2008
Business Report

NOAA FISHERIES SERVICE

Science, Service, Stewardship

U.S. Department of Commerce | National Oceanic and Atmospheric Administration | National Marine Fisheries Service

Table of Contents

Photo credit, cover: K.Lind/NOAA

James W. Balsiger, Ph.D.
Acting Assistant Administrator
for NOAA Fisheries Service

NOAA Fisheries Service Vision:

The American people enjoy the riches and benefits of healthy and diverse marine ecosystems.

NOAA Fisheries Service has had a very good year. In 2008, we worked to ensure a sustainable future for marine ecosystems by focusing on our top agency priorities: ending overfishing by 2010; modernizing our data collection program by establishing a national registry of saltwater anglers; regulating activities that could harm endangered species and marine mammals; and working to enforce international agreements and address unsustainable fishing practices worldwide.

This report highlights our many successes associated with that work. A total of 117 fisheries stock assessments were conducted in FY 08, and we continue efforts to rebuild depleted stocks. In fact, 84 percent of U.S. stocks were not subject to overfishing and 77 percent were not overfished in 2008. Many innovative programs—recovery plans, a ship strike strategy to protect large whales, stranding networks and rehabilitation efforts—are making fishing operations and other activities safer for threatened and endangered species. More than 11,000 acres of coastal habitat were restored and more than 623 stream miles were opened during FY 08 to improve the health of marine ecosystems.

In 2008, we were also involved in a number of other important activities, such as law enforcement to ensure seafood safety, providing accurate information to seafood consumers on our FishWatch website, and studying the potential for a well-regulated and environmentally sustainable offshore marine aquaculture program. Specific information on these can be found in this report.

I would like to thank all NOAA Fisheries Service employees—the achievements detailed in this report are the direct result of your hard work and dedication. Finally, I'd also like to thank each of our many partners, as our accomplishments are due in large measure to ongoing collaboration with you—the regional fishery management councils, tribes, states, regional commissions, recreational and commercial fishing industries, conservation organizations, and universities.

James W. Balsiger, Ph.D.
Acting Assistant Administrator for NOAA Fisheries Service

NOAA Fisheries Service

Is part of the National Oceanic and Atmospheric Administration (NOAA), a Department of Commerce agency.

NOAA Fisheries Service Mission:

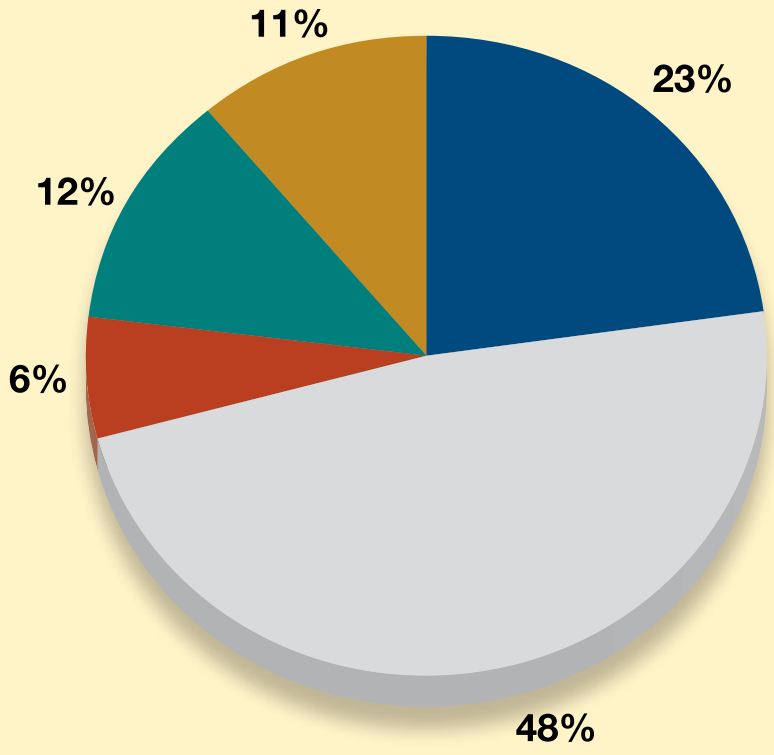
Stewardship of living marine resources through science-based conservation and management and the promotion of healthy ecosystems for the benefit of all Americans.

