.

**San Elijo/Cardiff State Beach.** Acquire 175 lineal feet + of beach frontage totalling 3.7 acres, connecting San Elijo and Cardiff State Beaches.

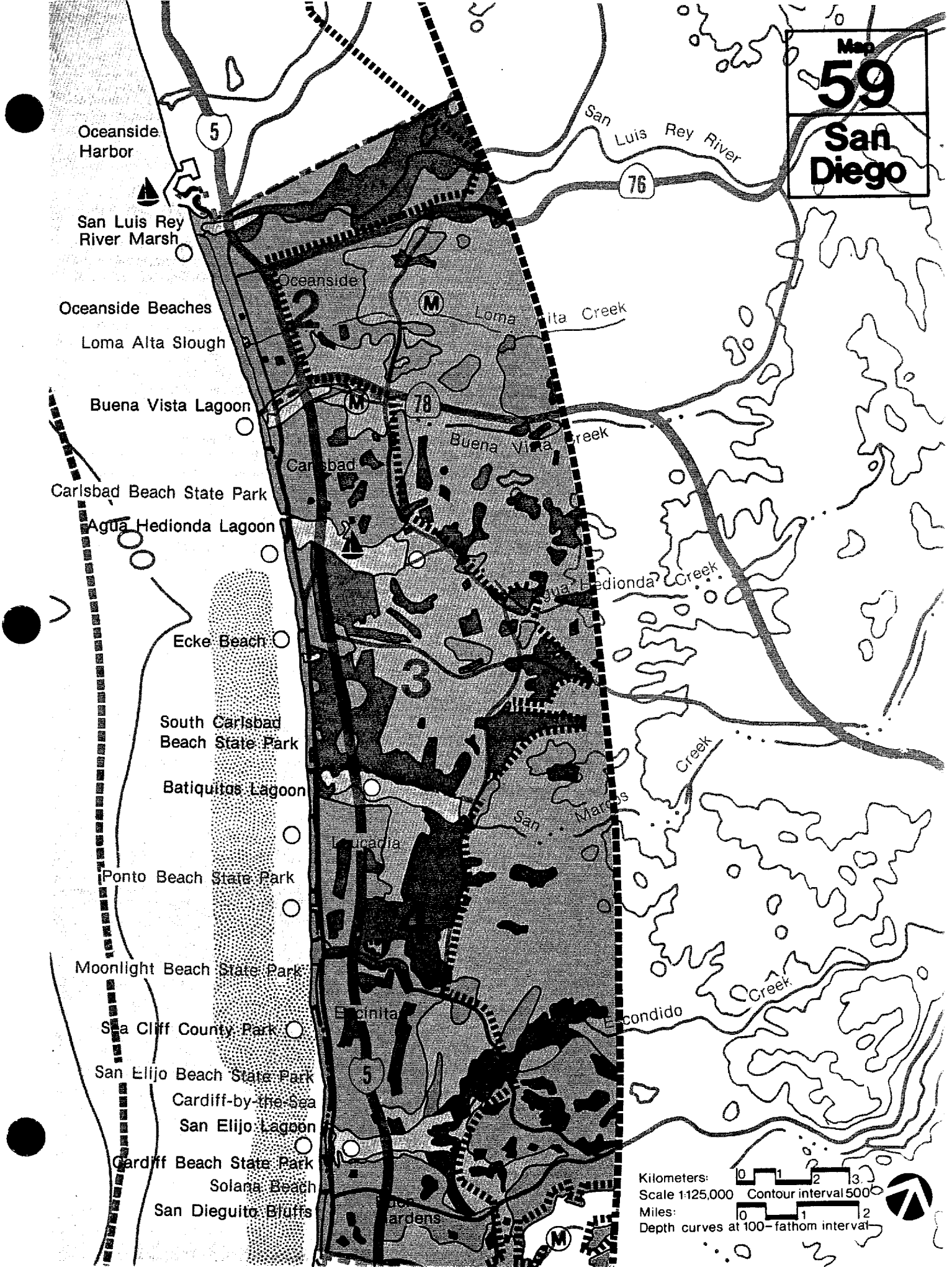
**San Elijo Lagoon.** Acquire 1,000 acres + as an ecological reserve and regional park. Increase tidal prism and provide fresh water to inner lagoon to enhance resource values, and habitats; protect surrounding bluffs.

**Eden Gardens.** Preserve low-income housing; enhance community character.

**San Dieguito Bluffs.** Adopt comprehensive public access plan; permit development in compliance with geologic and appearance and design criteria; phase private development in with construction of public access facilities.



Map  
**59**  
**San Diego**



Kilometers: 0 1 2 3  
 Scale 1:125,000 Contour interval 500  
 Miles: 0 1 2  
 Depth curves at 100-fathom interval



## PLAN MAP 60: MAP NOTES

### SUBREGION 5: DEL MAR

**San Dieguito Lagoon.** Acquire 1,000 acres + as an ecological reserve and regional park. Restore tidal action; enhance resource and habitat values; protect hill areas on southwest perimeter.

**Del Mar.** Preserve village-like residential and commercial community character. Consider public recreational beach use of South Del Mar. Investigate improvement of the South Del Mar bluffs as a linear park and continuation of a trail system from north county to Torrey Pines.

#### Del Mar Acquisition Sites:

- **Snake Wall.** Acquire 20 acres bordering San Dieguito Lagoon to preserve the bluffs and indigenous Torrey pines.
- **Crest Canyon.** Acquire this 125-acre steeply sloping hill and canyon area south of San Dieguito Lagoon to preserve open space values and indigenous Torrey pines.
- **Del Mar Bluffs.** Acquire 33 acres for trails and improved access along the bluffs.
- **Anderson Triangle and Canyon.** Acquire about five acres south of Del Mar Canyon and west of Camino Del Mar to preserve the bluffs as a view-site and to improve access to the beach.
- **Torrey Pines Reserve Extension.** Acquire six small parcels totalling about 20 acres (Harrington, Turner, Cherney, Lance-Blackman, Robinson, and Rumsey) for trails and further extension of the Reserve to the north. In addition, acquire Sandstone Bluffs, a 4.5-acre sandstone promontory—the highest point in the Reserve Extension, to preserve this unique landform. Consider purchase of the underlying fee interest, with retention of a life estate on this site.
- **Connection of Torrey Pines Reserve and Reserve Extension.** Acquire 19 acres connecting the Reserve and Reserve Extension to consolidate State holdings in this area.
- **Baldwin and Adjacent Properties.** Acquire this entire 18-acre parcel, including the area zoned commercial, to extend the State Reserve and provide support facilities for the beach.

### SUBREGION 6: TORREY PINES TO LA JOLLA

**Los Penasquitos Lagoon.** Maintain tidal prism and manage vegetation and habitat resources. Acquire this 280-acre wetland area for preservation of the estuarine habitat and fish and wildlife resources. Acquisition will extend State holdings in the Torrey Pines Reserve.

**Old Highway 101.** Designate highway from Oceanside to Mission Bay as a scenic highway. Emphasize billboard removal in open areas.

**North County Park Units.** Link park units with trail system.

**North County Agriculture.** Protect coastal floriculture and other productive and potentially productive coastal agricultural lands; prevent urban encroachment and protect appropriate small parcels especially suitable for coastal dependent floriculture and agricultural uses. (Due to the characteristically small scale of coastal floriculture, some important sites within urban areas are not shown on the map.)

**La Jolla.** Preserve community character. Investigate transit alternatives to relieve congestion. Severely curtail further intensification of land use in the central business district.

### SUBREGION 7: PACIFIC BEACH, MISSION BEACH, OCEAN BEACH, AND MISSION BAY

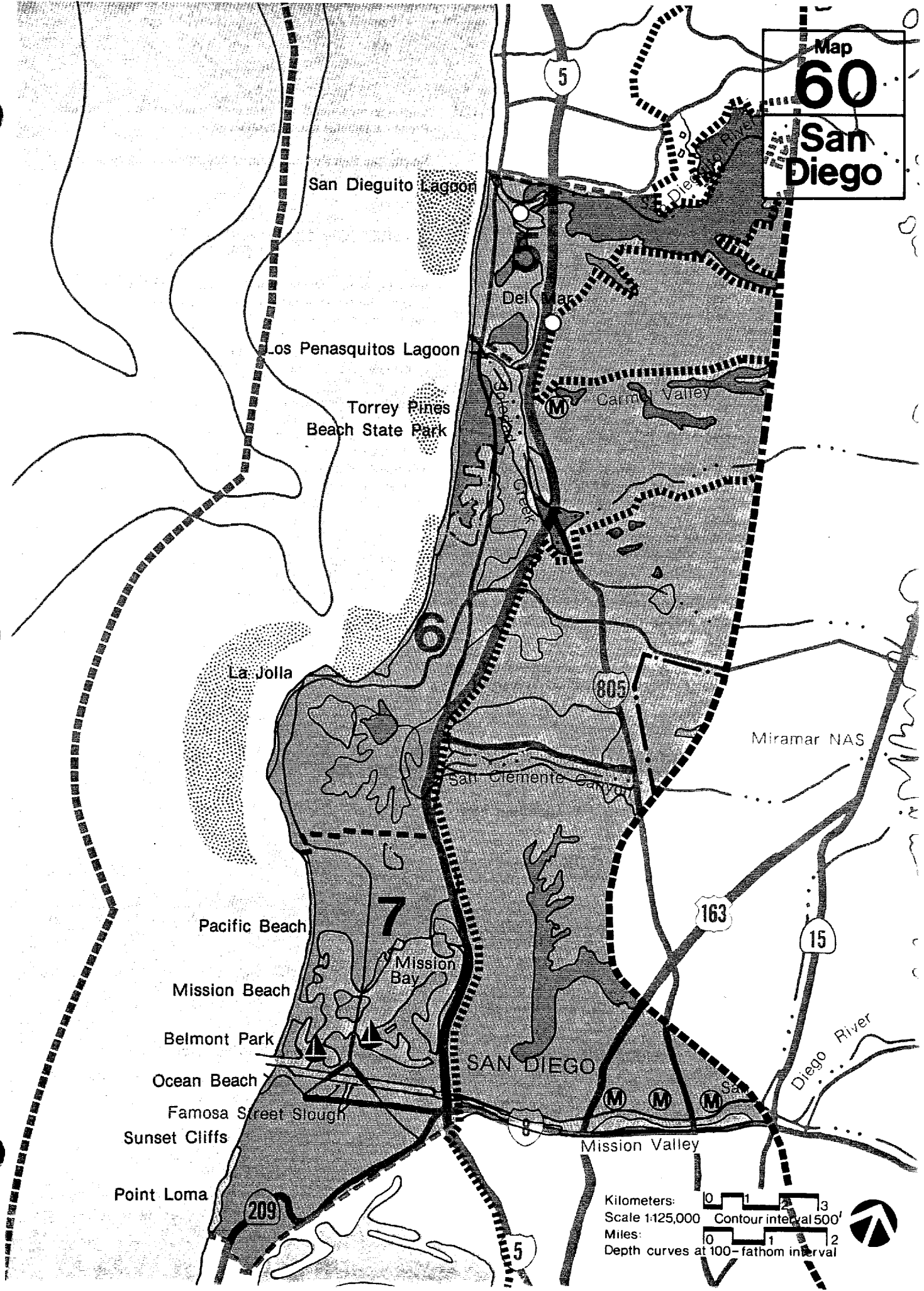
**Ocean Beach, Pacific Beach, Mission Beach.** Maintain social, economic and physical character. Investigate potential of shuttle during peak use periods. Investigate taxing alternatives to prevent transition to higher densities.

