

## NOAA Accomplishments 2009-2011

### Supported thriving coastal economies

#### ***Protected and advanced U.S. fishermen's business interests – including setting the nation on a path to more productive fisheries in the future***

- NOAA, working with the regional councils, put in place 40 of the 45 required fishery management plans that designate (for the first time in many instances) annual catch limits (ACLs) and corresponding accountability measures. The remaining 5 management plans will have ACLs in place by for the 2012 fishing season. These measures will increase future jobs and revenues as a result of rebuilt fish stocks.
- NOAA supported the implementation of 5 new catch share programs – bringing the national total up to 15 – and issued a National Catch Share Policy that promotes the alignment of economic and conservation incentives.
- NOAA reformed its enforcement by issuing a new nationwide policy for assessing penalties, developing NOAA Enforcement Priorities, and establishing and implementing strict guidelines for the use of funds from the Asset Forfeiture Fund.

*Anecdote:* West Coast commercial fishermen who trawl for whiting and other valuable groundfish saw their revenues and efficiency increase substantially during the last year under a new catch share fishery management. In 2011, gross revenues increased for the groundfish fleet, compared to the five-year average for the fleet. In the non-whiting fleet, revenue was up 34 percent per vessel during the previous five years, from an average of \$216,000 to slightly more than \$289,000 in 2011. October and December were particularly good months for the non-whiting fleet, with revenues about double the five-year average. The whiting fleet saw revenues climb even more, from about \$273,000 on average during the last few years to \$775,000 in 2011. In addition, the non-whiting fleet was able to substantially reduce bycatch and keep the overwhelming majority of its catch – in 2011 discards comprised only about 5 percent while the 2010 discard rate was 17 percent.

#### ***Launched a significant effort to “level the playing field” for U.S. fishermen’s by combating so-called ‘pirate fishing’ (illegal, unreported, and unregulated or IUU fishing) and the mislabeling of imported fish and shellfish***

- NOAA Fisheries published biennial reports to Congress (in 2009 and 2011) identifying nations whose vessels were engaged in IUU fishing during the two previous calendar years. This action opened the way for consultations between the U.S. government and officials from the identified nations to encourage them to address pirate fishing by their vessels. All nations identified in 2009 have taken corrective action; the consultation process is ongoing for those nations identified in 2011.
- NOAA, the Department of State, and other U.S. agencies helped to negotiate the international Port State Measures Agreement to Prevent, Deter, and Eliminate IUU Fishing. The United States was one of the first nations to sign the agreement and

President Obama delivered it to the U.S. Senate in November 2011. Simultaneously, NOAA and an interagency team prepared implementing legislation (the 'Pirate Fishing Elimination Act) that was also transmitted to Congress.

- NOAA law enforcement officers, in coordination with DOJ, investigated and prosecuted numerous seafood wholesalers for falsely labeling and selling cheaper imported fish as more expensive domestic wild-caught fish. These cases resulted in the restitution of tens of millions of dollars in import duties, payment of fines, and significant prison terms. They also protected the market for and reputation of U.S. sustainable fisheries.
- The NOAA Administrator worked with her EU counterpart to cooperate and expand efforts to combat pirate fishing, strengthen the U.S.-EU relationship on fisheries issues, and focus domestic and international attention on this important issue.
- NOAA convened the third joint meeting of the five global tuna regional fishery management organizations (Kobe III) in June 2011, during which over 50 nations agreed to better track IUU vessels, improve the science upon which fisheries management is based, and recommended decision-making principles designed to ensure all management measures are consistent with scientific advice.

*Anecdote:* In 2011, NOAA's Office of Law Enforcement worked closely with U.S. Customs and Border Protection and Russian enforcement officials to seize 112 metric tons of Russian-origin King Crab that was illegally harvested in the Russian Exclusive Economic Zone. The illegal crab, which had a declared value of \$2,753,713, was seized when the fishermen attempted to import these illegal fish into the United States at the port of Seattle – ensuring that U.S. fishermen who fished by the rules did not have to compete with illegal catch within the marketplace.

