



# 1999 Highlights



## Message from the Science Director



Northwest Fisheries  
Science Center

National Marine Fisheries Service

National Oceanic and  
Atmospheric Administration

U.S. Department of Commerce

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*As we enter the year 2000, we can reflect on our past accomplishments and look forward to future ones.*

*Despite the hurdles posed by the budget shortfall, the Northwest Fisheries Science Center will maintain its focus on NOAA Fisheries' mission to conserve our nation's living marine resources and associated habitats. Our scientific expertise remains vital to agency and department managers who must make difficult and often unprecedented decisions.*

*Through this short summary document I would like to share some of the highlights of our accomplishments in 1999. As we develop the "State of the*

*Science Center" report and the series of annual reports, each component of our science and support programs will have an opportunity to report their progress to a wide audience.*

*My heartfelt thanks for your ongoing efforts on behalf of the Northwest Fisheries Science Center, NOAA Fisheries, and the living marine resources of the Pacific Northwest. I look forward to working with you as we face the challenges and successes that lie ahead.*

Usha Varanasi

Dr. Usha Varanasi  
Science and Research Director  
Northwest Fisheries Science Center

## About the Center

The Northwest Fisheries Science Center is indeed a premier science organization. Our widely renowned scientists and specialized facilities keep the Center in the forefront of West Coast fisheries research. In 1999 visitors came from around the globe to meet with our scientists and view our state-of-the-art aquaculture facilities, research stations, and laboratories.

## Honor awards

In 1999 Center personnel received the greatest number of Department and NOAA awards in recent memory. One gold and one silver medal were awarded by the Department of Commerce. Four bronze medals and an administrator's award were issued by NOAA, as was a NOAA Technology Transfer award. The American Fisheries Society deemed one of our science papers "Best of 1998."

## New science progress reports

Getting the good news of our science progress to a wide audience is a major challenge. Toward this end, we are launching a new series of annual reports that will provide yearly science updates in a concise, readable manner. The first report will serve as a "State of the Northwest Fisheries Science Center" report, and will summarize our Center's most recent activities in the context of the past decade. Beginning with the year 2000, we plan to refine this prototype report into a streamlined and timely annual series.

## Research plans

Research planning was a key feature of 1999. Our scientists joined their West Coast NOAA Fisheries colleagues to formulate a coordinated coastwide research plan regarding the impact of ocean conditions on Pacific salmon survival. We completed a draft groundfish research plan to help guide NMFS efforts to conserve valuable west coast groundfish fisheries. Center scientists met with their NMFS colleagues to determine whether research on toxic algae should be expanded.

## Expanding collaborations

In 1999 we increased our efforts to foster and maintain research collaborations with tribes and tribal organizations of the Pacific Northwest. We also expanded our partnerships with universities. January 2000 will welcome the new director of the Cooperative Institute for Marine Resource Studies (a joint project with Oregon State University). Moreover, we have increased our involvement with several federal agencies who engage in closely related activities under federal environmental statutes and through interdisciplinary, international

programs such as Global Ocean Ecosystem Dynamics (GLOBEC).

## Cumulative risk initiative

To help organize the Center's scientific and fiscal resources regarding salmon recovery, research, and monitoring, we launched the Cumulative Risk Initiative (CRI) to work in tandem with the Center's existing Salmon Science Programs and Salmon Recovery Planning Team. The CRI is an interdisciplinary Center-wide program that brings the best science to bear in an integrated analytical context. Our website for CRI is receiving many compliments and is a key tool in our leadership effort to do things in a new way: namely, to conduct rigorous scientific analyses in an open, transparent, and accessible manner. A series of four workshops held in 1999 further exemplified our commitment to open information exchange.

## Salmon recovery planning

In 1999 the Center completed the last in a 5-year series of coastwide status reviews for the seven species of anadromous Pacific salmonids. New listings in March added nine new "evolutionarily significant units" (ESUs), bringing the total number since 1990 to 26 listed ESUs. We established a new Salmon Recovery Planning Team composed of Center personnel who will coordinate our efforts with the external NMFS Recovery Science Review Panel and the geographically-based NMFS Technical Recovery Teams.

