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NOAA FISCAL YEAR 2011 BUDGET REQUEST AND FISHERIES ENFORCEMENT PROGRAMS AND OPERATIONS

HEARING

BEFORE THE

SUBCOMMITTEE ON OCEANS, ATMOSPHERE, FISHERIES, AND COAST GUARD

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION UNITED STATES SENATE

ONE HUNDRED ELEVENTH CONGRESS

SECOND SESSION

MARCH 3, 2010

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ONE HUNDRED ELEVENTH CONGRESS

SECOND SESSION

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NOAA FISCAL YEAR 2011 BUDGET REQUEST AND FISHERIES ENFORCEMENT PROGRAMS AND OPERATIONS

WEDNESDAY, MARCH 3, 2010

U.S. SENATE,
SUBCOMMITTEE ON OCEANS, ATMOSPHERE, FISHERIES, AND COAST GUARD,
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Washington, DC.

The Subcommittee met, pursuant to notice, at 10:05 a.m. in room SR–253, Russell Senate Office Building. Hon. Maria Cantwell, Chairman of the Subcommittee, presiding.

OPENING STATEMENT OF HON. MARIA CANTWELL, U.S. SENATOR FROM WASHINGTON

Senator CANTWELL. The Subcommittee on Oceans, Fisheries, and Coast Guard will come to order.

Good morning, Dr. Lubchenco, thank you for being here, and pleased that you could join us this morning.

Before we start, I want to commend NOAA's employees for their work this past weekend to monitor the tsunami in the Pacific Ocean.

On Saturday, we woke to learn about the devastating 8.8 earthquake that rocked Chile and our thoughts are with the people of Chile as they work to recover from this horrible incident.

We also learned that morning that the earthquake generated a tsunami. And we were lucky that this time—because the tsunamis were minimal. But more importantly, we know that we were prepared, thanks to the Pacific Tsunami Warning System that NOAA operates. Coastal areas were evacuated and people were moved out of harm's way. And this is a clear example of the vital service that NOAA provides to the Nation.

This morning's hearing is divided into two parts. On the first panel, we will hear from Dr. Lubchenco on the Administration's Fiscal Year 2011 budget request for the National Oceanic and Atmospheric Administration. And on the second panel, Mr. Todd Zinser, the Inspector General for the Department of Commerce, will join Dr. Lubchenco to discuss his recent report on NOAA's Fisheries Enforcement Program and Operations.

Our oceans provide many things in our daily lives, and our ocean and coastal economies provide over 50,000 jobs for Americans and contribute nearly 60 percent of our GDP.

What many people don't realize is that our oceans and coasts are in peril. Climate change, ocean acidification, sea level rise, pollution, and overfishing threaten the health of our oceans and coastal communities, and with them, our economy.

The Fiscal Year 2011 budget request for NOAA, while a step in the right direction, falls far short of the funding necessary. For example, NOAA has rebuilt 12 commercial fisheries stocks since 2001, however, 46 stocks are overfished and 38 are subject to overfishing.

Improved data collection and stock assessments continue to be sorely needed for effective management. Yet the budget cuts funding for fisheries research and management programs as a whole, and it proposes nearly level funding for expanded annual stock assessments and improved data collection.

Oceans play an essential role in regulating the climate and levels of carbon dioxide in our atmosphere. And since the beginning of the industrial revolution, the oceans have absorbed about one-third of the carbon dioxide produced by human activities. Over 25 million tons of CO_2 is dissolved into seawater every day. But, the oceans do not escape unscathed. We are slowly acidifying the water.

The effects of ocean acidification are poorly understood. More research and monitoring is necessary, especially adaptation strategies for industries and ecosystems. Yet NOAA's budget only provides $11 million for this crucial mission.

Most of the $806 million increase that the Administration is proposing for NOAA is dedicated to restructuring the acquisition of our Nation's polar-orbiting climate and weather satellites. If we do not include the increased funding for satellites, then NOAA overall budget grew by only 2.6 percent. Polar-orbiting satellites are vital to the Nation and we need to make sure that the system is operational. However, we can no longer continue to fund satellites at the expense of the NOAA programs and services.

Finally, I want to address an issue of particular interest to my State, but also I think to the Nation at large, and that is the NOAA's proposed relocation of the Marine Operations Center, also known as MOC–P.

As you know, as of December 2 of last year, the GAO upheld a protest challenging NOAA's decision after the GAO found that the award of the MOC–P lease to Newport, Oregon violated the lease competition's Solicitation for Offers.

GAO's conclusions prompted me to request additional information from both the Department of Commerce and from NOAA. Unfortunately, the information provided to this subcommittee has raised far more questions than it has answered.

Among my concerns on this acquisition are the lack of any business case analysis, the avoidance of oversight by appropriate review boards, NOAA's exemption of MOC–P facility from its acquisition policies and procedures, the failure to formally evaluate and the potential use of existing Federal dollars to ensure the wise use of taxpayer dollars, and the lack of a termination clause in the lease. That's why today I am asking for an Inspector General investigation of NOAA and this acquisition process.