*Anecdote:* Twelve individuals and companies were prosecuted by DOJ, with support from NOAA, for criminal offenses related to a large-scale seafood smuggling scheme. The defendants conspired to illegally import and sell fraudulently labeled Vietnamese catfish in the U.S., in an effort to avoid federal import tariffs. DNA analysis of more than 800 suspect fish samples showed that the product was in fact Vietnamese catfish instead of grouper or other more valuable species as it was labeled. The defendants received a combined \$286,000 in fines, 126 months probation, 76 months in prison and were required to forfeit over \$12,000,000 for avoided duties.

***Revitalized NOAA's relationship with the recreational fishing community and improved data collection on this economically important sector.***

- The Under Secretary met with representatives of the recreational fishing industry multiple times early in her tenure to develop with them a set of issues NOAA and the industry could work on together.
- As a result, in April 2010, NOAA hosted a recreational fishing summit that sought to improve the level of trust between NOAA and the saltwater recreational fishing community. Facilitated discussions brought to light a range of issues as well as possible recommendations to address these issues.

- As a result of the summit, NOAA developed an Action Agenda that includes a set of five “Signature Issues” with specific objectives for near-term action and a larger set of longer term goals. This was followed up by the release of regional saltwater recreational fishing action plans.
- In 2010, NOAA Fisheries launched the National Saltwater Angler Registry. By 2011, every coastal state and territory - with the exception of Hawaii, Puerto Rico, and the U.S. Virgin Islands - had an agreement in place to share information with NOAA Fisheries about their state’s licensed, permitted, or registered recreational fishermen. Today, NOAA Fisheries is utilizing the registry to test improved methods for surveying anglers’ trip activities.
- NOAA, working with non-federal scientists, continues to improve the methodology used in the Marine Recreational Information Program– the national survey used to monitor marine recreational catch and effort – and update catch estimates accordingly. More accurate estimates lead to more efficient management of recreational fisheries, which better supports the \$50 billion industry and the 327,000 associated jobs.

*Anecdote:* “Everyone expected [the recreational fishing summit] to be the usual...big meeting, wine and cheese party afterwards...and then nothing. Instead, Dr. Lubchenco and Eric Schwaab developed an action agenda, made promises for action and then have followed up in a remarkable way. This has shocked our entire community that had low expectations and was surprised by specific follow up and accountability. That continues to this day.” Jim Martin, recreational fisherman.

***Promoted innovation and job growth related to sustainable marine aquaculture through the NOAA Sustainable Aquaculture Policy and the launch of the National Shellfish Initiative.***

- In New England, NOAA streamlined permitting, training, and federal support for research that has led to an increase in shellfish farming and new operations such as seaweed and cod farms. Additionally, NOAA grants recently helped to start seven offshore mussel farms operated by fishermen.
- NOAA recently teamed with the State of Maryland and the U.S. Army Corps of Engineers to create an expedited permitting process for oyster farming, resulting in 20 new permits with more pending. NOAA also funded the Maryland Sea Grant Program to train fishermen in oyster culture and establish a state-administered low-cost loan program for oyster farming.
- NOAA recently invited the Army Corps of Engineers and the State of Washington to work together to expedite the review of shellfish permits to remedy the fact that no new permits have been issued in five years, and many domestic producers are looking to sites in Canada to fill their demand. This activity, as well as a NOAA grant to help Washington restore the native Olympia oyster, helps to support the Washington Shellfish Initiative that was announced by Governor Gregoire and Dr. Lubchenco in December 2011.

*Anecdote:* A NOAA grant helped to support the launch of the "Cod Academy" in Maine that provides a unique opportunity for fishermen to develop alternative businesses which utilizes their existing skills as fishermen. The program offers free training for 10 to 15 fishermen per class in all aspects of cod aquaculture and will raise funds to help graduates launch their own pilot-scale cod farms. Fishermen who graduate and want to establish farms are required to invest an estimated 50 percent of the cost. Sponsoring partners seek grants to fund the remaining 50 percent, but to qualify, fishermen must work with business counselors and experienced farm owners to develop a business plan for their own farm, including how they propose to market their fish. This unique partnership was highlighted on Time Magazine online.