**Belmont Park.** Retain and enhance as a regional recreational and historical resource.

**Mission Bay.** Adopt comprehensive plan to preserve resource areas, maximize recreation potential, and ensure public access to and along shoreline.

**Sunset Cliffs.** On these fragile bluffs, implement long-term development control measures to ensure that future development is not threatened by natural shore erosion processes.

Map  
**60**  
 San Diego



Kilometers: 0 1 2 3  
 Scale 1:125,000 Contour interval 500'  
 Miles: 0 1 2  
 Depth curves at 100-fathom interval

## PLAN MAP 61: MAP NOTES

### SUBREGION 8: POINT LOMA/FEDERAL LANDS

**Point Loma.** Open remote areas of the shoreline for low-density public recreation. Transfer 700 acres from the U.S. Navy to an appropriate public agency for recreation when no longer needed by the Navy.

**Cabrillo National Monument.** Consider transfer of 350-400 acres of Navy land at the southern tip of Point Loma to the Monument reserve when no longer needed by the Navy.

**Ladera Street Park.** Extend the existing City park to include 12,000 lineal feet of the beach frontage, south to the waste treatment plant and inland to the first road.

### SUBREGION 9: SAN DIEGO CITY BAYFRONT

**Lindbergh Field.** Relocate regional airport to a site less damaging to the coastal environment.

**Embarcadero.** Create a pedestrian-tourist commercial environment for maximum public use and enjoyment of the bay front.

**San Diego CBD.** Downtown redevelopment project is consistent with Plan policies on concentrating development and creating high density uses at appropriate locations.

**Barrio Logan.** Protect the residential character of the Chicano community and consider linking it with direct access to San Diego Bay.

**San Diego Bay.** Increase public access and recreational use. Accommodate small craft facility demands in conformance with Coastal Plan policies.

### SUBREGION 10: CORONADO AND THE SILVER STRAND

**Coronado.** Preserve and improve primarily as a beautiful, pleasant residential community.

**North Island Naval Air Station.** Acquire 10,000 lineal feet of beach frontage from Sunset Park to Zuniga Point for general recreation.

**Coronado-Silver Strand Beaches.** Increase accessibility to, and facilities on, the beaches to promote increased recreational use of beach areas, including military beach frontage.

**Silver Strand State Beach.** Extend existing State Park holdings on both Bay and Ocean frontages to the north and south.

**Silver Strand/Coronado/Imperial Beach.** Devise and implement long-term beach sand maintenance program.

### SUBREGION 11: SOUTH SAN DIEGO BAY

**Sweetwater Marsh Complex.** Acquire 200 acres of dry land that drain into the marsh and the key habitat areas for the preservation of the estuarine habitat. Preserve resource values, prevent urban encroachment.

**Chula Vista Bayfront.** Promote development of a recreational/

tourist/commercial complex with maximum public access. Preserve coastal agricultural uses.

**South Bay Salt Ponds.** Acquire 850 acres for preservation of the estuarine habitat.

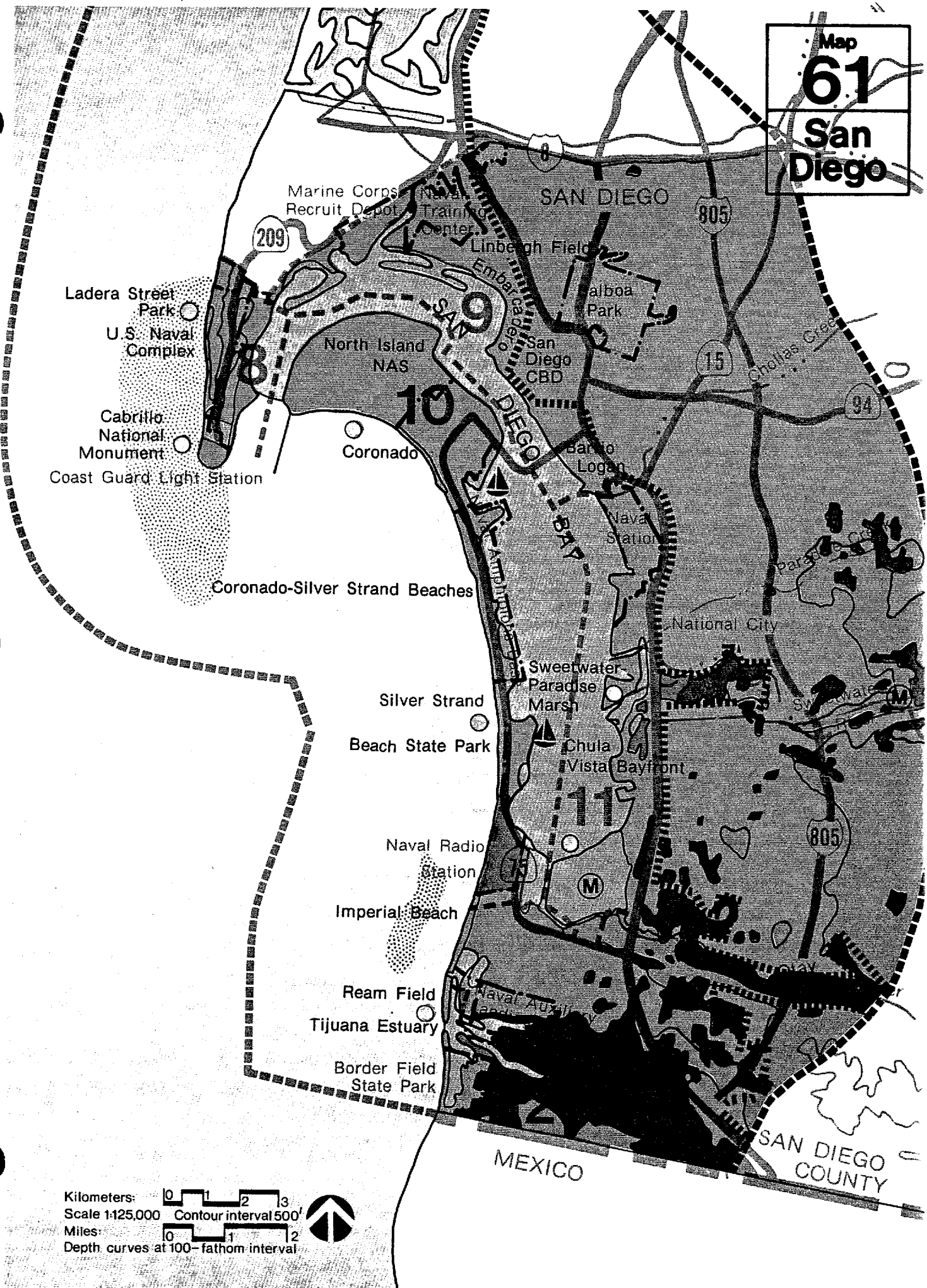
### SUBREGION 12: IMPERIAL BEACH/TIJUANA RIVER VALLEY

**Imperial Beach.** Implement Redevelopment Plan to create beach oriented tourist-commercial complex and enhance access and recreational value.

**Ream Field.** Encourage elimination of non-coastal dependent military air operations.

**Tijuana Estuary and River Valley.** Preserve and protect resource and habitat values and agricultural lands. Prevent urban encroachment. Complete the acquisition of 380 acres currently being carried out by the Department of Parks and Recreation and improve in a manner consistent with estuarine preservation. Retain or restore the estuary to tidal action.

Map  
**61**  
**San Diego**



Kilometers: 0 1 2 3  
 Scale 1:125,000 Contour interval 500'  
 Miles: 0 1 2  
 Depth curves at 100-fathom interval



## **SAN DIEGO REGION SELECTED MAPPING SOURCES**

### **PRODUCTIVE RESOURCE AREAS**

*Agricultural Lands, Map No. 29.* San Diego County Planning Department, 1973.

*Agricultural Preserves, Map No. 48.* San Diego County Planning Department, 1974.

Farm Advisor's Office, San Diego County Agricultural extension, miscellaneous maps.

*General Soil Map, San Diego County.* U.S. Soil Conservation Service, 1974.

*Mines and Mineral Resources of San Diego County.* Division of Mines and Geology, 1963.

*Natural Resource Inventory of San Diego County—Section 3, Geology.* Environmental Development Agency, 1971.

*Open Space Project No. 8—Map No. 69, Soil Suitable for Agriculture.* San Diego County Planning Department, 1971.

*Open Space Project No. 10—Map No. 71, Special Factors.* San Diego County Planning Department, 1971.

*Regional Open Space Plan and Implementation Program.* Comprehensive Planning Organization, 1974.

*Tijuana River Valley, Land Use and Flood Control Alternatives.* Joint study by the Office of the City Manager and the City of San Diego Planning Department, 1973.

### **HABITAT AREAS**

*A Plan for the Preservation of Natural Parks for San Diego, City of San Diego General Plan 1990.* City of San Diego Planning Department, 1973.

*Coast Physical Features Map.* San Diego County Planning Department, 1972.

*Comprehensive Plan for the San Diego Region, Vol. 3, Coastline.* Comprehensive Planning Organization, 1974.

*Initial Coastline Study and Plan.* Comprehensive Planning Organization, 1972.

*Kelp Habitat Improvement Project.* W.M. Keck Laboratory of Environmental Health Engineering, California Institute of Technology, 1970.

*Long-Range Plan for Multiple-Use Management of Natural Resources.* Natural Resources Office, Camp Pendleton Marine Corps Base, 1974.

*Los Penasquitos Lagoon, Environmental Evaluation and Planning Project.* San Diego State University, 1974.

*Master Plan, Cabrillo National Monument.* Western Regional Office, National Park Service, 1974.

*Natural Resource Inventory of San Diego County, Section 5, Coastal Environment.* County of San Diego Environmental Development Agency, 1971.

*San Diego County Regional Parks Implementation Study.* County of San Diego Park Development Division, 1972.

*San Diego's Offshore Area.* City of San Diego Planning Department, 1969.

*The Coastal Lagoons of San Diego County.* Laboratory for Experimental Design, California State Polytechnic College, Pomona, 1971.

*The Natural Resources of San Diego Bay, Their Status and Future.* State of California Department of Fish and Game, 1973.

### **RECREATION-DEVELOPED AREAS-PUBLIC OWNERSHIP.**

*Del Mar General Plan.* Del Mar Planning Department, 1975.

*Generalized Land Use Map, San Diego County Region.* Comprehensive Planning Organization, 1972.

*Land Use Maps.* Natural Resources Office, Camp Pendleton Marine Corps Base, 1975.