When tens of millions of dollars are at stake, taxpayers should never have to hear that the Federal Government didn't do its

homework or its due diligence. Taxpayers deserve better, and I intend to make sure that NOAA, the Department of Commerce, and the Federal Government are held to this high standard. The burden is on NOAA and the Department of Commerce to demonstrate their choices are the right choices and I have yet to be convinced.

NOAA is an integral part of creating and sustaining American jobs, educating our youth and teachers, and researching and developing innovative technologies that America needs to keep competitive. If the Administration continues to propose inadequate funding for NOAA, we are at risk of losing much as a nation, so I hope that this hearing this morning will illuminate some of those challenges as we hear from Dr. Lubchenco, and we can discuss in the question and answer period how we can continue to make progress on our oceans.

Now I'd like to turn it over to Senator Snowe for her opening statement.

STATEMENT OF HON. OLYMPIA SNOWE,
U.S. SENATOR FROM MAINE

Senator SNOWE. Thank you, Madame Chair, for convening this hearing this morning regarding NOAA's budget and the President's request for Fiscal Year 2011 and also, an extremely troubling report completed by the Department of Commerce's Inspector General last month, exposing major problems within NOAA's Law Enforcement Divisions. Just this week we have seen how both of these issues directly affect Americans on a daily basis. On Saturday, NOAA—as the Chairwoman indicated—produced remarkably accurate and timely predictions of the tsunami generated by the devastating 8.8-magnitude earthquake off the Chilean Coast. I too want to commend NOAA for extraordinary work.

And yesterday, a trial began in Massachusetts pitting NOAA against the Gloucester Seafood Display Auction, in a case that many fishing industry members believe is a textbook example of the abuses of power detailed by the Inspector General in his report.

I'm grateful to you, Dr. Lubchenco, for appearing before the Subcommittee today. I look forward to continuing our ongoing conversations about how to improve NOAA's efforts to manage our Nation's oceans, coasts, and Great Lakes, and to provide accurate and timely weather forecasts and climate projections.

I also want to thank Mr. Todd Zinser, the Department of Commerce's Inspector General, for his independent investigative insight and leadership. And particularly for the striking work he and his staff contributed to a staggering and stunning review of NOAA's fishery enforcement programs and operation.

I'm sure Dr. Lubchenco will agree that his findings in that report will lead to drastic changes to these systems and level the playing field for our Nation's hardworking fishermen and women. I look forward to an in-depth discussion of that document and NOAA's response in our second panel.

In many ways this year's budget request of $5.5 billion represents a major step forward for NOAA, fully a billion dollars above the 2010 request. Still, I am troubled that this budget's entire $800 million increase this request represents, above the 2010 enacted level, is consumed by NOAA's satellite program. In fact, despite

President Obama's step to strengthen our ocean policy initiatives by convening a National Ocean Policy Task Force, this budget represents a combined $44 million reduction in funding for ocean, coastal, and fisheries programs. I find this counterintuitive at best.

More than half of the U.S. population lives in coastal communities and our oceans and coasts are the lifeblood of our economy. We have had an ongoing dialogue about fishery management issues, and particularly as they relate to the Northeast region. I greatly appreciate your efforts, Dr. Lubchenco to follow through on your commitment to rebuilding the climate of trust among fishermen and women, scientists, and regulators, particularly in New England. This commitment is demonstrated in the financial investment NOAA has made in sector management of the ground fishery, over $42 million since 2009, including the $10 million of new funding for permit banking and to defray monitoring costs that were announced earlier this week. This funding will be key to giving sector management every chance to put this fishery back on a long sought path to sustainability.

Yet this budget, with its $54.4 million commitment to Catch Share management, also raises red flags. Catch Shares, as one Maine fishermen put it in a letter to me recently, are a resource hungry management system. So I am troubled, too, that this budget would allocate more than 10 percent of its fishery management funding to systems that will require more data, when our scientists already admit that we do not have enough.

Lack of data has had a very real effect on our coastal economy. On February 17, Bumblebee Foods announced that it would be closing the last sardine cannery in this country, located in Prospect Harbor, Maine, because NMFS, the National Marine Fishery Services, has reduced the catch limit for herring by 38 percent for 2010. Scientists didn't recommend this reduction because herring is overfished—it is not—but rather because they did not have the statistics to provide sufficient confidence in the stock assessment.

In addition to the impact on the herring and the lobster fisheries, this lack of data has directly resulted in a century-old fish processing plant closing its doors, costing an economically depressed community 130 jobs and spelling the end of an entire industry in the United States. Frankly, I fail to see how investing such a large percentage of your fisheries budget on Catch Share programs will provide the results you seek in rebuilding our Nation's fisheries.

By contrast, there is more than $2.2 billion in this request for a drastic overall of NOAA's environmental monitoring satellites, more than the amount for fisheries, oceans, and coastal programs, and fundamental research combined. Paramount among the programs supported by this request is a retooling of NOAA's National Polar Orbiting Operational Environmental Satellite System. I think we all agree that the Tri-Agency NPOESS has failed. This budget would begin the process of breaking this system into two separate components, one lead the Department of Defense, and one lead by NOAA and NASA.