***Responded to the Nation's worst oil spill in history by predicting the amount and location of oil, testing seafood and closing fisheries, protecting wildlife, and providing scientific advice to the response – ultimately ensuring the health of Gulf residents and the long-term sustainability of their communities.***

- During the Deepwater Horizon oil spill response, NOAA produced 150 3-day oil surface location forecasts and 30 loop current location graphics, issued over 4,000 spot-weather forecasts, surveyed 4,229 miles of shoreline, implemented fishery closures measuring 88,522 square miles, collected over 31,000 water and sediment samples, and analyzed 4,638 fish and shrimp samples.
- NOAA helped to develop important new technologies as part of the response, such as ERMA (a mapping tool designed to assist both emergency responders and environmental resource managers who deal with incidents that may adversely impact the environment) and seafood safety chemical test for dispersants. NOAA scientists also helped to devise a method that uses air chemistry to measure deep-sea flow rates of spills like Deepwater Horizon. These groundbreaking advancements will vastly improve our response to future oil spills.
- NOAA led the federal-state injury impact assessment with more than 40 teams in the field on any given day collecting data on impacted resources and their lost use.
- NOAA is providing restoration leadership and expertise through the work of the Natural Resources Damage Assessment (NRDA) Trustees, including helping to negotiate a \$1 billion agreement to fund early Gulf of Mexico restoration projects – the largest environmental settlement ever.

***Invested in our coastal communities and economies through conservation and restoration – supporting tourism opportunities and creating jobs.***

- NOAA invested \$167 million from the American Recovery and Reinvestment Act into coastal restoration projects – creating an average of 17 restoration jobs for each million dollars invested.
- NOAA partnered with coastal states to create or enhance over 540 public recreational access sites to the coast, restored over 5,200 acres of coastal habitat, and protected nearly 14,000 coastal acres by acquisition or easement. NOAA funds were also used to protect approximately 32,500 acres of coastal lands, with approximately 8,000 additional acres protected as in-kind contributions.

- NOAA designated the Lake Superior National Estuarine Research Reserve as the 28th site in the National Estuarine Research Reserve System in October 2010, adding nearly 17,000-acres of freshwater marshes, uplands, and river to the national system through this Federal-State partnership.
- NOAA approved the Illinois Coastal Management Program as the 34<sup>th</sup> state in the National Coastal Zone Management Program in January 2012. Illinois was the only remaining eligible state that had never had an approved program.

*Anecdote:* Thunder Bay National Marine Sanctuary has been a powerful economic driver for the rural, de-industrializing community of Alpena, Michigan. The Great Lakes Maritime Heritage Center (which serves as the visitor center for the Thunder Bay National Marine Sanctuary) is a major tourist destination for the region, hosting approximately 60,000 visitors annually. The Sanctuary staff has also worked closely with local governments and other organizations to recruit new small businesses. For example, in the summer of 2011, Alpena Shipwreck Tours began glass bottomed boat tours in the sanctuary. Since June 2011, they have had an average of 100-150 visitors per day participate in a tour, greatly increasing the overall visitor count. The owner of Alpena Shipwreck Tours (which operates the vessel) has stated that he located the boat in the area because of the Sanctuary. The town of Alpena has declared the sanctuary and its visitor center an ideal “anchor” for economic development, setting the tone for similar partnerships across the nation.

***Provided critical data and services that monitor coastal health, making our coastlines attractive and safe for millions of residents and visitors each year.***

- NOAA has advanced the Harmful Algal Bloom Operational Forecast System which helps managers make critical safety and economic decisions regarding beach closures and shellfish restrictions. Throughout Florida and Texas, NOAA provides weekly or biweekly HAB conditions reports that provide potential impacts for the next 3-4 days. NOAA is currently establishing a harmful algal bloom model for the Great Lakes.
- In addition to responding to Deepwater Horizon, NOAA has provided scientific support for more than 100 oil and chemical spills annually since 2009, helping to minimize damage to coastal economies and environments.

*Anecdote:* In summer 2010, for the first time, NOAA weather radio transmitters broadcast warnings about high levels of Paralytic Shellfish Poisoning (PSP) toxins in shellfish in the offshore and coastal waters of Hancock and Washington (Maine) counties in order to discourage recreational harvesting. The toxins accumulate in shellfish due to a toxic dinoflagellate; humans can become severely ill or die if they eat contaminated shellfish.