*Memo on Coastal Projects.* Department of Navigation and Ocean Development, 1974.

*Open Space Project No. 1—Map No. 62, Existing Developed Areas,* San Diego County Planning Department, 1971.

*Open Space Project No. 2—Map No. 63, Public and Semi-Public Ownership.* County of San Diego Planning Department, 1974.

*Public-Owned Lands, Map No. 18.* County of San Diego Planning Department, 1974.

San Diego County Assessor's Office, 1975.

*Regional Open Space Plan and Implementation Program.* Comprehensive Planning Organization, 1972.

*San Dieguito Community Plan.* San Dieguito Citizens Planning Group and County of San Diego Planning Department, 1975.

*Torrey Pines Community Plan.* Torrey Pines Community Planning Group and County of San Diego Planning Department, 1975.



# Appendix



# GLOSSARY

**Note:** The glossary below, an adopted part of the Coastal Plan, includes words and terms that are used throughout the Plan, and are listed here for convenience. Most other words and terms are defined where they occur in the text. Although every effort has been made to conform to technical, dictionary, and popular usage, it should be emphasized that these definitions reflect how the words and terms are used in **this** document.

## Parts of the Coastal Zone

Following are terms used in Plan policies and elsewhere to indicate parts of the coastal zone and adjacent areas:

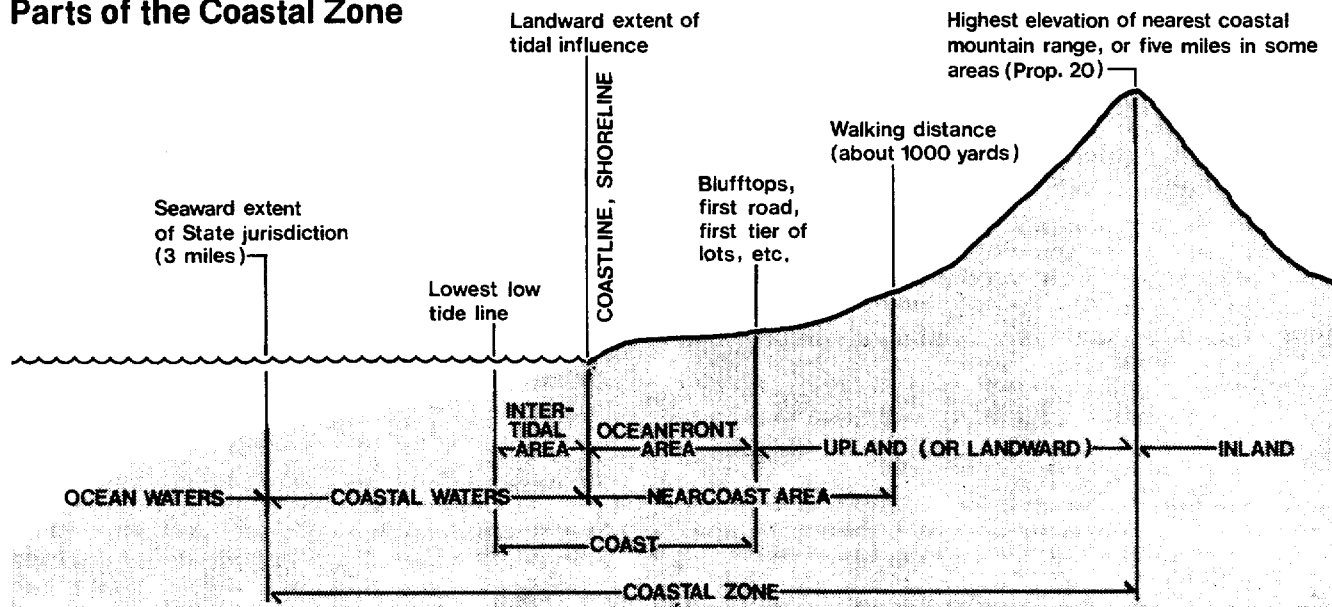
- **Ocean waters** — marine waters beyond the seaward extent of the State's jurisdiction (three miles).
- **Coastal waters** — marine waters from the shoreline seaward to the State's three-mile limit.
- **Intertidal area** — the area from the lowest low tide line to the shoreline (the landward extent of the tidal influence), including estuaries and coastal wetlands.
- **Shoreline, coastline** — the precise interface between land and sea, coinciding with the line marking the landward extent of tidal influence. (Term can be used informally for an actual area near the shoreline.)
- **Oceanfront area** — the area from the shoreline landward, including the beach and/or rocks above the high tide line to the top of adjacent bluffs and cliffs, and in most parts of the coastal zone including the first coastal road where it parallels the coast, and first tier of lots. Usually extends not more than 1,000 feet landward.
- **Coast** — encompasses the intertidal area and the oceanfront area. (Term can be used informally for a broader area.)
- **Nearcoast area** — the area within easy walking distance — generally 1,000 yards — of the shoreline.
- **Upland** — pertains to the area landward from the oceanfront area, generally to the coastal zone boundary.
- **Coastal zone** — as defined in the California Coastal Zone Conservation Act of 1972 (Proposition 20) — see elsewhere in the Appendix for complete text.
- **Coastal resource management area** — the area within which local plans would be brought into conformity with the Coastal Plan. See complete definition in Part IV, in introduction to Plan Maps.
- **Inland** — any land area outside the coastal zone.
- **Coastal** — pertains to anything within the coastal zone.

## Coastal Resources

**Coastal resources** — natural or man-made areas or features on or near the coast or enhanced by a coastal location that are of value to man for economic, environmental, recreational, cultural, and aesthetic reasons. These resources are divided into several overlapping categories:

- **Natural resources** — e.g., agricultural and timber lands, coastal waters, beaches, clean air.
- **Marine resources** — e.g., coastal waters, kelp beds, salt marshes, tidepools, islets and offshore rocks, anadromous fisheries.
- **Coastal land resources** — e.g., watersheds, freshwater

## Parts of the Coastal Zone



supplies, agricultural land, open space, bluffs, dunes, wild-life, natural habitat areas.

- **Productive resources** — e.g., aquaculture areas, gravel deposits, agricultural and timber lands, petroleum resources.
- **Manmade resources** — coastal communities and neighborhoods with particular cultural, historical, architectural, and aesthetic qualities. These towns and neighborhoods are characterized by orientation to the water, usually a small scale of development, pedestrian use, diversity of development and activities, public attraction and use of facilities, distinct architectural character, historical significance, or ethnic or cultural characteristics sufficient to yield a sense of identity and differentiation from nearby areas.
- **Historical and prehistorical resources** — e.g., recognized historical landmarks such as the Franciscan missions and Fort Ross; outstanding architectural landmarks; Indian burial sites and shellmounds; plant and animal fossils.
- **Recreational resources** — e.g., beaches, coastal streams, marinas, SCUBA diving areas, scenic coastal roads, and other land and water areas with the potential for providing significant recreational use for the public.
- **Scenic resources** — e.g., open space areas, coastal landforms, highly scenic areas.
- **Educational and scientific resources** — e.g., marine life refuges, rare and endangered species habitat, primitive areas, tidepools, wetlands.
- **Renewable resources** — those of the above that can be replenished either by nature or human effort, e.g., water, timber, agriculture, fisheries.
- **Non-renewable resources** — those of the above that are finite in ultimate quantity, e.g., beaches, gravel deposits, petroleum resources, primitive areas, wetlands.

## Coastal Agriculture

- **Coastal agricultural land** — all lands within the coastal climate zone currently being used or suitable for raising agricultural products (crops and livestock).
- **Prime agricultural land** — crop or grazing lands that, because of soils or economic productivity, are especially valuable, as defined in the Williamson Act:
  - (1) All land which qualifies for rating as Class I and Class II in the Soil Conservation Service land use capability classifications.
  - (2) Land which qualifies for rating 80 through 100 in the Storie Index Rating.
  - (3) Land which supports livestock used for the production of food and fiber and which has an annual carrying capacity equivalent to at least one animal unit per acre as defined by the U.S. Department of Agriculture.
  - (4) Land planted with fruit- or nut-bearing trees, vines, bushes, or crops which have a nonbearing period of less than five years and which will normally return during the commercial bearing period on an annual basis from the production of unprocessed agricultural plant production not less than \$200 per acre.
  - (5) Land which has returned from the production of unprocessed agricultural plant products an annual gross value of not less than \$200 per acre for three of the previous five years.

- **Non-prime agricultural land** — other coastal agricultural lands that are now in use for crops or grazing, or that are suitable for use as agricultural lands.
- **Coastal-related crops** — those crops that achieve substantial production advantages attributable to the coastal climate influence, including artichokes, brussels sprouts, asparagus, lima beans, snap beans, broccoli, cabbage, carrots, cauliflower, celery, cucumbers, spinach, tomatoes, avocados, grapefruit, lemons, oranges, strawberries, and floriculture.

## Estuaries, Wetlands, and 'Sensitive Areas'

- **(Coastal) estuary** — all or part of the mouth of a river, stream, or other semi-enclosed body of water (such as a bay, slough, or lagoon) connecting with the sea permanently or periodically and within which seawater is continuously, periodically, or occasionally diluted with freshwater runoff from the land.
- **(Coastal) wetlands** — saltwater and related freshwater marshes and mudflats.
- **Environmentally and biologically sensitive areas** — areas in which plant or animal life and their habitats are either rare or especially valuable because of their special nature or role in a life system and which are easily disturbed or degraded by human activities and developments, including: Areas of Special Biological Significance as identified by the State Water Resources Control Board; rare and endangered species habitat identified by the State Department of Fish and Game; all coastal wetlands and lagoons; all marine, wildlife, and education and research reserves; nearshore reefs; tidepools, sea caves; islets and offshore rocks; kelp beds; indigenous dune plant habitats; wilderness and primitive areas.
- **Coastal watersheds** — the lands that drain into streams that in turn drain into coastal rivers, wetlands, or the ocean itself, as shown on the four Coastal Resource Area maps preceding the Plan Maps in Part IV. More specifically, coastal watersheds include all lands within the State Water Resources Control Board's Basin Planning Areas 1A (except the Lost River-Butte Valley Hydrographic Unit), 1B, 2 (except all land areas that drain directly into San Francisco Bay), 3, 4A, 4B, 8, and 9.
- **Highly scenic areas** — include (1) landscape preservation projects designated by the California Department of Parks and Recreation in the California Coastline Preservation and Recreation Plan; (2) open areas identified in the Coastal Plan as being of particular value in providing visual relief from urbanization, in preserving natural landforms and significant vegetation, in providing attractive transitions between natural and urbanized areas, in carrying out the policies of the Coastal Plan, or as scenic open space; and (3) scenic areas and historical districts designated by cities and counties in their design procedures and standards prepared pursuant to Policy 46.