NOAA Fisheries Service Operating Budget by Major Program

FY 2008 Enacted

- **Marine Mammals and Endangered Species Research and Management**
  $163,827,000
- **Fisheries Research and Management**
  $327,008,000
- **Habitat Conservation**
  $50,195,000
- **Law Enforcement and Observers**
  $84,809,000
- **Other (Aquaculture, Cooperative Research, Antarctic Research, etc.)**
  $81,869,000

Does not include $66.9 million in Pacific Coastal Salmon Recovery Funds, or $118.7 million in other accounts.



Performance Measures

Performance measures under the Government Performance Results Act (GPRA) indicate that NOAA is effectively managing its budget and programs to achieve agency goals. NOAA Fisheries Service has four GPRA performance measures:

- The Fish Stock Sustainability Index captures information on most significant managed species. At the end of 2008, NOAA's score was 535, up from 524 in 2007.
- At the end of 2008, there were 24 threatened, endangered or depleted protected species with stable or increasing population levels, up from 22 species in 2007.
- The performance measure, "percentage of living marine resources with adequate population assesments and forecasts," covers 230 fish stocks and 242 stocks of threatened, endangered or depleted protected resources.
- An additional 11,254 acres of habitat were restored and protected in 2008 to improve ecosystem function, a significant increase from the 5,794 acres restored in 2007. Also in 2008, 623 stream miles were made accessible for ocean, coastal, and Great Lakes resources.

All performance measures are evaluated on a fiscal year basis.

Photo credit, bottom right: David Pitkin

Climate Change

Climate change upsets the balance of our oceans through increasing water temperatures, melting sea ice, and ocean acidification. Warmer waters are causing coral bleaching in the Caribbean, leaving species more vulnerable to disease. Summer sea ice in the North Pacific is declining faster than predicted, affecting commercially-important fish, invertebrates, and marine mammals. Absorption of large amounts of CO_2 increases the acidity of seawater, causing mollusk shells to disintegrate and creating a ripple effect within the ecosystem.

In response to this global threat, NOAA Fisheries Service and the National Science Foundation have commissioned the first comprehensive national study of how CO_2 emissions may be altering the biology and chemistry of the marine environment. From coast to coast, NOAA is working to understand species-specific physiological responses to climate change, respond to population and ecosystem impacts, and forecast the potential economic consequences.

NOAA Fisheries Service scientists are studying the effects of climate change on the feeding habits of grey whales, which migrate from the Arctic Circle to Baja.

The Ecology of Coastal Ocean Seascapes Project (ECOS) uses the latest research technology aboard the *Nauvoo* to collect three-dimensional data off the mid-Atlantic coast. This information will help NOAA determine how climate change is affecting juvenile fish.

"Ocean Deserts" Expanding as Temperatures Increase

Researchers from NOAA Fisheries Service and the University of Hawaii found that from 1998 to 2007, areas of low-productivity in the Pacific and Atlantic Oceans grew by 15 percent. "Ocean deserts" now cover over 19 million square miles in the Pacific and Atlantic Oceans. This change in ocean biology, linked to the warming of sea surface waters, may negatively affect many fish populations.

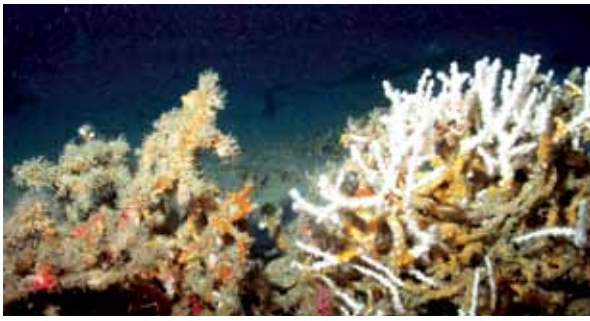


Photo credit, top right: W. Perryman/NOAA

Scientific Research

NOAA Fisheries Service provides world-class science that continues to improve with robust scientific peer reviews and the development of an ecosystem approach to managing marine resources. The agency also conducts cooperative research with federal and state agencies, universities, fishermen, and other partners.