*Anecdote:* In 2011, NOAA partnered with the Chugach Tribe of Alaska to evaluate contamination levels in wild shellfish, and results show that those levels appear to be well within safe limits. As part of the study, Mussel Watch established criteria for extending traditional contamination testing to a wide variety of species popular with the Chugach. Collecting wild shellfish, such as littleneck and razor clams, mussels, and cockles, is a tribal tradition that has been in decline since the Exxon Valdez polluted local waters and made the

safety of this resource uncertain. These studies support a larger effort by the Chugach to revive traditional practices and improve the health of their members.

***Helped create a new national vision for healthy oceans and coasts through the National Ocean Policy.***

- NOAA was a critical partner in talking to stakeholders across the country to help develop a national policy that focuses the Administration's approach ocean management among widely dispersed authorities – clearly recognizing that “healthy oceans matter.”
- NOAA supported 27 states (covering 8 of the 9 regions) in implementing the principles outlined in the policy by awarding \$6.18M in Regional Ocean Partnership grants – important multi-state collaborations that enhance regional stakeholders' ability to develop, access, and utilize critical ocean and coastal data.
- NOAA collaborated with other agencies to launch ocean.data.gov in late 2011, a site that provides transparent and easy access to ocean and coastal data in support of better decision making nationwide.
- NOAA developed, with support from DOI, the Multipurpose Marine Cadastre (MMC), an computer-based mapping system that provides geo-referenced jurisdictional, legal, human use, and other regionally specific data that will inform the marine planning initiative called for in the National Ocean Policy.

## Increased exports

***Advanced our economy through investments in information that help move maritime commerce in a safe, efficient, and environmentally sound way.***

- In 2009, NOAA's Physical Oceanographic Real-Time System (PORTS®) program expanded to two new locations in Louisiana at Lake Charles and New Orleans, bringing the total to 20 systems around the country. Two more systems will come online in 2012. Existing PORTS® have been shown to reduce ship grounding by up to 50 percent, and shippers can safely increase cargo loads thereby increasing the value of individual shipments by millions of dollars.
- NOAA vessels and contract vessels conducted hydrographic surveys of nearly 7,000 square nautical miles of coastal waters since 2009 to support safe navigation. NOAA also collected over 19,000 miles of shoreline imagery to support navigation and transportation.
- Since 2009, NOAA has created over 400 new editions to Raster Nautical Charts (RNCs) and built and maintained 163 first editions of Electronic Navigation Charts (ENCs) for a total of 800 ENCs. NOAA's nautical charting services provide information that ports and shippers use to increase both efficiency and safety.

*Anecdote:* Due to a bridge maintenance project at the Dames Point Bridge in Jacksonville, FL, the “air gap,” or bridge clearance, was reduced. Carnival Cruise Lines expressed concerns about this reduction because of the small clearance already experienced by cruise vessels and

considered moving their business to another port. In response, NOAA and Florida Department of Transportation installed an air gap system and now provide real-time bridge clearance information to Carnival and other large vessels transiting under the Dames Point Bridge, maintaining the cruise ship business which generates \$3.4M in revenue for the Port of Jacksonville, not to mention the economic impact to the local community.

## Protected lives and enabled commerce

***Successfully restructured a flawed polar-orbiting satellite program and strengthened the overall U.S. environmental satellite infrastructure setting the stage for vast improvements in our ability to identify and predict major weather events at 3 days and beyond.***

- NOAA ensured the future of the Nation's polar-orbiting satellite infrastructure through execution of the 2010 Presidential directive to partner with NASA to develop the Joint Polar Satellite System (JPSS) to replace the struggling tri-agency NPOESS program. The first JPSS satellite is currently on track to launch in FY2017.
- On October 28, 2011, NOAA and NASA successfully launched the Suomi NPP satellite that will bridge the previous generation of polar-orbiting satellites and the new JPSS. Suomi NPP's instruments will provide orders of magnitude improvements to NOAA's ability to observe ground and atmospheric phenomena.
- NOAA has also successfully launched three operational satellites: N Prime (February 6, 2009), the last of the previous generation of polar-orbiting satellites, and two current generation geostationary satellites: GOES-O (June 27, 2009) and GOES-P (March 4, 2010). GOES-P became the operational GOES-West satellite in December 2011, bringing online instruments that provide more accurate location of severe storms and other weather phenomena, resulting in earlier and more precise warnings to the public.
- NOAA satellites, through the Search and Rescue Satellite-Aided Tracking (SARSAT) Program, also help to rescue 195 people in 2009, 295 in 2010, and 207 in 2011.