I am particularly concerned about the potential costs of termination of this existing contract and transition to a new management system. These are projected to run as high as $600 million in Fiscal Year 2010 and 2011, and given this program's track

record, costs have grown 87 percent since its inception in 2004, and in those 6 years, the program has fallen 5 years behind schedule; I would not be surprised to see them balloon past that ample figure. We must find ways to ensure this proposed solution does not simple create additional problems.

Of course, the data provided by NOAA satellite systems is critical, particularly in our efforts to predict and monitor global climate change. I want to express my appreciation again for your recent decision to establish a NOAA Climate Service. As we discussed prior to your announcement, I have long supported the concept of consolidating climate research in one body to more effectively and efficiently direct our resources.

Coordinating NOAA's programs is an excellent first step, and I hope to continue to work with you to further consolidate Federal climate research across the 13 Federal agencies currently contributing pieces to help solve the climate puzzle.

I'm also hopeful that this office will help achieve the goal of providing clear, concise guidance to the American people to give them confidence in the predictions and projections, and help them understand and adapt to a changing climate.

Once again, I thank you Madam Chair and Dr. Lubchenco and Mr. Zinser for being here today before this subcommittee. Thank you.

Senator CANTWELL. Thank you, Senator Snowe, and thank you for being here at this hearing and bringing up these important issues. And I, too, look forward to the second panel and better understanding the Inspector General's investigation.

Dr. Lubchenco, welcome, thank you for being here this morning. We look forward to your comments, and obviously to the question and answer period, as well. So, you may begin.

STATEMENT OF HON. JANE LUBCHENCO, PH.D., UNDER SECRETARY FOR OCEANS AND ATMOSPHERE AND NOAA ADMINISTRATOR, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, U.S. DEPARTMENT OF COMMERCE

Dr. LUBCHENCO. Thank you, Madame Chair.

Senator CANTWELL. I think you need to—have you got your microphone on?

Dr. LUBCHENCO. Is it on now?

Senator CANTWELL. Yes, thank you.

Dr. LUBCHENCO. Thank you both very much for your continued support of NOAA, for recognizing how important the services and products we deliver are to the Nation, as we continue to get better and better. I greatly appreciate your also recognizing the good work that the NOAA team did in issuing its advisories and warnings having to do with the tsunami on Saturday. And I acknowledge that these warnings and advisories were possible because of the support that this and other committees provided for detection, modeling, warning systems, coupled with training for communities to be tsunami ready. So we—this is—the success is indeed our partnership, and I appreciate your help in that regard.

The President's Fiscal Year 2011 budget request provides a solid foundation to continue to advance NOAA's mission and for meeting our most pressing needs. The request of $5.6 billion, represents an

$806 million increase over Fiscal Year 2010 enacted level and addresses a set of priorities that will guide our actions in the coming year.

I would like to highlight a couple of significant areas of progress over the last Fiscal Year. In the area of climate, we have continued to provide climate observations and analysis while engaging with our partners on how to strengthen our climate services. We've made important progress in rebuilding our fisheries, recovering protected species and sustaining the livelihoods of people and communities they enable. We introduced a draft Catch Share policy, and are committed to improving fisheries enforcement and our relationships with fishing communities and industries. We made good progress in meeting the mandates of the Magnuson-Stevens Act, and we commissioned the NOAA ship *Pisces,* which will support fisheries research in the Gulf of Mexico and the Southeast U.S.

NOAA, as you know, is fully engaged in the President's Interagency Ocean Policy Task Force. The Draft National Ocean Policy and framework for coastal and marine spatial planning, reflect the growing recognition that healthy oceans matter, and that protecting and restoring critical habitat is essential.

In Fiscal Year 2009, NOAA's Coastal and Estuarine Land Conservation Program acquired or put under easement over 4,000 coastal acres. The Fiscal Year 2011 budget includes new investments to strengthen our science and foster innovation, rebuild and improve fisheries, and sustain and enhance satellite observations.

NOAA has become a global leader, reporting on the state of essential climate variables, and proposes to establish a new line office called the NOAA Climate Service. I thank the Committee for all the support you have given us to establish this NOAA Climate Service. This office will enable NOAA to better address the growing needs for climate services.

Our 2011 request includes $435 million in support of the U.S. Global Change Research Program, with $77 million in new increases for core climate services and observations.

NOAA's satellites provide the data and information that are vital for every citizen in our Nation. A funding increase of $678.6 million, for a total of $1.1 billion, is requested to support the Administration's decision to restructure the NPOESS program and create, within NOAA, the Joint Polar Satellite System. NOAA is requesting an increase of $62.5 million, for a total of $730 million, to continue development of the GOES–R Program to be prepared for launch near the end of 2015.

The 2011 budget also supports NOAA's responsibilities in transforming fisheries and protecting species. This project—this budget includes an increase of $36.6 million to establish the National Catch Share Program. This program will provide a national framework to develop, manage, and improve Catch Share programs in fisheries across the Nation. It will also continue the transition of Northeast Ground Fish Fishery to sector management, as well as support new voluntary Catch Share programs in the mid-Atlantic, Gulf of Mexico, and Pacific Coast regions.