## Federal salmon science coordination

In 1999 we began to co-chair a comprehensive federal effort to coordinate salmon science under the guidance of the President's Council on Environmental Quality and the Committee on Environment and Natural Resources (CENR). The goal is to develop an integrated scientific assessment of salmon life-cycle risks, measures for mitigation and restoration, and a comprehensive strategy for information sharing. The CENR's starting point for this activity is the Center's CRI risk assessment and risk management framework.

## Salmon science documents

The Center's written products are integral parts of critical decisionmaking processes in the government and nongovernment sectors. In 1999 the Center completed a draft document describing biological criteria for defining viable salmonid populations. This document will play a major role in salmon recovery efforts by serving as the scientific framework for developing biologically based recovery goals.

In another major project, the Center completed the Anadromous Fish Appendix, a component of the U.S. Army Corps of Engineers' environmental impact statement regarding the operation of four lower Snake River hydroelectric dams. We also synthesized a large database and subsequently produced four "white papers" that summarize NOAA Fisheries' scientific positions on various aspects of hydrosystem passage. These papers were prepared for use by the U.S. Army Corps of Engineers and Bonneville Power Administration in their development of a Biological Assessment under ESA for the continued operation of the federal hydro-power system.

### **Salmon hatchery technology**

The first-ever return of adult Redfish Lake sockeye salmon began in 1999, largely as a result of the Center's pioneering of captive broodstock technology and a decade of conservation efforts in the Snake River Basin. The Center proved its leadership in the development of conservation hatchery principles and protocols, and produced scientific documents that are serving as intergovernmental models for assessing risks and benefits of hatchery supplementation.

### **Salmon ecosystem studies**

In 1999 we made notable progress in expanding the Center's PIT-tag program and completing key elements of fish passage research. The Center increased its emphasis on estuarine-ocean studies to better understand this portion of salmon life history in the context of oceanic conditions and climatic variability. Cooperative studies focused on the effects of climate change on marine life in the eastern North Pacific.

### **Habitats & watershed processes**

The importance of fish habitats to natural production remained a key focus in 1999. New and ongoing studies evaluated relationships among salmon productivity, watershed features, and land use. Center scientists continued projects that support the identification, designation, and conservation of essential fish habitats, including habitats critical to listed species. Seafloor mapping projects and gear impact studies will supplement our understanding of marine fishery production in the context of regional ecology.

### **Marine fish research**

For the first time, the Center is conducting status reviews of West Coast fish species other than salmonids: namely, seven Puget Sound species of marine fish. The Endangered Species Act petition in

1999 underscored the importance of the Center's expanding marine fish culture program, which conducts key research on marine (finfish) fisheries enhancement and aquaculture. Last year, Center researchers were the first in the United States to raise lingcod in captivity from the embryonic stage to a size suitable for stocking, using methods that can be adapted to large-scale production.

### **Fishing industry partnerships**

Emerging partnerships with the fishing industry enhanced the Center's data collection and analysis capabilities for West Coast groundfish. The 1999 coastwide slope trawl survey was a prime example of our successful uses of chartered commercial fishing vessels. This second-year survey, like the initial survey in 1998, used "fish for research" funds to partially compensate vessel owners. Chartered vessels also were used in Center studies to collect depth-specific biological data on selected groundfish species, and in projects that assess sablefish growth, recruitment, and bycatch survival.

### **Electronic fish catch logbook**

An agreement was signed in 1999 with a private partner on an innovative technology project that has drawn the interest of Secretary Daley and Congress, as well as the international fisheries community. Initiated at the request of the West Coast trawl fishery, this project is an example of the Center's commitment to cross-sector partnerships. The computerized logbook system will integrate fish catch information with locational data from satellite transmissions, and can incorporate data from port biologists and fish processors. The onboard PC-based application will be prototyped in early 2000 for the groundfish trawl fishery, but the system design lends itself to application in other fisheries and regions.