*Anecdote:* A NOAA case study has shown that without technologically advanced polar-orbiting satellites, forecasts for the 2010 East Coast "Snowmageddon" storm could have under-predicted snowfall totals in the mid-Atlantic region by more than 10 inches and the predicted location of the heaviest snowfall could have been off by up to 250 miles.

*Anecdote:* In response to the eruption of the Eyjafjallajökull volcano in April 2010, NOAA provided near-real-time satellite information about the resulting ash cloud to the London Volcanic Ash Advisory Center, including volcanic ash cloud height, mass loading, location, and particle size. This Icelandic volcano's eruption led to the unprecedented closure of North Atlantic and European airspace. NOAA's earth-observing satellite data was used to help reroute flights, protecting the safety of passengers and decreasing the disruption to commerce and travel.

***Delivered lifesaving weather forecasts and warnings during years of record-breaking weather events that included 741 major tornadoes, 47 Atlantic hurricane and tropical storms, 6 major floods, 3 tsunamis, persistent drought in many states, a large heat wave, and record-breaking snowfall and blizzards across the country.***

- In 2011 alone, 14 severe weather events each resulted in at least \$1 billion in damages, and as tragic as this year was in terms of lives lost and property damaged, it could have been far worst if not for NOAA's work.
  - The average 48-hour error for Hurricane Irene was 71 nautical miles – 20 percent better than the 5-year mean of 90 nautical miles.
  - Based on weather conditions in the fall and winter, NOAA began alerting communities—4 months in advance—of the high potential for major spring flooding along the Missouri and Mississippi River Basins which helped them to prepare.
  - The average lead time for tornado warnings in April 2011 – ranked as the most active tornado month on record with 758 tornadoes – was 18 minutes, compared to the national average of 13 minutes.
- Despite excellent forecasts and warnings, weather events in 2011 killed more than 1,000 people and caused \$55 billion in damages. To address this disconnect, NOAA launched the "Weather-Ready Nation" initiative in the fall of 2011 to improve public response to weather forecasts and help American communities become better prepared for extreme weather.

*Anecdote:* People have come to rely on NOAA as the trusted source of weather information: the NOAA website had 51.3 million hit per hour during Hurricane Irene in August 2011, 38 million hits per hour during the Joplin Tornado Outbreak in April 2011, and 33 million per hour during the Snowmageddon blizzard in February 2010.

***Created a new generation of climate information and services to help individuals, businesses, and communities become more resilient to climate change impacts***

- NOAA launch the NOAA Climate Services Portal to make available useful and usable climate information to the public and private sector – which now averages 40,000 unique visits per month, with peaks of over 80,000 unique visits per month during high profile events.
  - User requirements for climate data continuing to increase, 1.5 Petabytes of data were downloaded from NOAA during 2011 – a 25-fold increase over 2005. The data volume downloaded equates to over 1.7 billion Kindle books. NOAA now provides customers with direct online access capabilities to over 3 Petabytes of climate data.
- NOAA partnered with numerous organizations throughout the country, including a formal partnership with the Western Governors Association, to deliver needed climate services to support adaptation and resource management decisions.
- NOAA has become the go-to organization for citizens, businesses, local governments, emergency managers, and others looking for critical information about climate to



prepare for and become more resilient to our changing environment. Some recent examples of these critical NOAA's services include:

- providing advance drought and fire warnings to water, fire managers, and farmers in drought stricken Texas and adjacent states during 2011.
- issuing early warning flood outlooks for emergency managers, dam operators, farmers, and local, state and tribal governments throughout the Northern Plains during record floods years in 2010 and 2011.
- applying observed weather and tide data and global computer models to predict future climate scenarios for temperature, precipitation, sea level, and extreme events for New York City. These scenarios were used by NYC to identify vulnerable infrastructure and prioritize future actions to minimize risks to the city.

*Anecdote:* NOAA provided habitat vulnerability mapping, social vulnerability, and high resolution visualization tools to the San Francisco Bay Conservation and Development Commission, which has used these data to establish new criteria regarding shoreline setbacks and siting of infrastructure.