NOAA has a plan to modernize its marine operations by replacing nine research ships and refurbishing a tenth over the next 15 years. The modern fleet will provide observational data that support fisheries and coastal research, stock assessments, and long-range ocean and climate studies.

Cutting Edge Survey Technology Supports Ecosystem-Based Research

NOAA Fisheries Service has acquired an autonomous underwater vehicle (AUV) that can be deployed from fisheries survey vessels, small craft, or shore to support marine ecosystem investigations. The AUV collects valuable data from habitats that are difficult for researchers to access.

Scientists Discover Evidence of Chemical Contamination in the Deep Ocean

Researchers have detected a variety of persistent chemical pollutants in species collected at depths of 3,000-6,600 feet. The study, conducted by NOAA Fisheries Service and the Virginia Institute of Marine Science, provides evidence that human-produced chemicals are reaching remote areas of the open ocean, accumulating in prey species and predators.

NOAA's *Voices from the Fisheries database* contains oral history interviews collected from fishermen, their spouses, processing workers, shoreside business workers and operators, recreational and subsistence fishermen, scientists, marine resources managers, and others. Together, these stories have the power to illuminate common issues and concerns across diverse fishing communities over time.

Photo credit, bottom center: M. Vecchione/NOAA

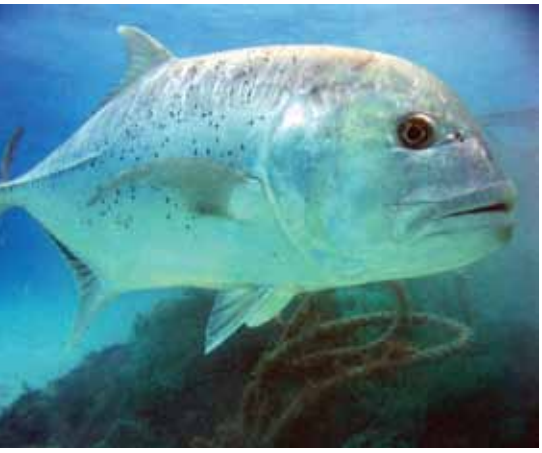
Sustainable Fisheries

Ending Overfishing and Managing Sustainable Fisheries

NOAA Fisheries Service tracks population levels and harvest rates for fish species caught in federal waters. The agency's review of stock status for the 2008 calendar year found that:

- 251 stocks and stock complexes had a known status as to whether overfishing is occuring;
- 84 percent of stocks were not subject to overfishing;
- 199 stocks and stock complexes had a known status as to whether they are overfished;
- 77 percent of stocks were not overfished.
- Four stocks were fully rebuilt to target levels in 2008: Gulf of Mexico king mackerel, Atlantic bluefish, Atlantic monkfish (northern and southern stocks)

Researchers from NOAA Fisheries Service, Oregon Department of FIsheries and Wildlife, and the Pacific States Marine Fisheries Commission study fishing techniques that improve selectivity and reduce bycatch on a commercial flatfish trawler.



During 2008, NOAA Fisheries Service removed several stocks from the overfishing list: red drum, summer flounder, Atlantic finetooth shark, and the Hawaiian Archipelago bottomfish multi-species complex.

The Magnuson-Stevens Act requires an end to overfishing by 2010. NOAA proposed guidelines to establish annual catch limits for each stock, and accountability measures to ensure these science-based limits are followed.

Fishing quotas for Atlantic porbeagle and sandbar sharks were lowered significantly in 2008 to slow the rate of fishing and rebuild these depleted stocks.

Photo credit, top right: Oregon Department of Fisheries and Wildlife/NOAA
Photo credit, middle bottom: J. Peacock/NOAA

Seafood and the Consumer

FishWatch

NOAA's online seafood guide continues to bring consumers the most timely and accurate information about fisheries science, management, trade, health, and safety.

With 80 species profiles, FishWatch grew from 8,400 web hits per day at the beginning of 2008, to 20,000 web hits per day in late 2008. To learn more, visit www.nmfs.noaa.gov/fishwatch.