The 2011 budget request also includes an increase of $10.4 million in the community-based restoration program. NOAA plans to increase fish passage and spawning in ring habitat by imple-

menting larger scaled ecological restoration in targeted areas. We will continue supporting the Species Recovery Grants Program with a requested increase of $9.6 million. This will allow NOAA to provide grants to conduct priority recovery actions for threatened and endangered species, including restoring habitat, monitoring population trends, developing conservation plans, and educating the public. With a total request of $65 million, the Pacific Coast Salmon Recovery Grants Program will continue to leverage Federal, State, and tribal resources in the Pacific Coast region to implement projects that restore and protect salmon populations and their habitats.

NOAA's fleet plays an essential role in accomplishing NOAA's mission. The Fiscal Year 2011 budget continues the recapitalization of NOAA's fleet, critical for data collection to meet fishery management mandates. A $6.2 million increase is requested to address vessel maintenance backlog, and to increase preventative maintenance rates for the fleet. $4.4 million is requested toward the design and construction of two fishery survey vessels that will replace aging vessels and continue critical fishery and habitat surveys in the Gulf of Mexico and the West Coast.

Overall, NOAA's Fiscal Year 2011 budget request reflects the commitment of the President and the Secretary to public safety, healthy environment, sound science underpinning decisionmaking, and job creation. These resources are critical to the future success of meeting our needs in climate, fisheries, coasts, and oceans, and I look forward to working with you, and am happy to respond to any questions the Committee may have.

[The prepared statement of Dr. Lubchenco follows:]

PREPARED STATEMENT OF HON. JANE LUBCHENCO, PH.D., UNDER SECRETARY FOR OCEANS AND ATMOSPHERE AND NOAA ADMINISTRATOR, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, U.S. DEPARTMENT OF COMMERCE

Madam Chairwoman and members of the Committee, before I begin my testimony I would like to thank you for your leadership and the generous support you have shown the National Oceanic and Atmospheric Administration. Your continued support for our programs is appreciated as we work to improve our products and services for the American people.

NOAA's mission and priorities support Secretary of Commerce Gary Locke's priorities through innovation in science and technology, services benefiting the economy and ecosystems, and green and blue businesses underscored by a solid foundation of environmental information and stewardship. A healthy environment and a strong economy go hand in hand. Recreational and commercial activities, representing billions of dollars in economic impact, depend on healthy coastal, ocean and fresh water environments and the services they provide. NOAA is assisting communities with the data, tools, technology, training, and essential services and knowledge needed to make decisions in diverse disciplines and sectors—from the innovative management of our natural resources to the investments we make in public infrastructure.

I am honored to be here as the Under Secretary for Oceans and Atmosphere at the National Oceanic and Atmospheric Administration (NOAA), one of the Nation's premiere environmental science and stewardship agencies. I am pleased to speak with you today regarding the President's Fiscal Year (FY) 2011 Budget Request for NOAA.

The FY 2011 President's Budget provides a solid foundation to continue to advance NOAA's mission. This is a critical budget for the Administration and NOAA, and provides support for meeting our most pressing needs. The FY 2011 request is $5.6 billion, representing an $806 million increase over the FY 2010 enacted level. After careful consideration of the key issues facing the Nation in which NOAA is mandated to and able to respond, we developed a set of priorities that helped to shape this budget and will guide our actions in the coming years. These priorities

include ensuring the continuity of climate, weather, and ocean observations; eliminating overfishing and ensuring the sustainability of marine fisheries; strengthening climate science and services; promoting healthy and resilient coastal communities and ecosystems; improving weather forecasts and disaster warnings; and strengthening Arctic science and stewardship. Before discussing the details of this budget request, it is important to document some significant areas of progress over the last Fiscal Year.

FY 2009 Accomplishments

Climate

In the area of climate, we have continued to provide climate observations and analysis while engaging other Federal agencies, the private sector, the science community, and many others on how to strengthen our climates services. In FY 2009, NOAA calculated sea-level trends for an additional 70 global stations. We also deployed ten additional Historical Climate Monitoring sites to provide high resolution regional climate data. Climate studies by NOAA scientists showed that changes in surface temperature, rainfall, and sea level are largely irreversible for more than 1,000 years after carbon dioxide emissions are completely stopped, and Arctic summers may be ice-free in as few as 30 years.

Satellites

We are working to resolve many of the management challenges that will allow us to get our future polar satellite program "back on track." These management challenges go back many years and resulted in significant delays and cost overruns. We still have a great deal of work to do, but this attention is critical to the continuity of the Nation's weather and climate information. In FY 2009, our other satellite programs saw major milestones accomplished with the launch of NOAA–19, a polar-orbiting satellite, and GOES–14, a geostationary satellite. These satellites are critical for NOAA's weather-forecasting, storm-tracking, and space- and climate-monitoring missions. NOAA satellites also provided key support in the rescue of 184 people throughout and near the United States during FY 2009, providing their location to emergency responders.

