

Testimony

By

Andrew A. Rosenberg, Ph.D.
Member, U.S. Commission on Ocean Policy
and the Joint Oceans Commission Initiative

Professor, University of New Hampshire

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Madam Chair and members of the Committee: Thank you for the opportunity to testify before you today concerning the future of NOAA and U.S. ocean policy. I am Andrew Rosenberg, Professor of Natural Resources in the Institute for the Study of Earth, Oceans and Space at the University of New Hampshire and a member of the U.S. Commission on Ocean Policy. I was formerly the Deputy Assistant Administrator for Fisheries at NOAA, a Regional Administrator for NOAA Fisheries, and a scientist working at NOAA's Northeast Fisheries Science Center.

The Ocean's Act of 2000 formed the U.S. Commission on Ocean Policy and directed us to "make recommendations for coordinated and comprehensive national ocean policy..." The Act set out eight specific objectives for this policy paraphrased here:

1. protection of life and property;
2. responsible stewardship of ocean and coastal resources;
3. protection of the marine environment;
4. enhancement of marine-related commerce, resolution of conflicts among diverse users of the marine environment and engagement of the private sector in developing approaches to the responsible use of marine resources;
5. expansion of knowledge of the marine environment and the advancement of education in fields related to the ocean and coasts;
6. development and improvement in technological capability for ocean related activities;
7. cooperation among all government agencies to ensure coherent regulations, appropriate use of funding, efficient operation of federal agencies, and enhancement of partnerships with state and local governments; and

8. leadership by the United States in ocean and coastal activities.

I believe the Commission's recommendations truly meet the spirit and intent of the Oceans Act. Further, I believe that we must immediately begin to make changes in U.S. ocean policy to reverse an alarming, widespread degradation in the health of the oceans and coasts, vital living marine resources, and coastal communities. I believe that our ocean environment is at risk and a change of course is needed to reduce that risk. We must reinvigorate and fully fund our leadership in ocean science and our understanding of the life-support system of the earth.

I would like to compliment the Committee and sponsoring members of H.R. 21. The bill acknowledges the problems facing our oceans, coasts, and Great Lakes, and sets strong new direction for the Nation's ocean policy by incorporating many of the governance recommendations made by the Commission and the Joint Ocean Commission Initiative. As this Committee and Congress continues its consideration of this legislation, I would like to address five major areas in my testimony today that are relevant to these deliberations:

- ecosystem-based management as a guiding principle for ocean policy in the context of H.R. 21,
- the creation of a strong and consistent policy for addressing new, emerging activities on the ocean, particularly those that need an exclusive use of ocean space,
- strengthening the Coastal Zone Management Act during reauthorization,
- the importance of an integrated ocean observing system that can truly impact ocean policy, and
- setting an ocean policy framework that can address the ocean effects of climate change.

Ecosystem-based Management: H.R. 21 will put in place an organic act for NOAA, establish it as the lead ocean agency and enable the restructuring of NOAA to better accomplish its mission. Part of that mission, and the Nation's ocean policy, should be the ecosystem-based management of marine resources. The Nation must have a lead ocean agency, as well as the White House level advisor and council included in the bill. NOAA is clearly the most appropriate lead agency. But to accomplish the mission of ecosystem-based management, the agency needs to be restructured. I had the privilege of working for NOAA for ten years. The NOAA personnel are talented and dedicated but they don't have all the tools they need to do the job. Nor do they have an overarching framework to effectively implement the conflicting mandates that the various statutes and demands of the day bring. Fisheries, protected species, habitat, coastal zones, sanctuaries, estuarine research reserves, restoration programs and so on are all addressing parts of an interconnected ecosystem, but are based in separate programs in two different line offices. There needs to be true program connectivity with shared planning, a sense of shared mandates, and a coordinated strategy for funding high-priority science, management, and education activities.

Ecosystem-based management is not just the latest buzzword or a small change in direction for policy-making, it is a fundamental shift in how we view and manage our interactions with natural resources. Ecosystem-based management sets a different process for policy-making, starting from a different perspective on goal-setting through to the basis for resolving conflicts. NOAA will best take on this challenge with a new structure that integrates across the currently fragmented functions of the agency. In my view, NOAA has remained a collection of agencies rather than a lead ocean agency. In some ways, within NOAA there is a mirror of the problem that the Commission found across the federal “ocean” agencies, that is, program fragmentation and conflicting authorities. A NOAA organic act should begin the work of reducing program fragmentation by focusing NOAA on its core competencies and mandates; assessment, prediction and operations, ecosystem-based management of ocean and coastal areas and resources, and science, research and education.

The essence of an ecosystem-based approach to management rests on five basic principles:

- 1) Focus on the ability of the ecosystem to continuously provide the services that support human well-being including recognition that humans are inherently part of the ecosystem. Ecosystem services go beyond simple extractive uses such as fisheries harvest and mining to services that play major roles in supporting life, regulating change and providing a vital cultural resources for society;
- 2) Recognize that natural boundaries are more relevant to the conservation of ecosystem services than artificial boundaries between legal jurisdictions;
- 3) Various sectors of human activity with a particular marine ecosystem can affect one another and require some level of management integration;
- 4) Impacts of human activities on an ecosystem are often cumulative across time and space resulting in ecosystem change that must be addressed by policy action;
- 5) Policy decisions will not have the same effect on all services and tradeoffs in services among sectors must be made. If management is not integrated across the sectors of human activities, these tradeoffs are often implicit or completely ignored with potentially problematic results.

The Nation’s ocean policy should recognize these principles and seek to integrate management within regional ecosystems. The results, if we are successful, should be healthier ecosystems and healthier coastal communities and businesses. If management and science can be integrated, it can also become more coherent and more understandable. We can no longer afford to create complex rules for each sector of human activity as if it operates in isolation.