NOAA Protects Consumers from Seafood Fraud

NOAA is making significant progress in combating the fraudulent mislabeling of seafood products. Through cooperation with the FBI, Customs, and FDA, NOAA Fisheries Service seized thousands of pounds of falsely labeled seafood and successfully indicted or convicted many individuals involved in these illegal activities.

Aquaculture

Policy development, research, and outreach are all key components of NOAA's *10-Year Plan for Marine Aquaculture*. NOAA is working to ensure that aquaculture operations are environmentally sound, sustainable, and provide maximum benefits to the nation.

In 2008, the agency co-hosted aquaculture workshops as part of the ongoing NOAA-USDA Alternative Feeds Initiative, and sought constituent involvement through participation in over 40 outreach events.

NOAA's 2008 Symposium on Shellfish and the Environment attracted the nation's top shellfish researchers, ecologists, growers, and other experts.

NOAA released a major study in 2008: *Offshore Aquaculture in the United States: Economic Considerations, Implications & Opportunities.*

Economics of U.S. Fisheries

U.S. commercial and recreational fishing generated more than $185 billion in sales and supported more than two million jobs in 2006, the most recent year for which statistics are available.

The U.S. commercial fishing industry—harvesters, seafood processors and dealers, seafood wholesalers and seafood retailers—generated $103 billion in sales, $44 billion in income and supported 1.5 million jobs.

Recreational fishing generated $82 billion in sales, $24 billion in income, and supported 534,000 jobs in the United States.

Source: Fisheries Economics of the United States, 2006

Economic Value Increases as Stocks Rebuild

As rebuilding plans increase the abundance of fish stocks, their economic value also increases. For example, between 1990 and 2007, the value of Atlantic cod nearly doubled as the stock has begun rebuilding. The value of Atlantic swordfish increased by 179 percent each year over the same time period, as NOAA Fisheries Service adopted a stock rebuilding program with its international partners, and assisted the U.S. swordfish industry with the development of a marketing program.

Simply stated, NOAA Fisheries Service's stock conservation practices are increasing the value of fish stocks that are the basis of commercial fishery profitability and recreational angler satisfaction.

Recreational Fisheries

NOAA Fisheries Service, the regional fishery management councils, interstate fisheries commissions, state agencies, and other partners are working together to revamp saltwater angler surveys and create a national angler registry. The new Marine Recreational Information Program will improve the collection, analysis, and application of fishing data. All of this information will provide a sound basis for sustainable fishery management, while giving anglers better representation in the decision-making process.

During 2007, an estimated 12 million recreational anglers in the United States made approximately 87 million marine fishing trips, harvesting 255 million pounds of different fish species, and contributing significant benefits to the U.S. economy on a national and local scale.

Saltwater recreational fishing has long been a traditional American pastime and major economic driver, and a conservation ethic among participants continues to grow. While saltwater anglers have caught more fish in recent years, they have also released their catch more often. Of the 468 million fish caught by marine anglers in 2007, 58 percent were released alive.

Photo credit, middle right: N. Bartlett/NOAA

Habitat Conservation

NOAA and the U.S. Fish and Wildlife Service released a report, *Status and Trends of Wetlands in the Coastal Watersheds of the Eastern United States,* which documents the importance of coastal wetlands as valuable habitat for commercial and recreational fish. On average, 59,000 acres are lost each year in the coastal watersheds of the Atlantic Ocean, Great Lakes, and Gulf of Mexico. The report notes the importance of coastal wetlands protection and restoration to address this significant loss.

Overharvesting, habitat destruction, and disease have reduced Chesapeake Bay oyster populations to roughly 1 percent of historic levels. NOAA is supporting oyster restoration practices on 2,466 acres of oyster bar and reef habitat from 2007–2010, in partnerships with neighboring states, universities, local organizations, and industry.

NOAA, in partnership with Conservation Law Foundation and Gomez & Sullivan, launched its first ever "dam cam," a wireless stream of photos and time-lapse video that documented removal of the 260 year-old Merrimack Village dam and restoration of a free-flowing Souhegan River.