Weather

Concern for public safety drives NOAA to continue to improve the timeliness and accuracy of warnings for all weather-related hazards. NOAA is committed to enhancing timely and accurate weather and climate forecasts through better observations, improved data assimilation, and collaboration with the research community. To this end, NOAA alerted the communities in Upper Mid-West in early February of record flooding they would experience in late March and April in the Red River Valley. NOAA also provided a Winter Outlook in early October which has been spot-on in advising the American public of the conditions expected through February, including the El Nino-driven storms which have swept through the southern tier of the Nation, bringing heavy rains, snow and flooding from California to the Mid-Atlantic since December.

Fisheries

We have made important progress in rebuilding our fisheries, recovering protected species and sustaining the livelihoods and communities dependent upon them. We introduced a draft catch share policy and are committed to improving relationships with the recreational and commercial fishing communities. We are exploring ways to improve fisheries enforcement efforts, as well as the science used to inform fisheries management decisions. We are also considering ways to expedite Endangered Species Act consultations to allow projects to move forward more quickly while ensuring needed species protections. In FY 2009, NOAA continued to make progress in meeting the mandates of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act. NOAA also commissioned the NOAA Ship Pisces, which will support fisheries research in the Gulf of Mexico and the Southeast United States.

Oceans and Coasts

NOAA was fully engaged in the President's Interagency Ocean Policy Task Force, participating in and supporting every public hearing and attending every working group and Task Force meeting. The result of the Task Force's effort was the release of a draft national ocean policy and interim framework for coastal and marine spatial planning, the first time any Administration has so clearly committed to the ideal that "healthy oceans matter." Protecting and restoring critical habitat is essential for healthy oceans. In FY 2009, NOAA's Coastal Estuarine and Land Conservation Program acquired or put under easement over 4,000 coastal acres.

ARRA Stimulus Funding

The distribution and management of funding made available through the American Recovery and Reinvestment Act of 2009 (ARRA) is a success story for NOAA, as are the results of our projects. NOAA has obligated approximately 70 percent of the $830 million received. We have met all of our planned milestones and expect to obligate the remaining funds in the coming months. With this funding, we have infused new resources into the economy and also invested in critical infrastructure to meet NOAA's mission needs. I am particularly proud of our efforts to restore habitat, creating jobs as we restore ecosystems. We awarded 50 grants for marine and coastal habitat restoration in 22 states and territories, obligating $155.4 million. Many of these projects were located in areas of high unemployment and have provided jobs to Americans during a critical phase of our economic recovery. For example, NOAA grant recipients reported creating or saving 372 jobs for the period of October 1 through December 31, 2009.

The progress we have made toward our strategic priorities and the improvements made to NOAA's core functions and infrastructure set the stage for even more success in the years to come.

FY 2011 Budget Request Highlights

The FY 2011 Budget reflects NOAA's efforts to focus on program needs leading to measurable outcomes, identify efficiencies, and ensure accountability. The budget includes new research and development investments to strengthen our science (including climate) mission and foster innovation; provides investments to rebuild and improve fisheries and the economies and communities they support; and proposes targeted investments to sustain and enhance satellite observations, including a major realignment of our NPOESS program.

Meeting the Rising Demand for Climate Services

President Obama has made it clear that addressing climate change is a high priority, and that good government depends on and should be informed by strong scientific knowledge. NOAA has become a global leader in reporting on the state of essential climate variables. NOAA proposes to establish a new line office called NOAA Climate Service. This office would bring together NOAA's longstanding and outstanding capabilities—Nobel Peace Prize award-winning researchers and assessments, observations, predictions, training and vital on-the-ground climate services delivery to users in climate-sensitive sectors and economies. A single climate office, rather than the current dispersed structure, will enable NOAA to better address the growing need for climate services. NOAA's FY 2011 request includes $435 million in support of the U.S. Global Change Research Program, with $77 million in new increases for core climate services and observations (excluding increases for geostationary and polar-orbiting satellites) needed to enable the Nation to more effectively address the impacts of climate change. Climate science encompasses an immense breadth of topics ranging from those that are well understood and documented, such as greenhouse gases, to those on the cutting edge of knowledge, such as ocean acidification and melting sea ice.

For example, the increasing acidity of the world's oceans has the potential for devastating effects on marine life and ocean ecosystems, but the degree to which various organisms may be capable of adapting to a more acidic environment is uncertain. More investments in ocean acidification are required to reduce this uncertainty and consider means to respond and/or adapt. In FY 2011, NOAA requests an increase of $6.1 million, for a total of $11.6 million, to support new technologies and ecosystem monitoring systems to better assess the physiological and ecosystem level effects of ocean acidification on productivity and the distribution of commercial and recreational marine fish stocks.

The impacts of climate change are evident on both a global and local scale. The Arctic, in particular, is an emerging area of international concern, as it continues to experience profound atmospheric, terrestrial, and oceanic changes related to climate variability and change. With an increase of $3 million, for a total of $6.3 million requested in FY 2011, NOAA will improve and amplify representation of Arctic climate processes in global climate models, strengthen our network of observations, and provide user-focused research assessments for the region.