### **Sustainable fisheries**

The Center's advancements in fishery analysis continued to improve groundfish stock assessments during 1999. New studies were launched to gather and analyze data on the socioeconomic impacts of fishery management. We coordinated development of a new ocean salmon harvest model to enable selective ocean harvests that will reduce impacts on depleted salmon stocks. Results of the Center's full utilization research helped increase product yield from both targeted and nontargeted fish species and reduced the discharge of fish processing wastes. The Center's innovative research on surimi processing yielded a 1999 NOAA Technology Award—only one of which is awarded in any given year.

## Microbial pathogens

In 1999 we continued our progress in characterizing virulence factors of pathogenic bacteria that cause disease in important fishery resources, including endangered salmon stocks. Our scientists built on their acclaimed seafood safety research by expanding studies of seafood-borne contaminants and microbial pathogens that can threaten human health.

## Toxic contaminants

Studies of relationships among fish health, pathogens, contaminants, and environmental conditions yielded an award-winning scientific paper ranked in 1999 by the American Fisheries Society as the best of all papers published in their *Transactions* during the previous year. Our expertise in contaminant detection and analysis served us well as our scientists collected environmental samples following the grounding of the oil freighter *New Carissa* off the Oregon coast. Our scientists continued their national and international leadership in contaminant monitoring and assessment projects.

## Marine biotoxins & marine mammals

In 1999 the marine biotoxin program enhanced its sampling and analytical capabilities and developed new information resources, including a website and printed documents. Center scientists with the marine mammal biomonitoring group completed a reconnaissance study of chemical accumulation in Hawaiian monk seals, and created a database to enable a subset of contaminant data to be made available over the internet.

## Employee involvement

The Center has strived to include employees when making recommendations that impact productivity, morale, and well-being. Survey-feedback-action groups met throughout 1999 to discuss responses to the employee survey. Division programs conducted retreats and planning meetings, gleaning information that will help sharpen their research focus and identify logistical, administrative, communication, and financial hurdles.

## Team processes

In 1999 the Center continued its commitment to team processes. A Human Resources Management Team was launched, largely in response to staff requests, to better address HR concerns at the Center. An Information Technology Team was created to improve our communication and information resources. The Safety Team continued to examine health, safety, and environmental quality issues, and demonstrated their dedication regarding the storage and handling of hazardous wastes. The Facilities

Team continued its focus on buildings and grounds, and has recommended improvements for all facilities.

## Office space

Elements of the Center reorganization continued in 1999. Office relocations and laboratory remodeling were conducted as part of the space allocation plan to place labs closer to the program units within which they operate. Although such moves cause disruptions in the short-term, we are getting feedback from scientists who are pleased about their improved laboratory environs.

## Employee development

We completed standardized promotion guidelines for all job grades, and made the information accessible to staff through our intranet. We are implementing a career development program that encompasses individual development plans. To ensure we are adhering to EEO requirements, the Center appointed members to a new regional EEO advisory committee.

## Planning & fiscal management

A new Current Year Operating Plan database was created to support program planning. We have developed standard procedures and are developing internal controls to ensure compliance with federal regulations and effective use of funds. In 1999 we fully supported the use of FRS as the financial accounting system within NMFS.

## Information resources

In 1999 we continued to improve our Center's website, and added new features to keep users informed of recent project developments. The Center recently joined the NMFS-wide effort to provide internet access to all *NOAA Technical Memoranda NMFS* series. These technological improvements will allow us to better communicate our science to NOAA colleagues as well as other government and non-government customers.

## Education & outreach

We rededicated ourselves to promoting scientific education programs for career development, particularly for minority students. The Center continued its undergraduate and graduate internship programs that attract students of diverse backgrounds. In addition to scientific lectures and presentations, Center personnel conducted a varied array of university, school, and community outreach activities.