## Types of Development

- **Development** — means, on land, in or under water, (1) the placement or erection of any solid material or structure; (2) discharge or disposal of any dredged material or of any

gaseous, liquid, solid, or thermal waste; (3) grading, removing, dredging, mining, or extraction of any materials; (4) change in the density or intensity of use of land, including, but not limited to, subdivision of land pursuant to the Subdivision Map Act and any other division of land, including lot splits; (5) change in the intensity of use of water, ecology related thereto, or of access thereto; (6) construction, reconstruction, demolition, or alteration of the size of any structure, including any facility of any private, public, or municipal utility; (7) the removal or logging of major vegetation; (8) acquisition, sale, or lease of land by a public agency; (9) annexations of land to or establishment of incorporated cities or service districts; and (10) official determinations of urban service boundaries or spheres of influence.

- **Structure** — includes, but is not limited to, any building, road, pipe, flume, conduit, siphon, aqueduct, telephone line, and electrical power transmission and distribution line.

Development occurs in several forms, including: residential, commercial, industrial, institutional, agricultural, public service, transportation, energy, recreation (and commercial recreation), and visitor-serving facilities. As these terms are used in Coastal Plan policies, they generally refer to both the major structures (e.g., house, apartment house, highway, shopping center, factory) and appurtenant structures (e.g., fences, patios, parking lots, signs, gate houses, motor yards, overhead conveyors, curbs, gutters, bridges) insofar as the major structure necessitates the minor structures. The terms as used generally do not apply to these secondary structures if proposed separately (e.g., as structures to complete a planned system or as replacements) from the major structure or structures, though other policies will apply.

- **Residential development** — houses (generally several) and other dwelling units, including single and multiple-family units and mobile homes, but not including transient quarters such as hotels and motels.
- **Commercial development** — buildings or facilities in which products or services are bought and sold, generally for private profit, including shops, stores, shopping centers, offices, gas stations, theaters, hotels, restaurants, stands, commercial parking lots and garages. The term may also include temporary and outdoor activities conducted for private profit where applicable.
- **General commercial** — refers to all such commercial development except commercial recreation and visitor-serving facilities (see following definitions).
- **Recreation facilities** — buildings and land and water areas serving active recreational uses, such as swimming, boating, tennis, hiking, riding, golf, ball-playing, picnicking, sun-bathing, fishing, diving, bowling, birdwatching, etc. Generally includes campgrounds, parking lots, and other support facilities, though these may not require the same location as the principal recreational use.
- **Commercial recreation** — pertains to facilities serving public recreational needs but operated for private profit, including recreational areas and services (e.g., golf courses, riding stables, commercial party fishing boats), tourist attractions (e.g., Queen Mary), shopping areas (e.g., Ports O'Call), and amusement parks (e.g., Marineland).

- **Visitor-serving facilities** — both public and private developments that provide visitor accommodations, food, and services, including certain commercial recreation developments such as shopping, eating, and amusement areas for tourists, as well as hotels, motels, recreational vehicle and tent campgrounds, and restaurants.
- **Recreational support facilities** — buildings and land areas that provide goods and services for users of recreational facilities but that do not provide for recreational use by themselves, including parking lots, restaurants and snack bars, recreational equipment sales and repair shops, maintenance facilities, and park administrative buildings.
- **Industrial development** — buildings or facilities for the extraction, manufacture, processing, storage, distribution, and handling of materials and products, including energy facilities, ports, major agricultural processing plants, mineral extraction sites and equipment, lumber mills and yards, processing plants, assembly plants.
- **Public service facilities** — buildings, lines, pipes, etc., necessary for the provision and distribution of utility services, including water, electricity, gas, telephone, sewer, solid waste disposal, storm drainage, etc., and public safety, health, and welfare services, including fire houses, police stations, civil defense, and public works facilities.
- **Energy facilities** — power plants, refineries, tanker terminals, liquefied natural gas terminals, petroleum drilling, production, and handling facilities, or any other facilities necessary for the extraction, recovery, import, or processing of materials that provide energy.
- **Transportation facilities** — roads, public parking lots or structures, ports, airports, railroad and transit facilities and stations, and related structures such as bridges and trolley wires.
- **Institutional development** — buildings and facilities for public or quasi-public institutions such as schools, colleges, hospitals, libraries, museums, art and music centers, and government offices.
- **Agricultural development** — includes farm buildings, packing and processing plants, greenhouses, and pumps.
- **High-intensity development** — includes highrise office buildings, large apartment and condominium buildings, shopping centers, amusement parks, and tourist attractions.
- **Coastal-dependent developments** — developments that must have an immediate coastal site to be able to function at all. These include fishing, aquaculture, and port facilities, extraction of coastal minerals (e.g., sand and offshore petroleum), tanker terminals, boat works, shipyards, and marinas.

## Other Terms

- **Feasibility** — Practicability based on a case-by-case analysis, taking into account short-term economic, social, and technological constraints as weighed against the long-term benefits of strict and immediate compliance with a Coastal Plan policy.
- **Significant** — important, weighty, not trivial.

# EXAMPLES OF SUBREGIONAL PLANS

**Note:** The following illustrates subregional planning as discussed in Part II, Further Stages of Planning; see, particularly, Policy 162.

In most coastal areas there is no effective system for identifying the potential cumulative impact of many local decisions regarding public services and development as they will ultimately impact upon coastal resources and coastal access. What is needed is a method of assessing potential long-term impacts before commitments to specific patterns of developments are made and of identifying alternative development patterns that would not adversely affect coastal resources or access.

Subregional plans would apply Coastal Plan policies to specific geographic areas of the coast. The planning approach suggested below would be applied to the subregional areas described in Part IV or to some special study areas defined in the Coastal Plan. Two sample case studies are summarized below to help in understanding and evaluating the proposed planning approach.

Preliminary work on the two case studies suggests that a four-step process is required to establish alternatives to existing development trends. These four basic steps are:

- Define the nature and extent of the current implied commitment to development on the basis of local zoning and ownership patterns.
- Use maps delineating coastal resource and hazard areas to analyze the extent to which coastal protection and geologic hazards policies will affect the amount and location of development in specific coastal areas.
- Project alternative capacities for future stages of road, sewer, and water system expansions and then the land uses and population levels associated with each level of expansion of these systems in order to assess the potential impact on coastal resources and coastal access. The key decision points and alternatives concerning the amount and location of services would be spotlighted.
- Using the information from the first three steps, apply development policies (concerning density, concentration of development, manmade resources, etc.) to determine alternative development patterns that would be consistent with all Coastal Plan policies. These alternatives would attempt to determine development priorities for specific areas, identify where density increases or reductions should occur, and indicate precautions necessary to protect specific sensitive resource areas.

Along with the analysis required in these four steps, a monitoring system should be created for evaluating the effectiveness of the subregional planning process in protecting coastal resources and preserving coastal access.

The following summaries of case studies indicate how this approach would apply in a heavily-urbanized area and in a low-density, rural area. Because of lack of time, the two sample case studies did not employ the active, full partici-

pation of local government and citizens groups that would be necessary in preparing such plans for actual adoption. Although local governments and other public agencies in both subregions cooperated by providing extensive information and reports, these case studies should be regarded as preliminary tests only.

## Half Moon Bay

The Half Moon Bay sample case study covers 58 square miles and includes the City of Half Moon Bay, the unincorporated communities of Montara, El Granada, and Moss Beach, and rural lands in San Mateo County. Devil's Slide and the Santa Cruz Mountains presently insulate the subregion from San Francisco and the urbanized portions of San Mateo County. The boundaries of the subregion were drawn to include the entire watershed draining into Half Moon Bay, the coastal viewshed, and the highway service system. The land use is presently in transition from row crops and grazing to floriculture and suburban residential development.

**Step 1: Existing Development Potential.** A 1972 special census estimated the population in the subregion to be 11,700. By overlaying maps showing developable lots, existing zoning, and land ownership patterns, it was determined that 15,600 residential units could potentially be constructed to house an additional 48,000 residents. The result would be a population of 60,000 — a five-fold increase.

**Step 2: Mapping of Resource and Hazards Policies.** The Coastal Plan's resource protection policies for preservation of prime agricultural land, coastal-related cropland, etc., were mapped. If these are protected, the number of residential units would be reduced by 9,500 and the ultimate population reduced by 23,000 persons.

**Step 3: Estimation of Development Potential Resulting from Possible Sewer, Water, and Transportation Systems Expansions.** Roads and transit: The two existing inter-regional highways (State Highways 1 and 92) can accommodate a 4,500-person increase in the residential population before reaching capacity at the poorest service level (30 mph) during peak use periods.

Proposals have been made to reroute the two inter-regional highways and expand the roadway from two to four lanes. The road cuts, fills, and new alignment would significantly conflict with the Coastal Plan policies that are designed to protect the scenic quality of coastal landscapes. If Highway 1 is rerouted and expanded to four lanes, the residential population could increase to 36,000 before reaching capacity. A residential population of 57,000 could be accommodated if Highways 1 and 92 were both rerouted and widened to four lanes.

The Half Moon Bay area, however, is currently being transformed into a regional recreation center; there are proposals to develop a 1,000-boat marina, expand county and State recreation areas by 6,241 acres, and intensify recreational use in existing coastal parks. Proponents for expanding the capacities of Highways 1 and 92 have argued that the primary