Photo credit, bottom right: Joseph LaMere

Protected Resources

NOAA Fisheries Service protects marine mammals and threatened and endangered species under its jurisdiction, including whales, dolphins, invertebrates, sea lions, sea turtles, sea birds, *Acropora* corals, and several species of salmon and sturgeon. Many of these species are affected by fishing practices, habitat degradation, poor water quality, and other human impacts, as well as environmental changes.

NOAA works with other federal agencies to ensure compliance with environmental laws, such as the Endangered Species Act, Marine Mammal Protection Act, and the National Environmental Policy Act Species recovery is supported by initiatives such as ship strike avoidance, entanglement and stranding response networks, and modification of fishing gear.

Scientists from Cascadia Research Collective, Woods Hole Oceanographic Institution, Duke University, University of Hawaii, and the Wild Whale Research Foundation are collaborating with NOAA Fisheries Service in an effort to learn more about the impacts of underwater sound on marine mammals.

Atlantic Coast

Large ships must obey a 10-knot speed limit in times and areas where endangered right whales are likely to congregate. These areas include calving/nursery areas in waters off Georgia and Florida, and a number of ports in the Northeast. East Coast trap and pot fishermen are also switching from floating to sinking groundline to help reduce the risk of entangling large whales.

A large number of North Atlantic right whales were sighted in the Gulf of Maine in December 2008, leading researchers to believe they have identified a wintering ground and potentially a breeding ground for this endangered species.

Scientists are analyzing underwater sounds within the Stellwagen Banks National Marine Sanctuary to support a global monitoring network for ocean noise, an important step in protecting marine mammals. This project receives funding from the National Oceanographic Partnership Program and involves team members from NOAA Fisheries Service, NOAA Sanctuaries, the Bioacoustic Research Program at Cornell University, and Marine Acoustics, Inc.

NOAA Fisheries Service completed a research cruise to evaluate five proposed Marine Protected Area sites off the U.S. South Atlantic coast. The survey areas included spawning habitat for five species of grouper and two species of tilefish.

The Habitat Mapping Camera System (Habcam) was developed in collaboration with the fishing industry and Woods Hole Oceanographic Institute as a noninvasive sampling tool. When towed by a commercial scallop boat, it can collect 300,000 high resolution images per day without damaging underwater habitat.

Photo credit, bottom right: HabCam Group
Photo credit, bottom left: M. Thompson/NOAA

Gulf of Mexico

The Gulf of Mexico Alliance, which includes partners from state and federal agencies, the Northern Gulf Institute, Gulf of Mexico Coastal and Oceanic Observing System, and Sea Grant, promotes regional collaboration to enhance ecological and economic health.

The Gulf of Mexico Fishery Management Council reached agreement on new bag limits, a closed season, and commercial quotas to address overfishing of gag, red snapper, greater amberjack, and gray triggerfish.

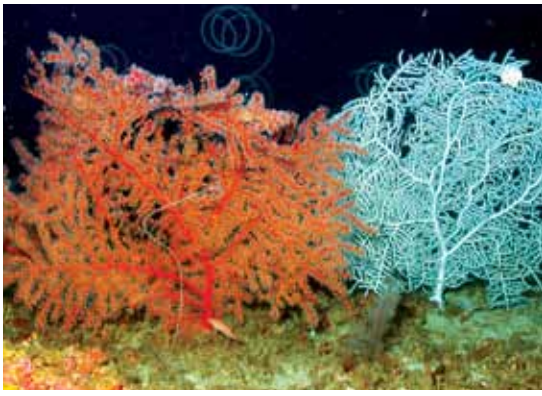
Thirty-eight scientists completed an extensive ecosystem survey of reef fish, lobsters, corals and benthic habitat in the Dry Tortugas region of Florida aboard the M/V Spree. Participants included NOAA Fisheries Service, University of Miami, Florida Fish and Wildlife Conservation Commission, National Park Service, and Reef Educational and Environmental Foundation.

Pacific Islands

New regulations including permitting and reporting for non-commercial fishermen, annual catch limits, closures and bag limits are in place to end overfishing of the bottomfish stock complex in the Main Hawaiian Islands.