Scientific assessments are integral for enhancing our understanding of climate—both to determine how and why climate is changing, but also what the changing conditions mean to our lives and livelihoods. NOAA will provide climate assessments on both the regional and national levels to meet society's increasing demand for climate data and information. A requested increase of $10 million will establish regional and national assessments that will synthesize, evaluate, and report on cli-

mate change research findings, evaluate the effects of climate variability and change for different regions, and identify climate risks and vulnerabilities.

Strong scientific assessments incorporate information provided by NOAA's climate models and carbon observing systems. Climate models are the only means of estimating the effects of increasing greenhouse gases on future global climate. In FY 2011, NOAA requests an increase of $7.0 million, for a total of $9.6 million, to continue development of Earth system models to address urgent climate issues such as sea level rise, feedbacks in the global carbon cycle, and decadal predictability of extreme events. An increase of $8.0 million, for a total of $20.9 million, will allow NOAA to continue implementation of the Carbon Tracker Observing and Analysis System, which is an observational and analysis network that measures carbon dioxide and other greenhouse gases. This system will serve as the backbone for verifying greenhouse gas emission reduction and mitigation efforts in North America.

Improve Satellite Observations and Management

NOAA's satellites provide the data and information that are vital to every citizen in our Nation—from weather forecasts, to safe air, land, and marine transportation and emergency rescue missions, we all use satellite products in our everyday life. One of the greatest challenges that NOAA faces today is ensuring continuity of satellite data and operations to provide state-of-the-art, unbroken coverage that supports weather and marine forecasting; climate assessments and change predictions; and space weather forecasts. With the FY 2011 budget request, we will invest in multiple satellite acquisition programs for the continuity of critical weather, climate, and oceanographic data.

A funding increase of $678.6 million, for a total of $1.1 billion, is requested to support the Administration decision to restructure the NPOESS program and create within NOAA the Joint Polar Satellite System. This large increase reflects the Administration's determination that beginning in FY 2011, NOAA will fully support within its own budget the procurement and development of the assets for the afternoon orbit. Restructuring the NPOESS program will allow NOAA to continue the development of critical earth observing instruments for the afternoon orbit, which are required for improving weather forecasts, climate monitoring, and warning lead times of severe storms. The restructured program separates civilian and military satellite procurements, but retains sharing of common assets such as the ground system and data. The National Aeronautics and Space Administration (NASA) will serve as the lead acquisition agent for NOAA, continuing the long and effective partnership on all of our polar-orbiting and geostationary satellite programs to date. There is still much work that remains, but NOAA is committed to working with our partners to ensure a smooth transition to assure the continuity of Earth observations from space.

NOAA is requesting an increase of $62.5 million, for a total of $730 million, to continue the development of the Geostationary Operational Environmental Satellite—Series R (GOES–R) program. This increase will provide for the continued development of six GOES–R satellite instruments, the spacecraft, and ground systems to be prepared for launch near the end of 2015. The acquisition of NOAA's GOES–R series, in partnership with NASA, is progressing on track. The new satellites will carry improved environmental sensors to enable NOAA's forecasters to enhance the timeliness and accuracy of their severe weather warnings. Also, this next generation of GOES satellites will provide advances in NOAA's observation capabilities, including improvements to coastal ecosystems, space weather, and lightning observations through continued funding of instruments such as the Advanced Baseline Imager, Solar Ultra Violet Imager, Extreme Ultra Violet Sensor/X-Ray Sensor Irradiance Sensor, Space Environmental In-Situ, and Geostationary Lightning Mapper.

Global sea level rise directly threatens coastal communities and ecosystems through increased exposure and erosion, more frequent storm-surge and tidal flooding, and loss of natural habitat due to drowned wetlands. NOAA's budget requests an additional $30.0 million for a total of $50 million to continue development of the Jason–3 satellite that will provide continuity of sea surface height measurements, thus ensuring an uninterrupted climate record of over 20 years. The Jason–3 mission is a joint U.S.-European partnership with U.S. and European funding.

NOAA requests a $3.7 million increase to partner with the Taiwan National Space Organization for the launch of 12 satellites to replenish and upgrade the Constellation Observing System for Meteorology, Ionosphere, and Climate (COSMIC) satellite constellation. This program is a cost effective means of obtaining information about the temperature and moisture in the atmosphere around the globe that will improve forecasting accuracy.

Finally, a requested increase of $9.5 million will support, in cooperation with NASA, the refurbishment of the existing NASA Deep Space Climate Observatory

(DSCOVR) satellite, its solar wind sensors, and the development of a Coronal Mass Ejection (CME) Imager. The data and information provided by DSCOVR will support the operations of the National Weather Service Space Weather Prediction Center, which generates accurate and timely 1–4 day forecasts and warnings of geomagnetic storms that could adversely affect power grids, telecommunications, the health and safety of astronauts, and the viability of satellite systems.

Transform Fisheries and Recover Protected Species

Ending overfishing, improving fisheries management and putting fisheries on a path to sustainability and profitability are still challenges for NOAA. I would like to highlight areas in the FY 2011 budget that support targeted investments to continue fulfilling NOAA's responsibilities under the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act, and that will help to sustain local communities while restoring a number of vital fisheries stocks and habitats.