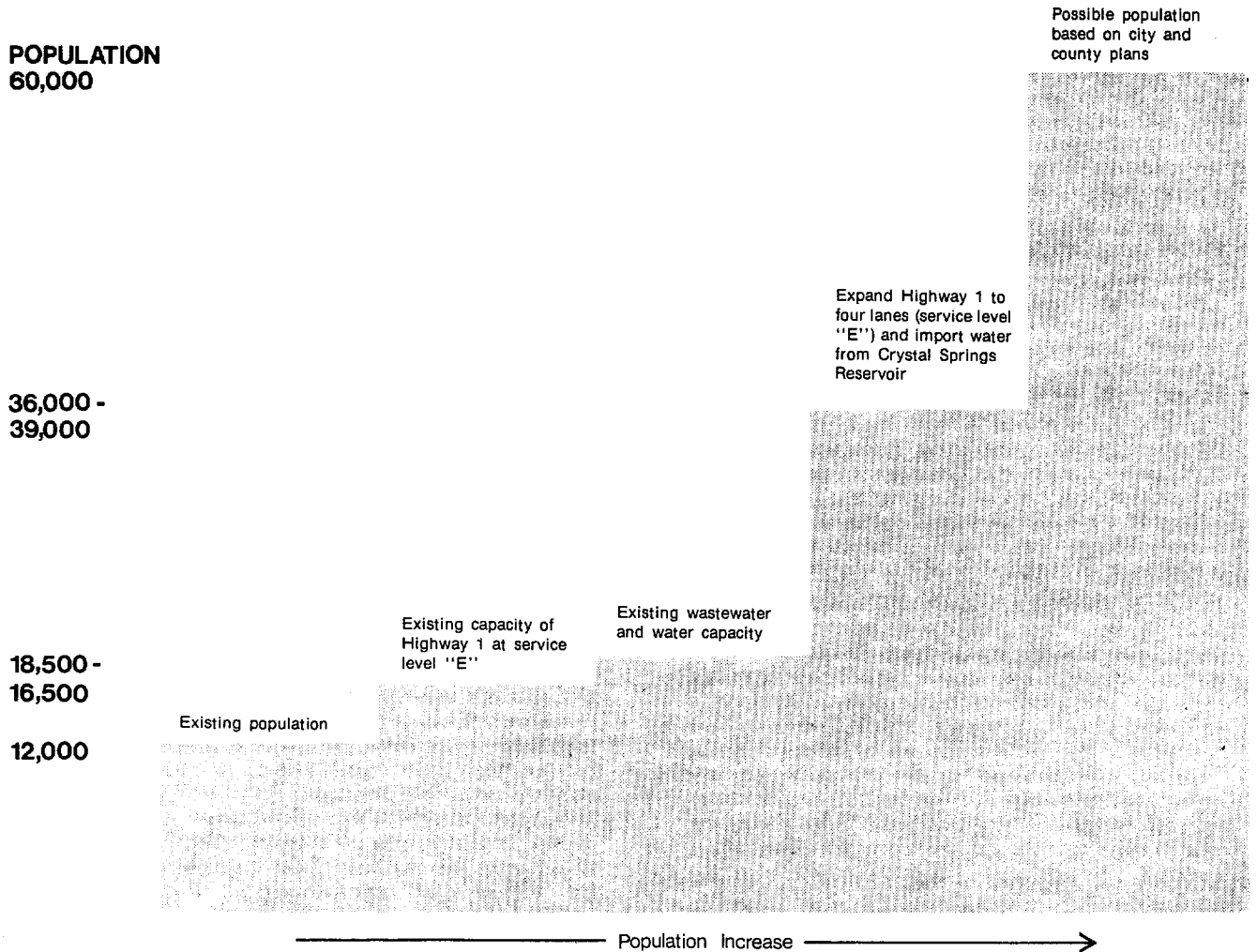
reason is to serve recreational traffic. But projected recreational traffic to the proposed facilities would congest even the four-lane versions of both highways on peak weekends; transit alternatives to highway expansion may be needed to resolve the recreational road congestion problem (e.g., possible use of San Mateo County Transit District buses on weekends). This recreational traffic volume would be an alternative to the volume an additional 57,000 residents would create. Both cannot be accommodated without additional roads.

**Water supply and sewage treatment systems:** It was estimated that both the water supply and wastewater systems in the subregion can accommodate a 6,000-person increase in population before reaching their designed service capacity of 18,500 persons. Expansion of the water supply system beyond the design capacity depends on both the extent to which reclaimed wastewater can be used to supply agriculture demands and the development of new domestic water supplies. Unless agricultural use of domestic water is reduced

through substitution of reclaimed waste water, County Coastside Water District must construct a pipeline across the Santa Cruz range to obtain the Crystal Springs Reservoir water for which it has a 10 million gallons per day contract. In addition, a substantial increase in residential, recreational, and agricultural water demand would have to be promoted to finance the large capital investment required to construct the pipeline. Assessment of properties within the water district to pay for the pipeline may force conversion of agricultural lands to urban uses, a major conflict with Coastal Plan policies.

Other water supply alternatives might require stream impoundments or groundwater withdrawal with potential impacts on sediment transport, biotic communities, or anadromous species that will conflict with Coastal Plan policies; for example, Coastside Water District must limit its proposed groundwater withdrawal program to prevent salt-water intrusion of Pillar Point marsh.

Expansion of sewage treatment capacity in excess of current Department of Finance population projections of 13,500 for



**EXISTING AND MODIFIED LEVELS OF PUBLIC SERVICE CAPACITIES  
— HALF MOON BAY CASE STUDY —**

the Half Moon Bay area must be funded totally by the local utility. If the sewage plan expansion is considerably greater than the capacity funded by State and Federal grants, assessment of properties within the sewage district to pay for the excess capacity may force conversion of agricultural lands to urban uses.

**Step 4: Alternative Development Levels and Patterns Consistent with Coastal Plan Density and Access Policies.** The previous step suggests two population levels as a basis for posing alternative development patterns that would be in accord with Coastal Plan policies on intensity of use and accessibility to coastal resources: (1) a population level of 16,500 (the decision point on expanding the existing highways) to 18,500 (the decision point on expanding the existing wastewater and water supply capacity); and (2) a population level of 36,000 to 39,000, with Highway 1 at four lanes and water being imported.

- Patterns of development at the 16,500-to-18,500 population level: One possible development pattern at this population level is the development of vacant lots within the small communities of Montara, Moss Beach, El Granada, and Half Moon Bay. Development would be permitted only where it would not conflict with the Commission's resource protection policies, with development priority for lots presently served by water, sewer, and road facilities. The bulk of the remaining land is in a single ownership, and this may make it possible for the allowable level of development to be concentrated in areas of the holdings where the resources have already been altered, thus preserving the remaining lands for open space and agricultural uses.

An alternative pattern of development would allocate a significant portion of road, water, and sewer services to recreational visitors. For instance, if the remaining peak-hour capacity of Highway 1 were allocated for recreational access instead of residential development, the existing highway could serve approximately 18,000 recreational travelers during a three-hour peak travel period. Additional residential development would have to be limited until Highway 1 is improved or inter-regional transit is provided. Similarly, additional residential development will likely compete with recreational development for water supply and sewage services available from the existing systems. Reserving the water supply and wastewater treatment for recreational uses would limit residential development to a maximum of 14,000 persons.

- Pattern of development at the 36,000-to-39,000 population level: To reach this population level, higher-density development would probably have to occur within the subregion. As lands not covered by resource protection policies become developed, the undeveloped coastal resource areas — including agricultural lands and view corridors — would come under more intense pressure for development. Agricultural, recreational, and residential uses would continue to compete for water supplies. Competition would continue between recreational and residential development for wastewater treatment service and highway capacity.

It should be noted that the 36,000-39,000 population level coincides with the maximum population growth that could occur under current zoning without having direct adverse effects on coastal resource areas (see Step 2 analysis). To go above this population figure without encroaching on resource areas would require an increase in zoning beyond present densities to allow intensification of development in non-resource areas. Transfer of development rights from resource areas to high intensity areas might also be necessary if the lands involved are not all in the same ownership.

## Huntington Beach

The Huntington Beach sample case study is in northwest Orange County and covers the 5-mile-wide coastal zone between the cities of Seal Beach (Anaheim Bay) and Newport Beach (the Santa Ana River). This area is actually part of a larger subregion that includes Alamitos Bay in Long Beach and much of Newport Beach. The larger subregion is characterized by similar development pressures, public service commitments, and transportation and coastal access problems. Because of lack of time, this sample illustration of the sub-regional planning process is limited to the Bolsa Chica Lowlands and Townlot area of Huntington Beach.

**Step 1: Existing Development Potential.** Huntington Beach is one of the fastest-growing communities in southern California. During the past 10 years the population has increased from 15,000 to 150,000, and the city's general plan projects up to 250,000 persons by the year 2000. Roughly 80 per cent of future growth in the area is expected to occur along the primary coastal access roads and in the nearcoast area, with the major part of this growth expected in the following areas: the unincorporated Bolsa Chica Lowlands (26,200 persons), Standard Oil properties (22,570), Huntington Harbour (14,200), the Townlots (9,500), and the Highway 39 and Warner Avenue corridors (88,000). Huntington Beach may be an appropriate area to encourage development because of its proximity to major employment centers, but the key issue is how to do this without adversely affecting coastal resources and access.

**Step 2: Mapping Resource and Hazard Policies.** Resource areas that should not be developed: The Bolsa Chica Lowlands are 1,400 to 1,600 acres of wetlands and restorable wetlands, portions of which are in agricultural use. This area is one of four Planning Reserve Areas designated by the county as needing critical planning decisions in the next few years. It is surrounded by residential development. Two major projects are proposed for the lowlands: (1) the State Department of Fish and Game, cooperating with other agencies, plans to restore portions of the wetlands (about 380 acres) and to develop about 150 acres as a commercial marina and small craft harbor; and (2) Signal Properties proposes to develop a residential community for 26,200 people in the remainder of the former wetlands. Proposed land uses must comply with Coastal Plan Policy 15, which states that no development of former wetlands is permitted unless the area cannot be restored. Only the restoration program is clearly in compliance with the adopted policy; the residential and marina proposals present substantial conflicts with the Coastal Plan and require further study and project modification or relocation.

Hazard areas in which development should be modified: Huntington Beach is traversed by the active Newport-Inglewood fault system; the greatest potential for surface rupture occurs from Bolsa Chica Lagoon northwest through Huntington Harbour. According to Policy 67, structures for human occupancy would be allowed only if site treatment and construction techniques can overcome the hazard. This policy would affect the city's existing commitment to the proposed planned residential community in the Bolsa Chica Lowlands for 26,200 persons. Similarly, Policy 23, which directs that development shall not adversely affect the recharge capacity of floodplain areas, would also discourage the paving and covering with residences of the substantial floodplain area.

Recreation and education priority uses: Related Marine Environment and Recreation policies would encourage the proposed restoration program and the creation of a recreation center primarily addressed to environmental education and science but linked by transit and trails to surrounding parks,

beaches, and other nearby visitor areas. The Plan policies relegate residential development in the lowlands to a low priority and substantially reduce the number of units that could be constructed in the unincorporated Bolsa Chica area.

**Step 3: Estimation of Development Potential Resulting From Possible Sewer, Water and Transportation Systems Expansions.**

**Coastal access:** The existing development commitment (Step 1) assumes the need for increasing beach access, commercial resort and overnight uses, and restoration and management of the Bolsa Chica Lowlands. The proposal to construct the 1,800-boat harbor and marina in Bolsa Chica, however, might require a bridge on Highway 1 to provide a new boat entrance for the marina. More critically, it would generate substantial traffic (500,000 visitors per year) that would compete with other recreation activities (day-use beach activities) for the limited remaining road capacity. Based on existing and projected congestion along Highway 1 and key coastal access roads, improved access for the boating public may be achieved at the expense of area beach and park users. Therefore, potential marina sites (such as Pier J in Long Beach) that might not create these conflicts should be considered as alternatives.

**Transportation — key decision points and alternatives:** The primary public service commitments affecting the level of development in Huntington Beach involve transportation improvements. The key coastal access routes for inland residents, Warner Avenue, Highway 39, and Golden West Street, must accommodate most of the increasing visitor traffic; according to city projections, these corridors also will accommodate about half of the city's projected residential growth. Highways 1 and 39 are already at or near capacity, and Warner Avenue will exceed design capacity by the year 2000. Only six-lane Golden West Street appears capable of absorbing the expected traffic increase based on current design. Therefore, basic decisions concerning road and transit service levels must be made in the near future. Buildout to the projected population should involve the consideration of specific transit proposals, including: improved public transit service along major coastal access routes (Highway 39, Golden West, and Warner); development of the Orange County rail corridor for passenger service; development of visitor destination points combined with park-and-ride shuttle service to public beaches and the downtown area; and resolution of alternative proposals for the Highway 1 Transportation Corridor behind Bolsa Chica.