A new Coral Reef Ecosystem Monitoring Report for American Samoa provides an unprecedented look at the condition and health of American Samoa's coral reefs. This report is based on interdisciplinary surveys that NOAA conducted with the University of Hawaii, U.S. Fish and Wildlife Service, and National Park Service.

Working with the Marine Mammal Center, U.S. Coast Guard, and Marine Corps, NOAA Fisheries Service brought a newborn monk seal into captive care rehabilitation after it was abandoned by its mother. The Hawaiian monk seal is a highly endangered species; scientists worked for months to prepare the pup for reintroduction into the wild.



The Hawaiian Archipelago Marine Ecosystem Research plan is a 10-year initiative dedicated to understanding broad-scale ecosystem processes. NOAA Fisheries Service is working with the Hawaii Division of Aquatic Resources, Papahanaumokuakea Marine National Monument, University of Hawaii, U.S. Fish and Wildlife Service, and Western Pacific Fishery Management Council to address priority areas of research in this region.

Photo credit, bottom left: CCMA/NOAA

A new consultation on the Columbia River Hydropower System specifies operational and physical improvements at each of the 14 federal dams on the Columbia and Snake Rivers. Federal agency scientists worked in close partnership with affected states and tribes to develop a suite of measures that are designed to improve fish survival.

Pacific Coast

NOAA Biological Opinion on Pesticides Recommends Buffers to Protect Salmon

NOAA issued a biological opinion to the Environmental Protection Agency indicating that three chemicals used in pesticides—diazonin, malathion, and chlorpyrifos—are likely to jeopardize 27 populations of salmon on the West Coast that are listed as either endangered or threatened. The opinion calls for specific restrictions on how and when farmers apply the pesticides near salmon habitat.

NOAA Fisheries Service helped negotiate a tentative agreement to remove four dams on the Klamath River, in what will become the largest dam removal project in U.S. history, opening more than 300 miles of historic habitat. A binding agreement is expected to be reached by June 30, 2009 and dam removal will begin no later than 2020.

Photo credit, middle bottom: T. Maurer/USFWS
Photo credit, bottom right: R. Lowery/NOAA

The West Coast Governors released an Action Plan calling for a coordinated approach to ocean health, and Washington State initiated a major effort to recover Puget Sound by 2020. To support these efforts, NOAA led a team of scientists to conduct an integrated ecosystem assessment in collaboration with the Puget Sound Partnership.

The 208-ft. *Bell M. Shimada,* launched in 2008, is the fourth in a series of NOAA's new fisheries survey vessels. The ship's advanced design will support critical surveys of West Coast groundfish and an integrated assessment of the California Current ecosystem.

Biologists are encouraged by an upward trend in the number of offshore spotted and spinner dolphins in Eastern Tropical Pacific Ocean; reported dolphin deaths have declined after years of strict regulation to prevent bycatch in the tuna purse-seine fishery.

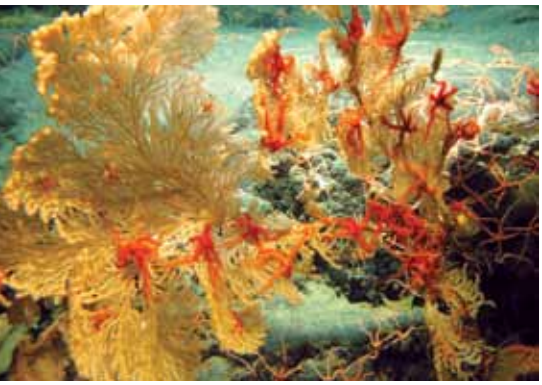
The Pacific Fishery Management Council adopted sweeping changes to rationalize the West Coast groundfish fishery, including individual fishing quotas for the shoreside trawl fishery and structured harvest cooperatives for the at-sea whiting fishery.

Photo credit, top left: D. Noren/NOAA

Alaska

Alaska is home to the world's most productive fisheries and provides half of all U.S. seafood. The NOAA Alaska Regional Collaboration Team works with a broad range of stakeholders to tackle issues such as climate change and ecosystem assessment.