*Anecdote:* NOAA provided funding and technical assistance to support Maryland's Coast-Smart Communities Initiative, which provides information and resources to plan for and adapt to sea level rise and coastal hazards. As a result, Dorchester County, MD recently amended its building code to require a two foot elevation buffer for new and re-development projects to account for future sea level rise and more frequent flooding and inundation.

*Anecdote:* A landfill owner on Oahu used NOAA seasonal forecasts calling for increased precipitation to enhance stormwater capacity and improve road conditions so that the landfill could remain open during the anticipated "wet" season thereby saving jobs and money.

***Improved space weather forecasting in order to better protect critical infrastructure and commerce activities nationwide.***

- NOAA developed and implemented the Nation's first operational space weather numerical prediction model, WSA-Enlil, which predicts the onset/arrival time of geomagnetic storms impacting the Nation's power grids, GPS, and global communication systems. Predicted lead times for geomagnetic storms went from approximately 1 hour to 1-3 days with accuracy of onset improving from +/- 18 hours to +/- 5 hours.
- NOAA brokered a new operational relationship with the UK Met Office that will enhance both nations' abilities to provide space weather services. Key activities include training, backup of critical products, data exchange, and model development. This relationship was highlighted by both the U.S. President and UK Prime Minister during a US/UK Summit in May 2011.

## Supported energy development

### ***Improved science-based decisions in the Arctic to enable oil and gas development while limiting environmental impacts.***

- NOAA and DOI signed an MOU that has improved coordination related to information and resource needs associated with permitting and scientific decision-making for oil and gas activities in the Chukchi and Beaufort Seas.
- NOAA developed an Arctic ERMA, or Environmental Response Management Application, the same real-time, map-based tool developed to support the spill response for Deepwater Horizon. With the support of DOI, NOAA will release enhancements to this tool in the summer of 2012 to further improve spill response, scientific information sharing, and public transparency in the Arctic.
- NOAA signed a landmark MOA with oil companies Shell, Conoco Philips, and Statoil that provides a mechanism for these industry parties to share their data publicly and improved transparency and scientific understanding in the Arctic.
- NOAA and partners added 41 stations to the Continuously Operating Reference Station network in Alaska. Surveyors, GIS users, engineers, scientists, and the public at large that collect GPS data can use CORS data to improve the precision of their positions – the additional sites enable positioning accuracies that approach a few centimeters.
- NOAA, along with numerous national and international partners, implemented the Distributed Biological Observatory in 2011 in the Chukchi Sea. These sites enable consistent monitoring of biological and physical changes in the region.

### ***Fostered the development of renewable energy by applying NOAA's unique weather, water, and climate research, observations, modeling, and predictions***

- NOAA, in collaboration with the Department of Energy, developed partnerships with industry to support research into improved short-term weather forecasts that can result in economic benefits to electric power system operations.
- NOAA worked closely with the Department of the Interior to site new offshore wind development along the Atlantic Coast while minimizing impacts to endangered species, marine mammals, habitats, and commercial and recreational fishing resources.
- NOAA entered into an agreement with the Alaska Energy Authority to measure and model the circulation within Cook Inlet for its potential to generate marine hydrokinetic (MHK) renewable energy.
- NOAA analyzed 143 wind farm proposals voluntarily submitted by developers for potential impacts on NOAA's weather radar network and worked with developers to develop mutually beneficial mitigation strategies.

## Strengthened science and enabled innovation

***Produced NOAA's first ever Scientific Integrity Policy that fulfills the President's promise to 'restore science to its rightful place' and reinforces the role of science as the foundation for all that NOAA does.***

- NOAA also took significant steps to strengthen science within our organization by (1) increasing by 50 percent the number of senior scientific positions, with the goal of doubling the overall number to 20; (2) creating a NOAA Science Fellows Council; (3) convening the first all-NOAA science workshop; and (4) hiring for the first time AAAS Science Policy Fellows.