**Step 4: Alternative Development Levels and Patterns Consistent with Coastal Plan Density and Access Policies.** Low-density residential development in the Bolsa Chica Lowlands would conflict with Policy 59 (concentrating development) as long as additional development could be accommodated in the already developed, serviced portion of the city. Develop-

ment pressures on the fragile Bolsa Chica resource could be relieved by channeling higher intensity development toward areas with available service capacities and public transit potential.

Based on the foregoing analysis, the following development alternatives might be consistent with the Plan:

- Intensifying development along major coastal access routes (Route 39, Warner, and Golden West);
- Restricting residential development in the Bolsa Chica Lowlands and increasing densities along the major road corridors in conjunction with transit plans;
- Intensifying resort commercial development in the downtown areas;
- Developing recreation and visitor-serving facilities in Huntington Harbour; and
- Expanding the current Central Park concept to include linkages via greenbelt and trails with the Bolsa Chica Lowlands and Bolsa Chica State Beach, including provision of upland support and buffer park facilities (parking, passive areas, etc.).

In contrast, development of a sizable portion of the undeveloped Bolsa Chica Lowlands west of Golden West for commercial and residential purposes would result in (1) the loss of scenic viewshed, recreation land, and open space; (2) commitment of a sizable portion of one of the last remaining wetland habitats in the South Coast to intensive recreation/commercial use; (3) dredging a channel to the marina through the State Beach and highway; and (4) excessive public costs (repairs to roads, flood control projects) associated with residential development in an area with severe geologic and flood plain hazards. The commitment to develop the Bolsa Chica Lowlands also would continue a pattern of consuming vast coastal land areas for low density sprawl (e.g., Sunset Heights, and Townlots areas).

Shifting the proposed Bolsa Chica residential development to other parts of the City with good public services would have the following positive impacts: (1) a density shift with development at higher densities in the Townlots area would facilitate the provision and maintenance of public transit along major access routes; (2) dependence on the automobile would be diminished, thus contributing to improved air quality and coastal access; (3) efficiency of existing public services might be improved and the high costs associated with development in the lowlands area might be avoided; and (4) new incentives could be offered to landowners (in the form of increased densities) that would encourage the consolidation of lots and blocks in areas such as the Townlots area to enable the provision of a mix of housing types and costs, with an increase in public open space and parkland and a more coordinated approach to site planning and design.



# HOW THE COASTAL PLAN WAS PREPARED

The California Coastal Plan was prepared in a unique manner that sought the full involvement of the largest possible number of people throughout the State.

The foundation of the process was the Coastal Act itself (Proposition 20), which established six Regional Commissions in addition to the one statewide Commission; this was designed to give the public maximum access to and involvement with the Commissions, and to encourage development of policies and plans sensitive to the different needs of the different Regions.

Building on that foundation, the Regional and State Commissions cooperated in setting up a planning process that: (1) the plan would be developed in a series of elements, e.g., recreation, marine environment, etc., which would be more understandable than attempting to present the whole plan at once; (2) the Regional Commissions would all consider each element at the same time, to maximize attention and visibility in the press and thus public understanding of the issues being discussed; (3) the basic background research for each element would be done centrally by the State Commission staff to save time and money from otherwise duplicative efforts and to assure that virtually all ideas would get exposure in each Region. Together, the elements covered all those required by the Coastal Act (see Section 27304 in full text elsewhere in the Appendix.)

Each Commission had a staff, and many used outside consultants on various aspects of the planning. Consistently, the Commissions and staffs sought — and received — advice from experts in many fields, representatives of interest groups (both developers and citizen organizations), State and Federal agencies, and thousands of individuals. Communication has been in person, in writing, by telephone — and in hundreds of public meetings and hearings held at the local, Regional, and State level. As quickly as possible, new ideas brought up in one Region were forwarded to the other Regions for maximum possible exposure and debate.

The planning process was organized during the early months of 1973. The first formal hearings on the first plan element got under way in October 1973, and continued

monthly through 1974. Each Region made its recommendations on each plan element to the State Commission, which then adopted a composite of the six sets of recommendations and resolved any conflicts among recommendations.

Early in 1975 a Preliminary Plan was compiled from adopted Plan Elements, together with a map section and explanatory text in which each Regional Commission illustrated how the statewide policies would apply to the specific coastal areas in each region.

All during this time, the seven Commissions were also carrying out the other major responsibility given them by the Coastal Act: regulating virtually all development within 1,000 yards of the ocean to forestall any developments that might conflict with the Plan as it was being prepared. Over 15,000 permit applications were processed by the Commissions, ranging from single-family homes to divisions of agricultural lands to power plants and offshore petroleum development. Many practical lessons from the permit experience entered into the evolving plan, giving the Commissioners full knowledge of the practical problems of making coastal development compatible with protecting coastal resources. Indeed, one of the strengths of the Plan is its basis on this knowledge of the real issues in coastal conservation and development.

Nineteen public hearings (and countless informal meetings) were held on the Preliminary Plan in coastal communities during April and May 1975, and one more in Fresno, so that inland Californians could make their views known to the Commissions. From the results, a final plan and definitive proposals for its implementation were developed, and the Regional maps and texts were reviewed for their consistency with statewide policies, and thereupon approved by the State Commission.

In all, nine separate planning elements and the Preliminary Plan were evolved in an unusually open planning process in the space of only about 18 months — an undertaking that required constant dedication of Commissioners, staffs, and the thousands of participants. The Plan is thus a document honed by the direct involvement of thousands of Californians with a broad range of ideas, goals, and concerns.

# THE CALIFORNIA COASTAL ZONE CONSERVATION ACT OF 1972 (`Proposition 20`)

as amended by Chapters 28 and 1014 (1973)

amendments printed in bold type

The people of the State of California do enact as follows:

SECTION 1. Division 18 (commencing with Section 27000) is added to the Public Resources Code, to read:

## DIVISION 18. CALIFORNIA COASTAL ZONE CONSERVATION COMMISSION

### CHAPTER 1. GENERAL PROVISIONS AND FINDINGS AND DECLARATIONS OF POLICY

27000. This division may be cited as the California Coastal Zone Conservation Act of 1972.

27001. The people of the State of California hereby find and declare that the California coastal zone is a distinct and valuable natural resource belonging to all the people and existing as a delicately balanced ecosystem; that the permanent protection of the remaining natural and scenic resources of the coastal zone is a paramount concern to present and future residents of the state and nation; that in order to promote the public safety, health, and welfare, and to protect public and private property, wildlife, marine fisheries, and other ocean resources, and the natural environment, it is necessary to preserve the ecological balance of the coastal zone and prevent its further deterioration and destruction; that it is the policy of the state to preserve, protect, and, where possible, to restore the resources of the coastal zone for the enjoyment of the current and succeeding generations; and that to protect the coastal zone it is necessary:

(a) To study the coastal zone to determine the ecological planning principles and assumptions needed to ensure conservation of coastal zone resources.

(b) To prepare, based upon such study and in full consultation with all affected governmental agencies, private interests, and the general public, a comprehensive, coordinated, enforceable plan for the orderly, long-range conservation and management of the natural resources of the coastal zone, to be known as the California Coastal Zone Conservation Plan.

(c) To ensure that any development which occurs in the permit area during the study and planning period will be consistent with the objectives of this division.

(d) To create the California Coastal Zone Conservation Commission, and six regional coastal zone conservation commissions, to implement the provisions of this division.

### CHAPTER 2. DEFINITIONS

27100. "Coastal zone" means that land and water area of the State of California from the border of the State of Oregon to the border of the Republic of Mexico, extending seaward to the outer limit of the state jurisdiction, including all islands within the jurisdiction of the state, and extending inland to the highest elevation of the nearest coastal mountain range, except that in Los Angeles, Orange, and San Diego Counties, the inland boundary of the coastal zone shall be the highest elevation of the nearest coastal mountain range or five miles from the mean high tide line, whichever is the shorter distance.

27101. "Coastal zone plan" means the California Coastal Zone Conservation Plan.

27102. (a) "Commission" means the California Coastal Zone Conservation Commission.

(b) "Regional commission" means any regional coastal zone conservation commission.

27103. "Development" means, on land, in or under water, the placement or erection of any solid material or structure; discharge or disposal of any dredged material or of any gaseous, liquid, solid, or thermal waste; grading, removing, dredging, mining, or extraction of any materials; change in the density or intensity of use of land, including, but not limited to, subdivision of land pursuant to the Subdivision Map Act and any other division of land, including lot splits; change in the intensity of use of water, ecology related thereto, or of access thereto; construction, reconstruction, demolition, or alteration of the size of any structure, including any facility of any private, public, or municipal utility, and the removal or logging of major vegetation. As used in this section, "structure" includes, but is not limited to, any building, road, pipe, flume, conduit, siphon, aqueduct, telephone line, and electrical power transmission and distribution line.

27104. "Permit area" means that portion of the coastal zone lying between the seaward limit of the jurisdiction of the state and 1,000 yards landward from the mean high tide line of the sea subject to the following provisions:

(a) The area of jurisdiction of the San Francisco Bay Conservation and Development Commission, together with all contiguous areas 2,900 feet landward thereof, and any river, stream, tributary, creek, or flood control or drainage channel which flows into such area, is excluded.

(b) If any portion of any body of water which is not subject to tidal action lies within the permit area, the body of water together with a strip of land 1,000-feet wide surrounding it shall be included; **provided, however, that this subdivision does not apply to any river, stream, tributary, creek, or flood control or drainage channel when a portion of it lies within the permit area.**

(c) Any urban land area which is (1) a residential area zoned, stabilized and developed to a density of four or more dwelling units per acre on or before January 1, 1972; or (2) a commercial or industrial area zoned, developed, and stabilized for such use on or before January 1, 1972, may, after public hearing, be excluded by the regional commission at the request of a city or county within which such area is located. An urban land area is "stabilized" if 80 per cent of the lots are built upon to the maximum density or intensity of use permitted by the applicable zoning regulations existing on January 1, 1972.

Tidal and submerged lands, beaches, and lots immediately adjacent to the inland extent of any beach or of the mean high tide line where there is no beach shall not be excluded.

Orders granting such exclusion shall be subject to conditions which shall assure that no significant change in density, height, or nature of uses occurs.

An order granting exclusion may be revoked at any time by the regional commission, after public hearing.

(d) Each regional commission shall adopt a map delineating the precise boundaries of the permit area within 60 days after its first meeting and file a copy of such map in the office of the county clerk of each county within its region. **In delineating any inland boundary of the permit area, the regional commission may adjust such boundary by moving it seaward by not more than 50 yards. Such adjustments may only be made to avoid bisecting any lot or parcel owned by the same person or to conform to identifiable physical natural or manmade features such as streets, highways, or any structures, in order to more efficiently carry out the provisions of Chapter 5 (commencing with Section 27400) of this division.**

27105. "Person" includes any individual, organization, partnership, and corporation, including any utility and any agency of federal, state, and local government.

27106. "Sea" means the Pacific Ocean and all the harbors, bays, channels, estuaries, salt marshes, sloughs, and other areas subject to tidal action through a connection with the Pacific Ocean, excluding non-estuarine rivers, streams, tributaries, creeks and flood control and drainage channels.