Coordinated Ocean Management: The need to change to an ecosystem-based focus is a very high priority in my view. But this doesn’t just apply to the existing sectors of activities on the ocean. A whole new set of challenges are rapidly emerging for the coastal ocean of the U.S., because of the development of offshore energy facilities, aquaculture, and water desalination plants, among others. Notably, many of these new

uses require the allocation of dedicated ocean space and conflicts are emerging rapidly. A consistent management structure is urgently needed for these new uses of the ocean that considers ecosystem impacts, interactions with other activities, and appropriate siting for such facilities. Take two recent examples near my home, the siting of offshore LNG ports off of Gloucester, Massachusetts and the proposal to build an offshore wind farm in Nantucket Sound. Of course there are NEPA requirements for such activities, but what are the standards for deciding where a wind farm should be located to the benefit of the Nation? Or an LNG port? How should conflicts with fishermen, recreational users, coastal landowners and residents, and the public be resolved? What are policy elements that businesses should be mindful of as they plan investments in the coastal ocean? We are behind the curve as these new uses of the ocean emerge, and more coherent and coordinated policy priorities and implementation strategies must be instituted if ocean ecosystems are to be maintained and protected.

Coastal Zone Management: The Coastal Zone Management Act was groundbreaking when it was enacted in 1972, but it is in need of revision to meet the challenges of ecosystem-based management. It can serve as an important part of the effort to integrate management across sectors of human activity and as a primary vehicle for managing land-sea interactions. State coastal management plans are the appropriate means to improve land-use planning in the coastal zone, but a consistent set of strong guidelines are needed. Planning must be integrated with management of the wide array of other activities in coastal and ocean areas including fisheries, energy infrastructure, telecommunications, recreation, transportation and others. Coastal management doesn't need uniformity, but it does need coherence around the country and it needs to adapt to changing conditions. Coastal zone management should be a critical part of an ecosystem-based approach to policy. This means stronger criteria as a basis for the plans, and it means significant increases in resources to make coastal zone management what it needs to be, a major component of the Nation's environmental policy structure. An essential component should be periodic assessments of the state's natural, cultural, and economic resources. Based on these assessments, management plans should then set specific, measurable goals that reflect the growing understanding of ocean and coastal environments and the need to manage growth in regions under pressure from coastal development. It is also essential to redefine the landward reach of state coastal zones to include coastal watersheds, thus better enabling coastal programs to look across political boundaries and incorporate a coastal watershed focus and the basic tenets of ecosystem-based management.

Integrated Ocean Observing System: Make no mistake, we currently have sufficient scientific information to move forward with an ecosystem-based approach to management. Of course, we need more and better coastal and ocean science and I strongly believe this is a critically underfunded area of the Nation's scientific enterprise. But, that doesn't mean we can't do a better job of management with what we have, nor that an ecosystem-based approach is too complex. An urgent need, however, is to bring disparate and fragmented datasets together in a comprehensive system. This system must incorporate real-time ocean observations of the environment including the biology of the oceans. It must also include real-time observations of ocean-based activities. An ocean

observing system is critically needed, but it can't just be observing the physics and chemistry. To be a tool for policy it must relate observations to living resources and to human activity. We have the tools for monitoring fishing, shipping and other activities, but the data collection system must be modernized. To me it seems absurd to create a high-technology system for ocean observations including satellites, radar, buoys with sophisticated instruments, and ship borne observations, and still collect information on fisheries on little slips of paper under confidentiality rules that make little sense.

The ocean and coastal community has rallied behind the implementation of an Integrated Ocean Observing System (IOOS) and Ocean Observatories Initiative (OOI). Together, this combination of research and monitoring systems offer scientists and managers a more complete view of atmospheric, terrestrial, and oceanic interactions occurring at the global, national, and regional scales. IOOS supports the hardware, software, data management, synthesis, and modeling activities that integrate the data and information generated by the research community. It should have the capacity to integrate a broader range of data than just from the monitoring systems themselves. Technologically it is possible to integrate comprehensive ocean data. I often think of this as a dynamic version of Google Earth for the oceans. One should be able to focus on any location in the U.S. coastal and ocean regions and find out all we know about that location: the environment, habitat, recent changes, and the human activities that occur within that area. Congress should authorize and fund such a comprehensive and sustained national system that will support and enhance our ability to understand and manage ocean and coastal resources in a number of ways, including: protecting lives and livelihoods from natural hazards; supporting national defense and homeland security efforts; safeguarding public health; developing new energy resources; adapting to climate change; and conserving biodiversity.

Oceans and Climate Change: Finally, anthropogenic climate change is occurring and it is affecting the oceans. The ocean effects are more than sea level rise, and some are here now, not fifty years in the future. More severe storms, changing regional climate and rainfall patterns, temperature changes, shifting species distribution patterns, and ocean acidification are all happening right now. The Nation must make efforts to understand the impacts, mitigate the increase in greenhouse gases, adapt to changing conditions, as well as research and monitor the changes. I understand Congress is considering climate change related legislation. The relationship between oceans and climate is direct and significant, and I strongly urge the Committee to take a leadership role developing language to incorporate into the legislation that significantly enhances support for ocean and coastal programs throughout the federal government. I believe this relates directly to H.R. 21. The new policy direction for the oceans, new agency mandates, coordination and structure, and new tools for ocean research, management, and education must be implemented quickly to ensure that Congress and other policy makers are provided with the information necessary to make informed and balanced decision to deal with the formidable challenges of the ocean effects of climate change.

Madame Chair and members of the Subcommittee, thank you for the opportunity to testify today. I would be pleased to respond to questions and am also available to discuss these and other matters with Members at their discretion.