A comprehensive survey of deep water corals in the Aleutian Archipelago was funded by the North Pacific Research Board, National Undersea Research Program, and NOAA Fisheries Service. Scientists from the Alaska Fisheries Science Center, Alaska Department of Fish and Game, and the University of Alaska participated in this study.



NOAA released a new Conservation Plan for the endangered Cook Inlet beluga whale, one of five populations of belugas recognized within U.S. waters. Threats to this species include stranding, predation by killer whales, and habitat destruction caused by industrial activities.

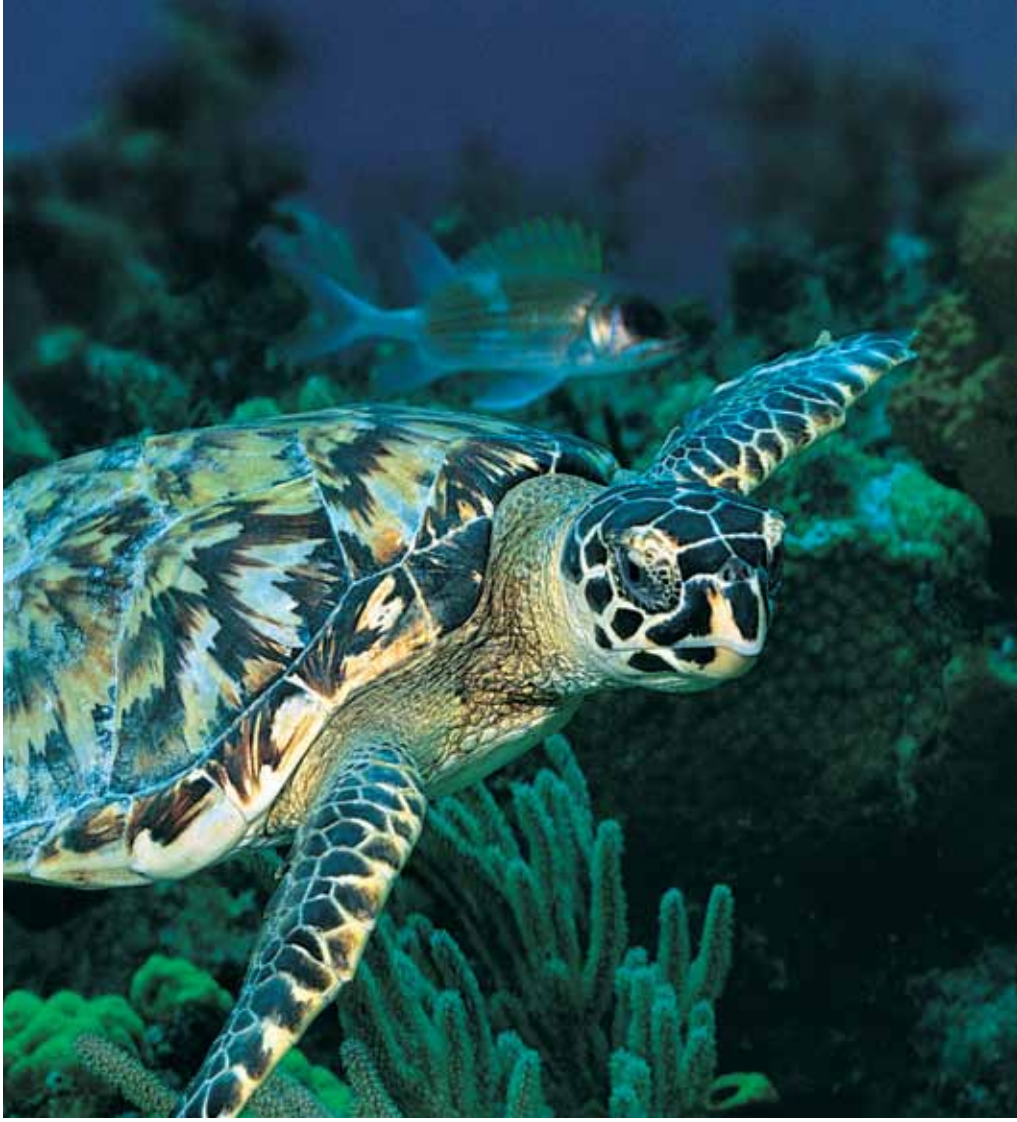
Scientists successfully launched and retrieved an unmanned aircraft from the NOAA ship *Oscar Dyson,* preparing for a planned expedition to study ice seals in the Bering Sea in the spring of 2009.