### CHAPTER 3. CREATION, MEMBERSHIP, AND POWERS OF COMMISSION AND REGIONAL COMMISSIONS

#### Article 1. Creation and Membership of Commissions and Regional Commissions

27200. The California Coastal Zone Conservation Commission is hereby created and shall consist of the following members:

(a) Six representatives from the regional commissions, selected by each regional commission from among its members.

(b) Six representatives of the public who shall not be members of a regional commission.

27201. The following six regional commissions are hereby created:

(a) The North Coast Regional Commission for Del Norte, Humboldt, and Mendocino Counties shall consist of the following members:

- (1) One supervisor and one city councilman from each county.
- (2) Six representatives of the public.

(b) The North Central Coast Regional Commission for Sonoma, Marin, and San Francisco Counties shall consist of the following members:

- (1) One supervisor and one city councilman from Sonoma County and Marin County.
- (2) Two supervisors of the City and County of San Francisco.
- (3) One delegate to the Association of Bay Area Governments.
- (4) Seven representatives of the public.

(c) The Central Coast Regional Commission for San Mateo, Santa Cruz, and Monterey Counties shall consist of the following members:

- (1) One supervisor and one city councilman from each county.

- (2) One delegate to the Association of Bay Area Governments.
- (3) One delegate to the Association of Monterey Bay Area Governments.
- (4) Eight representatives of the public.

(d) The South Central Coast Regional Commission for San Luis Obispo, Santa Barbara, and Ventura Counties shall consist of the following members:

- (1) One supervisor and one city councilman from each county.
- (2) Six representatives of the public.

(e) The South Coast Regional Commission for Los Angeles and Orange Counties shall consist of the following members:

- (1) One supervisor from each county.
- (2) One city councilman from the City of Los Angeles selected by the president of such city council.
- (3) One city councilman from Los Angeles County from a city other than Los Angeles.
- (4) One city councilman from Orange County.
- (5) One delegate to the Southern California Association of Governments.
- (6) Six representatives of the public.

(f) The San Diego Coast Regional Commission for San Diego County, shall consist of the following members:

- (1) Two supervisors from San Diego County and two city councilmen from San Diego County, at least one of whom shall be from a city which lies within the permit area.
- (2) One city councilman from the City of San Diego, selected by the city council of such city.
- (3) One member of the San Diego Comprehensive Planning Organization.
- (4) Six representatives of the public.

27202. All members of the regional commissions and public members of the commission shall be selected or appointed as follows:

- (a) All supervisors, by the board of supervisors on which they sit;
- (b) All city councilmen except under subsections (e) (2) and (f) (2), by the city selection committee of their respective counties;

(c) All delegates of regional agencies, by their respective agency;

(d) All public representatives, equally by the Governor, the Senate Rules Committee and the Speaker of the Assembly, provided that the extra member under (b) (4) and the extra member under (c) (4) shall be appointed by the Governor, the Senate Rules Committee and the Speaker of the Assembly respectively.

27203. A member of a regional commission who is also a supervisor from a county or city and county with a population greater than 650,000 may, subject to confirmation by his appointing power, appoint an alternate member to represent him at any regional commission meeting. The alternate member shall serve at the pleasure of the member who appointed him. The alternate member shall have the same qualifications as a public member pursuant to Section 27220. An alternate member shall have all of the powers and duties as a member of the regional commission, except that the alternate member shall only participate and vote in meetings in the absence of the member who appointed him.

An alternate member shall be entitled to a payment and reimbursement for the necessary expenses, pursuant to Section 27223, incurred in participating in regional commission meetings. Either the member of the regional commission or his alternate member shall receive such payment and reimbursement for the necessary expenses pursuant to this division. If both the member of the regional commission and his alternate member attend and participate in any portion of a regional commission meeting, only the alternate member shall be entitled to such a payment and reimbursement for attending that particular meeting.

An alternate member shall not be eligible for

appointment to the commission.

## Article 2. Organization

27220. Each public member of the commission or of a regional commission shall be a person who, as a result of his training, experience, and attainments, is exceptionally well qualified to analyze and interpret environmental trends and information, to appraise resource uses in light of the policies set forth in this division, to be responsive to the scientific, social, aesthetic, recreational, and cultural needs of the state. Expertise in conservation, recreation, ecological and physical sciences, planning, and education shall be represented on the commission and regional commissions.

27221. Each member of the commission and each regional commission shall be appointed or selected not later than December 31, 1972.

Each appointee of the Governor shall be subject to confirmation by the Senate.

27222. In the case of persons qualified for membership because they hold a specified office, such membership ceases when their term of office ceases. Vacancies which occur shall be filled in the same manner in which the original member was selected or appointed.

27223. Except as provided in this section, members shall serve without compensation but shall be reimbursed for the actual and necessary expenses incurred in the performance of their duties to the extent that reimbursement is not otherwise provided by another public agency. All members shall receive fifty dollars (\$50) for each full day of attending meetings of the commission or of any regional commission.

27224. The commission and regional commissions shall meet no less than once a month at a place convenient to the public. Unless otherwise provided in this division, no decision on permit applications or on the adoption of the coastal zone plan or any part thereof shall be made without a prior public hearing. All meetings of the commission and each regional commission shall be open to the public. A majority affirmative vote of the total authorized membership shall be necessary to approve any action required or permitted by this division, unless otherwise provided.

27225. The first meeting of the commission shall be no later than February 15, 1973. The first meeting of the regional commissions shall be no later than February 1, 1973.

27226. The headquarters of the commission shall be in a city, county, or city and county which lies, in whole or in part, within the coastal zone.

### Article 2.5. Conflicts of Interest

27230. Except as hereinafter provided none of the following persons shall appear or act, in any capacity whatsoever except as a representative of the state, or political subdivision thereof, in connection with any proceeding, hearing, application, request for ruling or other official determination, judicial or otherwise, in which the coastal zone plan, or the commission or any regional commission is involved in an official capacity:

(a) Any member or employee of the commission or regional commission;

(b) Any former member or employee of the commission or regional commission during the year following termination of such membership or employment;

(c) Any partner, employer, an employee of a member or employee of the commission or any regional commission, when the matter in issue is one which is under the official responsibility of such member or employee, or in connection with which such member or employee has acted or is scheduled to act, in any official capacity whatsoever.

27231. No member or employee of the commission or any regional commission shall participate, in any official capacity whatsoever, in any proceeding, hearing, application, request for ruling or other official determination, judicial or otherwise, in which any of

the following has a financial interest: the member or employee himself; his spouse; his child; his partner; any organization in which he is then serving or has, within two years prior to his selection or appointment to or employment by such commission or regional commission, served, in the capacity of officer, director, trustee, partner, employer or employee; any organization within which he is negotiating for or has any arrangement or understanding concerning prospective partnership or employment.

27232. In any case within the coverage of Section 27230, or Section 27231 when the commission determines that in any case within the coverage of such section the financial interest involved is not substantial, the prohibitions therein contained shall not apply if the person concerned advises the commission in advance of the nature and circumstances thereof, including full public disclosure of the facts which may potentially give rise to a violation of this article, and obtains from the commission a written determination that the contemplated action will not adversely affect the integrity of the commission or any regional commission. Any determination made pursuant to this section shall require the affirmative vote of two-thirds of the members of the commission.

27233. Nothing in this article shall preclude or prevent any member of the commission or any regional commission, or any employee thereof, who is also an employee of another public agency, a county supervisor, city councilman, member of the Association of Bay Area Governments, member of the Association of Monterey Bay Associated Governments, delegate to the Southern California Association of Governments, or member of the San Diego Comprehensive Planning Organization, and who has in such designated capacity voted or acted upon a particular matter, from voting or otherwise acting upon such matter as a member of the commission or any regional commission, or employee thereof, as the case may be. Nothing in this section shall be construed to exempt any such member of the commission or any regional commission, or any employee thereof, from any other provision of this article.

27234. Any person who violates any provision of this article shall, upon conviction, and for each such offense, be subject to a fine of not more than ten thousand dollars (\$10,000) or imprisonment in the state prison for not more than two years, or both.

## Article 3. Powers and Duties

27240. The commission and each regional commission, may:

(a) Accept grants, contributions, and appropriations;

(b) Contract for any professional services if such work or services cannot satisfactorily be performed by its employees;

(c) Be sued and sue to obtain any remedy to restrain violations of this division. Upon request of the commission or any regional commission, the State Attorney General shall provide necessary legal representation.

(d) Adopt any regulations or take any action it deems reasonable and necessary to carry out the provisions of this division, but no regulations shall be adopted without a prior public hearing.

27241. The commission and regional commissions may request and utilize the advice and services of all federal, state, and local agencies. Upon request of a regional commission any federally recognized regional planning agency within its region shall provide staff assistance insofar as its resources permit.

27242. All elements of the California Comprehensive Ocean Area Plan, together with all staff and funds appropriated or allocated to it, shall be delivered by the Governor and shall be attached and allocated to the commission at its first meeting.

27243. The commission and each regional commission shall each elect a chairman and appoint an executive director, who shall be exempt from civil service.

## CHAPTER 4. CALIFORNIA COASTAL ZONE CONSERVATION PLAN

### Article 1. Generally

27300. The commission shall prepare, adopt, and submit to the Legislature for implementation the California Coastal Zone Conservation Plan.

27301. The coastal zone plan shall be based upon detailed studies of all the factors that significantly affect the coastal zone.

27302. The coastal zone plan shall be consistent with all of the following objectives:

(a) The maintenance, restoration, and enhancement of the overall quality of the coastal zone environment, including, but not limited to, its amenities and aesthetic values.

(b) The continued existence of optimum populations of all species of living organisms.

(c) The orderly, balanced utilization and preservation, consistent with sound conservation principles, of all living and nonliving coastal zone resources.

(d) Avoidance of irreversible and irretrievable commitments of coastal zone resources.

27303. The coastal zone plan shall consist of such maps, text and statements of policies and objectives as the commission determines are necessary.

27304. The plan shall contain at least the following specific components:

(a) A precise, comprehensive definition of the public interest in the coastal zone.

(b) Ecological planning principles and assumptions to be used in determining the suitability and extent of allowable development.

(c) A component which includes the following elements:

- (1) A land-use element.
- (2) A transportation element.
- (3) A conservation element for the preservation and management of the scenic and other natural resources of the coastal zone.
- (4) A public access element for maximum visual and physical use and enjoyment of the coastal zone by the public.
- (5) A recreation element.
- (6) A public services and facilities element for the general location, scale, and provision in the least environmentally destructive manner of public services and facilities in the coastal zone. This element shall include a power plant siting study.
- (7) An ocean mineral and living resources element.
- (8) A population element for the establishment of maximum desirable population densities.
- (9) An educational or scientific use element.

(d) Reservations of land or water in the coastal zone for certain uses, or the prohibition of certain uses in specific areas.

(e) Recommendations for the governmental policies and powers required to implement the coastal zone plan including the organization and authority of the governmental agency or agencies which should assume permanent responsibility for its implementation.