***Advanced the frontiers of ocean and atmospheric science – setting the stage for improved services in the future.***

- NOAA's National Severe Storms Laboratory (NSSL) formed a research collaboration with Atmospheric and Environmental Research (AER), a private company that provides weather risk management solutions for many insurance companies and other industries affected by severe storms, to provide information that will help the insurance industry anticipate and react to storm damage, saving time and money.
- NOAA researchers advanced ocean acidification monitoring – providing Real-time data from its network of offshore buoys that act as an early warning system for shellfish hatcheries. These buoys signaling the approach of cold, acidified seawater one to two days before it arrives in the sensitive coastal waters where larvae are cultivated. The data help hatchery managers schedule production when water quality is good, helping to restore businesses that had seen an 80percent decline in production in previous years.
- A Louisiana Sea Grant-sponsored project developed an improved rapid and reliable method to detect virulent-type *Vibrio* pathogen in oysters. *Vibrio vulnificus* is a rare but severe cause of oyster-related illnesses in humans.
- NOAA partnered with Indonesia for an expedition to explore the deep ocean north of Sulawesi on the maiden voyage of the NOAA Ship Okeanos Explorer. Researchers studied deep-sea ecosystems and used multibeam sonar to map a huge undersea volcano. It was the first joint international mission with two ships sending live video to scientists in Exploration Command Centers ashore, vastly expanding associated research and educational opportunities.
- NOAA researchers developed new models that forecast Arctic summer sea ice will decline from its current 4.6 million square kilometers (about 1.8 million square miles) to about 1 million square kilometers (about 390,000 square miles), meaning Arctic summers may be ice-free in as few as 30 years instead of previously estimates near the end of the century. These forecasts are critical to planning for future transportation and energy development in the region.

## Reduced regulatory burdens and improved government efficiency

### ***Identified, simplified, and updated outdated regulations in response to President Obama's Executive Order 13563 on Regulatory Reform***

- NOAA undertook a number of actions under the Magnuson-Stevens Act that had the effect of lessening burdens on the regulated community, including eliminating unnecessary regulatory restrictions for those who are participating in New England groundfish sectors, lifting a major fishery closure in the South Atlantic that was no longer needed, and relieving reporting burdens for the Alaska charter halibut fishermen.
- Pursuant to the Regulatory Flexibility Act, NOAA is completing review of all significant rules published in 2001 and 2002 and has begun work on review of significant rules published in 2003 and 2004.
- NOAA now includes in annual training for new Regional Fishery Management Council members instruction on drafting regulations to reduce regulatory complexity and burdens and the ongoing need for review of existing regulations.
- NOAA is working with the Regional Fishery Management Council to explore how to improve web-based delivery of information on fishery management regulations.
- NOAA has also championed innovative regulatory approaches (such as catch shares) that are developed by fishermen and the regional fisheries management councils, result in fewer regulations, and provide more control to the fishermen to fish more efficiently and maximize market value.

*Anecdote:* NOAA implemented a regulatory amendment for the Snapper-Grouper Fishery off the Southern Atlantic States that removes the snapper-grouper area closure. The net effect of the action on commercial vessels as a whole is estimated to be an average increase in annual profits of approximately \$57,000. As a result of the action, annual profits are expected to increase by \$227,000 for charter boats and \$815,000 for headboats.

*Anecdote:* Based on concerns about the costs of monitoring measures implemented under Amendment 16 in the New England Groundfish fishery, 2011 fishery operations plans delay the requirement for industry to pay for dockside monitoring until fishing year 2013. This saves industry approximately \$660,000 in fishing year 2012. Further, this action exempts certain fishermen from dockside monitoring requirements due to the high cost of monitoring relative to the small scale of the affected fishermen.

### ***Implemented corporate services that saved tax payer dollars and improved the overall efficiency of the agency.***

- Implemented NOAALink, which is an acquisition vehicle for cost-effective, enterprise-wide IT solutions while supporting NOAA's technology, contracting, and financial goals. In the first six months of operation, NOAALink achieved annual savings of over \$4 million and continues to achieve a 6.6 percent cost savings in the first quarter of FY2012.

- NOAA was one of the first agencies to implement the Google Unified Messaging Service, which provides a cloud-solution to email, calendars, document collaboration, and information sharing. An in-house solution would have cost tax payers twice as much.
- NOAA implemented a new Strategy, Executive, and Evaluation process that concentrated accountability for budgeting and execution, shortened the time between planning and execution so that all activities are based in execution year, and reduced the new of reporting requirements making the overall process more efficient.