Bering Sea Groundfish Cooperatives and sector allocations for Pacific cod were established in the North Pacific, part of an ongoing trend toward market-based approaches to fisheries management.

Photo credit, bottom left: L.Norse/NOAA

International

NOAA Fisheries Service works with partners around the globe to promote ecosystem-based management, sustainable fisheries, and equitable access to shared living marine resources. The agency offers scientific and policy expertise to support a broad range of conservation and management initiatives. Current priorities for the agency include: strengthening regional fisheries management organizations; minimizing bycatch of non-target species; controlling fishing capacity; providing assistance in developing countries; and taking new steps to identify illegal, unreported, and unregulated fishing on the high seas.



With support from the United States, the Western and Central Pacific Fisheries Commission adopted strong conservation measures to protect sea turtles from bycatch in purse seine and longline fisheries, including the mandatory use of circle hooks beginning January 1, 2010.

Under U.S. leadership, the International Whaling Commission agreed to move forward to modernize the manner in which whales are managed.

Despite a strong U.S. proposal to conserve bluefin tuna, the International Commission for the Conservation of Atlantic Tunas ignored scientific advice to end overfishing in the Eastern Atlantic and Mediterranean.

For the first time, the United States received an allocation of yellowtail flounder from the Northwest Atlantic Fishery Organization. This stock remains abundant, expanding fishing opportunities for U.S. fishermen.

Smithsonian Ocean Hall

Visitors to Washington, D.C. now have an exciting opportunity to explore the ocean's mysteries and be introduced to NOAA's science and stewardship mission. In September 2008, the Smithsonian's National Museum of Natural History opened the Sant Ocean Hall, a permanent, multi-media exhibit hall dedicated to public ocean literacy.

Phoenix, a 45-foot model of a living North Atlantic Right Whale of the same name, serves as the Hall's signature symbol and ocean ambassador. The Ocean Hall communicates fundamental themes: that the ocean is complex, interconnected, largely unexplored, and essential to all life. These themes are demonstrated throughout the Hall's galleries, which are organized around deep oceans, shores-to-shallows, coral reefs, the poles, evolution of marine life, and the human connections and impacts to our ocean planet.

The ocean is one interconnected system on which all life depends…including yours. For more information, go to http://ocean.si.edu/ocean_hall/.

NOAA Fisheries Service participates in cooperative partnerships with state and federal agencies, regional fishery management councils, the commercial and recreational fishing communities, and environmental groups to support the sustainability of our living marine resources. Through outreach and education efforts, we also seek to increase public awareness and involvement in the stewardship of marine ecosystems.

Contact Information for NOAA Fisheries Service

Partnerships and Communications Division
Office of Sustainable Fisheries
1315 East-West Highway
Silver Spring, MD 20910
Phone: (301) 713-2379

Legislative Affairs
(202) 482-4981

Public Affairs
(301) 713-2370

Law Enforcement
(800) 853-1964

Regional Offices:

Alaska
http://www.fakr.noaa.gov/

Northwest
http://www.nwr.noaa.gov/

Pacific Islands
http://www.fpir.noaa.gov/

Southwest
http://swr.nmfs.noaa.gov/

Southeast
http://sero.nmfs.noaa.gov/

Northeast
http://www.nero.noaa.gov/nero/

Science Centers:

Alaska
http://www.afsc.noaa.gov/

Northwest
http://www.nwfsc.noaa.gov/

Pacific Islands
http://www.pifsc.noaa.gov/

Southwest
http://swfsc.noaa.gov/

Southeast
http://www.sefsc.noaa.gov/

Northeast
http://www.nefsc.noaa.gov/

Acting Assistant Administrator for
NOAA Fisheries Service
James W. Balsiger, Ph D.

www.nmfs.noaa.gov

National Marine Fisheries Service
1315 East West Highway
SSMC 3, F/SF, Room 9535
Silver Spring, Maryland 20910