NOAA recently released a draft catch share policy to encourage the consideration and adoption of catch shares wherever appropriate in fishery management and ecosystem plans and amendments, and will support the design, implementation, and monitoring of catch share programs. Catch share programs give fishermen a stake in the benefits of well-managed fisheries, and therefore greater incentive to ensure effective management. To support NOAA's policy, this budget includes an increase of $36.6 million, for a total request of $54 million, to establish a National Catch Share Program. This program will provide a national framework to develop, manage, and improve catch share programs in fisheries across the Nation. This increase will also continue the transition of the Northeast ground fish (multispecies) fishery to sector management as well as support new voluntary catch share programs in the Mid-Atlantic, Gulf of Mexico, and Pacific Coast regions.

Managing fisheries to their full potential requires additional efforts focused on habitat condition and ecosystem functioning, which provide the foundation for species recruitment and survival. The FY 2011 budget request includes investments in this area through three vital NOAA programs that are focused on threatened and endangered species, but will have a resonating impact across broad goals for enhancing ecosystem integrity and health. First, through the Community Based Restoration Program, NOAA plans to increase fish passage and spawning and rearing habitat by implementing larger-scale ecological restoration in targeted areas such as wetlands. NOAA is requesting an increase of $10.4 million for a total of $23.8 million for this effort in FY 2011. Second, we will continue supporting the Species Recovery Grants Program in FY 2011 with a requested increase of $9.6 million, for a total of $20.8 million. This will allow NOAA to provide grants to conduct priority recovery actions for threatened and endangered species, including restoring habitat, monitoring population trends, developing conservation plans, and educating the public. Third, with a total request of $65 million, the Pacific Coastal Salmon Recovery Grants Program will continue to leverage Federal, state, and tribal resources in the Pacific Coast region to implement projects that restore and protect salmonid populations and their habitats.

Another highlight of the FY 2011 request includes support for the restoration and protection of the Nation's largest estuary, the Chesapeake Bay. NOAA supports the President's Executive Order to restore the Chesapeake Bay by providing enhanced understanding of the relationships between the Bay's living resources and habitat, coordinating protection and restoration of key species and habitats across jurisdictional lines, and supporting a coordinated system of monitoring platforms distributed across the Bay. We are requesting an increase of $5 million, for a total of $7.1 million, for regional studies in the Bay. This investment will ensure NOAA has state-of-the-art field and laboratory equipment in place in FY 2011, which will be used to address the mandates of the President's Executive Order in FY 2011 and beyond.

In addition to expanding scientific understanding in the Chesapeake Bay, NOAA scientists are developing integrated ecosystem assessments (IEA), a critical tool for understanding the interactions between multiple species and for helping to manage and sustain critical stocks and habitats. IEAs allow managers to weigh trade-offs between sectoral uses and evaluate the socioeconomic implications of management actions. Most importantly, IEAs provide guidance to ensure the most cost-effective and informed resource management decisions. In FY 2011, NOAA is requesting an increase of $5.4 million, for a total $7.5 million investment, to focus primarily on the California Current Ecosystem, but to also engage work on the Gulf of Mexico and Northeast Shelf IEAs.

Vibrant Coastal Communities and Economies

It was estimated that in 2003, approximately 153 million people—or 53 percent of the Nation's population—lived in the 673 U.S. coastal counties, an increase of 33 million people since 1980. It is estimated that this number will increase by 12 million people by 2015. In addition, over half of the U.S. Gross Domestic Product is generated in coastal counties, highlighting their critical importance to the Nation's economy. This population increase is straining the limited land area of coastal counties. Coupled with the important economies of coastal areas and the demands for ecosystem services, it is becoming increasingly difficult to manage coastal resources in the context of competing uses. NOAA's FY 2011 budget provides key investments to promote sustainable, safe use of coastal areas and to support the economies of these coastal areas.

As stated in the interim report of the Interagency Ocean Policy Task Force, current and future uses of ocean, coastal, and Great Lakes ecosystems and resources should be managed and effectively balanced. I would like to highlight areas in our request that support this goal and other Administration priorities.

Human uses of ocean resources are accelerating faster than our ability to manage them. Increasing conflicts are unavoidable as demands increase for ocean-based energy, marine aquaculture, commercial and recreational fishery products, shipping and navigation services, and other activities. The Administration's Interagency Ocean Policy Task Force released the Interim Framework for Effective Coastal and Marine Spatial Planning in December 2009, which is aimed at enhancing and streamlining ocean management decisions to ensure the health of vital ocean ecosystems as human uses increase. Current management approaches are ad hoc and fragmented at the Federal, state, and local levels. NOAA is a leader in providing tools and services that support coastal and marine spatial planning efforts. Our existing programs have established a foundation for coastal and marine spatial planning that could be used government-wide across jurisdictions and sectors. In FY 2011, NOAA requests an increase of $6.8 million to support coastal and marine spatial planning, which will enhance existing efforts for sustainable fisheries, safe navigation, improved water quality, living marine resources and critical habitat protection.