### Article 2. Planning Procedure

27320. (a) The commission shall, within six months after its first meeting, publish objectives, guidelines, and criteria for the collection of data, the conduct of studies, and the preparation of local and regional recommendations for the coastal zone plan.

(b) Each regional commission shall, in cooperation with appropriate local agencies, prepare its definitive conclusions and recommendations, including recommendations for areas that should be reserved for specific uses or within which specific uses should be prohibited, which it shall, after public hearing in each county within its region, adopt and submit to the commission no later than April 1, 1975.

(c) On or before December 1, 1975, the commission shall adopt the coastal zone plan and submit it to the Legislature for its adoption and implementation.

## CHAPTER 5. INTERIM PERMIT CONTROL

### Article 1. General Provisions

27400. On or after February 1, 1973, any person wishing to perform any development within the permit area shall obtain a permit authorizing such development from the regional commission and, if required by law, from any city, county, state, regional or local agency.

Except as provided in Sections 27401 and 27422, no permit shall be issued without the affirmative vote of a majority of the total authorized membership of the regional commission, or of the commission on appeal.

27401. No permit shall be issued for any of the following without the affirmative vote of two-thirds of the total authorized membership of the regional commission, or of the commission on appeal:

(a) Dredging, filling, or otherwise altering any bay, estuary, salt marsh, river mouth, slough, or lagoon.

(b) Any development which would reduce the size of any beach or other area usable for public recreation.

(c) Any development which would reduce or impose restrictions upon public access to tidal and submerged lands, beaches and the mean high tideline where there is no beach.

(d) Any development which would substantially interfere with or detract from the line of sight toward the sea from the state highway nearest the coast.

(e) Any development which would adversely affect water quality, existing areas of open water free of visible structures, existing and potential commercial and sport fisheries, or agricultural uses of land which are existing on the effective date of this division.

27402. No permit shall be issued unless the regional commission has first found, both of the following:

(a) That the development will not have any substantial adverse environmental or ecological effect.

(b) That the development is consistent with, the findings and declarations set forth in Sections 27001 and with the objectives set forth in Section 27302.

The applicant shall have the burden of proof on all issues.

27403. All permits shall be subject to reasonable terms and conditions in order to ensure:

(a) Access to publicly owned or used beaches, recreation areas, and natural reserves is increased to the maximum extent possible by appropriate dedication.

(b) Adequate and properly located public recreation areas and wildlife preserves are reserved.

(c) Provisions are made for solid and liquid waste treatment, disposition, and management which will minimize adverse effects upon coastal zone resources.

(d) Alterations to existing land forms and vegetation, and construction of structures shall cause minimum adverse effect to scenic resources and minimum danger of floods, landslides, erosion, siltation, or failure in the event of earthquake.

27404. If, prior to **November 8, 1972**, any city or county has issued a building permit, no person who has obtained a vested right thereunder shall be required to secure a permit from the regional commission; providing that no substantial changes may be made in any such development, except in accordance with the provisions of this division. Any such person shall be deemed to have such vested rights if, prior to **November 8, 1972**, he has in good faith and in reliance upon the building permit diligently commenced construction and performed substantial work on the development and incurred substantial liabilities for work and materials necessary therefor. Expenses

incurred in obtaining the enactment of an ordinance in relation to the particular development or the issuance of a permit shall not be deemed liabilities for work or material.

27405. Notwithstanding any provision in this chapter to the contrary, no permit shall be required for the following types of development:

(a) Repairs and improvements not in excess of seven thousand five hundred dollars (\$7,500) to existing single-family residences; provided, that the commission shall specify by regulation those classes of development which involve a risk of adverse environmental effect and may require that a permit be obtained.

(b) Maintenance dredging of existing navigation channels or moving dredged material from such channels to a disposal area outside the permit area, pursuant to a permit from the United States Army Corps of Engineers.

(c) **Repair or maintenance activities of any sort; provided, that such activities do not result in an addition to, or enlargement or expansion of, the object of such repair or maintenance activities.**

### Article 2. Permit Procedure

27420. (a) The commission shall prescribe the procedures for permit applications and their appeal and may require a reasonable filing fee and the reimbursement of expenses. **All such fees and reimbursements collected heretofore or hereafter shall be credited to, and shall be in augmentation of, the appropriation made in Section 4 of Proposition 20 as approved by the electorate at the general election on November 7, 1972, and are hereby appropriated to the commission for the same period and for the same purposes as set forth therein.**

(b) The regional commission shall give written public notice of the nature of the proposed development and of the time and place of the public hearing. Such hearing shall be set no less than 21 nor more than 90 days after the date on which the application is filed.

(c) The regional commission shall act upon an application for permit within 60 days after the conclusion of the hearing and such action shall become final after the tenth working day unless an appeal is filed within that time.

27421. Each unit of local government within the permit area shall send a duplicate of each application for a development within the permit area to the regional commission at the time such application for a local permit is filed, and shall advise the regional commission of the granting of any such permit.

27422. The commission shall provide, by regulation, for the issuance of permits by the executive directors without compliance with the procedure specified in this chapter in cases of emergency or for repairs or improvements to existing structures not in excess of twenty-five thousand dollars (\$25,000) and other developments not in excess of ten thousand dollars (\$10,000). Nonemergency permits shall not be effective until after reasonable public notice and adequate time for the review of such issuance has been provided. If any two members of the regional commission so request at the first meeting following the issuance of such permit, such issuance shall not be effective and instead the application shall be set for a public hearing pursuant to the provisions of Section 27420.

27423. (a) An applicant, or any person aggrieved by approval of a permit by the regional commission, may appeal to the commission.

(b) The commission may affirm, reverse, or modify the decision of the regional commission. If the commission fails to act within 60 days after notice of appeal has been filed, the regional commission's decision shall become final.

(c) The commission may decline to hear appeals that it determines raise no substantial issues. Appeals it hears shall be scheduled for a de novo public hearing

and shall be decided in the same manner and by the same vote as provided for decisions by the regional commissions.

27424. Any person, including an applicant for a permit, aggrieved by the decision or action of the commission or regional commission shall have a right to judicial review of such decision or action by filing a petition for a writ of mandate in accordance with the provisions of Chapter 2, (commencing with Section 1084) of Title 1 of Part 3 of the Code of Civil Procedure, within 60 days after such decision or action has become final.

27425. Any person may maintain an action for declaratory and equitable relief to restrain violation of this division. No bond shall be required for an action under this section.

27426. Any person may maintain an action for the recovery of civil penalties provided in Sections 27500 and 27501.

27427. The provisions of this article shall be in addition to any other remedies available at law.

27428. Any person who prevails in a civil action brought to enjoin a violation of this division or to recover civil penalties shall be awarded his costs, including reasonable attorneys fees.

## CHAPTER 6. PENALTIES

27500. Any person who violates any provision of this division shall be subject to a civil fine not to exceed ten thousand dollars (\$10,000).

27501. In addition to any other penalties, any person who performs any development in violation

of this division shall be subject to a civil fine not to exceed five hundred dollars (\$500) per day for each day in which such violation persists.

## CHAPTER 7. REPORTS

27600. (a) The commission shall file annual progress reports with the Governor and the Legislature not later than the fifth calendar day of the 1974 and 1975 Regular Session of the Legislature, and shall file its final report containing the coastal zone plan with the Governor and the Legislature not later than the fifth calendar day of the 1976 Regular Session of the Legislature.

## CHAPTER 8. TERMINATION

27650. This division shall remain in effect until January 1, 1977, and as of that date is repealed.

SECTION 2. Section 11528.2 is added to the Business and Professions Code, to read:

11528.2 The clerk of the governing body or the advisory agency of each city or county or city and county having jurisdiction over any part of the coastal zone as defined in Section 27100 of the Public Resources Code, shall transmit to the office of the California Coastal Zone Conservation Commission within three days after the receipt thereof, one copy of each tentative map of any subdivision located, wholly or partly, within the coastal zone and such Commission may, within 15 days thereafter, make recommendations to the appropriate local agency regarding the effect of the proposed subdivision upon the California Coastal Zone Conservation Plan. This

section does not exempt any such subdivision from the permit requirements of Chapter 5 (commencing with Section 27400) of Division 18 of the Public Resources Code.

This section shall remain in effect only until the 91st day after the final adjournment of the 1976 Regular Session of the Legislature, and as of that day is repealed.

SECTION 3. If any provision of this act or the application thereof to any person or circumstances is held invalid, such invalidity shall not affect other provisions or applications of the act which can be given effect without the invalid provision or application, and to this end the provisions of this act are severable.

SECTION 4. There is hereby appropriated from the Bagley Conservation Fund to the California Coastal Zone Conservation Commission the sum of five million dollars (\$5,000,000) to the extent that any moneys are available in such fund and if all or any portions thereof are not available then from the General Fund for expenditure to support the operations of the commission and regional coastal zone conservation commissions during the fiscal years of 1973 to 1976, inclusive, pursuant to the provisions of Division 18 (commencing with Section 27000) of the Public Resources Code.

SECTION 5. The Legislature may, by two-thirds of the membership concurring, amend this act in order to better achieve the objectives set forth in Sections 27001 and 27302 of the Public Resources Code.

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













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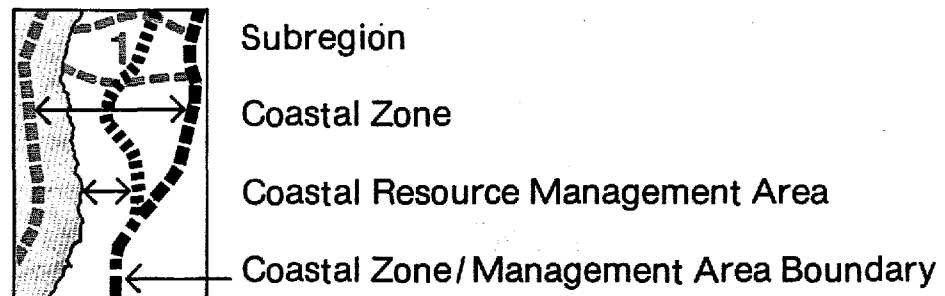


**NOTES**

# Plan Maps

## LEGEND

-  Special Marine Environment
-  Wetland or Estuary
-  Special Land Habitat
-  Other Land Habitat or Open Space Area
-  Grazing
-  Cultivated Agricultural Lands and Class I and II Soils
-  Forestry Resource Area
-  Mineral Extraction Area
-  Developed Area
-  Existing Recreation Area
-  Existing Boating Facility
-  Existing Public Ownership<sup>1</sup>
-  Proposed Immediate Acquisition Area\*
-  Special Study Area



<sup>1</sup> Under the provisions of the Federal Coastal Zone Management Act of 1972, "Excluded from the coastal zone are lands the use of which is by law subject solely to the discretion of or which is held in trust by the Federal Government, its officers or agents."

\*Acquisition proposals are tentative, pending further review and final recommendation by the State Coastal Commission.

# **PLAN MAPS LEGEND**

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