NOAA's request further supports coastal and marine spatial planning efforts with a $2 million increase to support the Gulf of Mexico Coastal and Marine Elevation Pilot to a develop robust geospatial framework, including high-resolution topographic and bathymetric datasets. These datasets will provide a better understanding of baseline variables needed to enhance coastal community resilience, wetland loss and erosion, and the potential for degradation of key ecosystem services. This pilot will begin in the Gulf of Mexico and be extended to other regions and applications over time.

The Nation's coastal communities and economies depend on healthy coastal resources, which are threatened by fragmented planning and management of societal use of coastal lands and waters. Regional ocean governance mechanisms facilitate the effective management of ocean and coastal resources across jurisdictional boundaries by improving communications, aligning priorities, and enhancing resource sharing between local, state, and Federal agencies. Our request of a $20 million increase will establish a competitive grants program to advance effective ocean management (including coastal and marine spatial planning) through regional ocean governance. The program will help support priority actions, in association with states, identified in plans of the existing regional ocean partnerships. Support for these partnerships will also encourage development of comprehensive, coastal and marine spatial plans, which are consistent with the President's Ocean Policy Task Force Interim Framework for Effective Coastal and Marine Spatial Planning.

To better protect the public health of our coastal citizens and tourists, NOAA requests an increase of $9.5 million, for a total of $12.5 million, to support research into technologies that better detect, identify, characterize, and quantify disease-causing microbes, toxins, and contaminants in marine waters. These funds will be used to target sensor development, which will support ocean and coastal related Health Early Warning Systems, identify risks, and promote public health.

In addition to public health hazards, coastal communities are vulnerable to hardship and costs associated with episodic and chronic natural hazards, such as hurricanes, sea-level rise, and coastal erosion. Our request of a $4 million increase will support the development of tools, such as web portals, Geographic Information System (GIS) products, and forecast models, to help coastal communities mitigate the impacts of climate and weather hazards.

Ensure Timely Weather Forecasts

Weather impacts our lives and the economy. The United States experiences a broader variety of severe weather than any other Nation on Earth, from hurricanes in the south, east, and west, to arctic storms in the north. Each year, NOAA provides 76 billion observations, 1.5 million forecasts, and 50,000 warnings to mitigate the impact of weather events and protect life and property. The FY 2011 Budget Request proposes important increases in both weather operations and weather research.

Weather is a factor in over 70 percent of air-traffic delays, costing approximately $29 billion annually.[1] Two thirds of all weather delays are preventable with more accurate and timely weather information. To meet the rising demands of air transportation, NOAA is involved in a collaborative partnership with the Federal Aviation Administration to create the Next Generation Air Transportation System. NOAA requests an increase of $15.1 million, for a total of $26.7 million, to modernize our aviation weather forecasts and warnings. This funding will provide much needed improvements to processing systems and models, as well as new products for pilots.

NOAA is dedicated to continually upgrading existing weather tools to keep up with growing needs and improved technologies, as well as investing in research to develop new products. NOAA requests an increase of $3.2 million, for a total of $11.1 million, to install additional components to the Nation's fleet of NEXRAD Doppler weather radars to improve their accuracy in determining the quantity and type of precipitation. Doppler weather radar is the primary tool used to issue local storm warnings for flash floods, tornadoes, and severe thunderstorms. Looking to the future, NOAA also requests an additional $6 million, for a total of $10 million, to continue developing Multi-Function Phased Array Radar technology, which shows great promise as the next major improvement in weather detection. These funds will examine the benefits and efficiencies associated with this next-generation radar technology. Multi-Function Phased Array Radar's ability to rapidly scan large areas could provide an enormous advantage to radar meteorologists over current capabilities, and in turn enhance weather and climate warnings for the public.

Water resource and precipitation monitoring and forecasting have become a particular challenge with increases in population, drought, and frequent changes in commercial shipping needs. On an annual basis, the majority of federally declared disasters are due to flooding. In FY 2011, NOAA requests an increase of $7.7 million for a total of $12.9 million, to research, develop, and deliver water forecasting services for river, estuary, and coastal areas that do not currently have these capabilities.

In addition, the FY 2011 Budget includes $2 million, for a total of $13 million, for the national Space Weather Prediction Center (SWPC). Millions of precision Global Positioning System users, satellite operators, commercial and military space and aviation activities, and power grid operations will be vulnerable to a new round of solar storms during the predicted upcoming solar maximum. This investment will improve information technology systems at the SWPC and enhance space weather alerts and warnings to avoid potential disruptions to the Nation's shared infrastructure on which the public relies.

Finally, NOAA requests an additional $2.2 million, for a total of $14.5 million, to provide a necessary technology refresh and frequency conversion for our network of wind profilers. This 20-year-old system provides high-frequency wind data for severe weather warnings and watches of tornadoes, flash floods, and winter storms, short-term forecasts, and detection of volcanic ash plumes.

Program Support

In order to deliver sound science and services, NOAA must continue to invest in its information technology (IT) infrastructure, the quality and construction of NOAA facilities, and recapitalization. NOAA experiences thousands of cyber attacks every month. A requested increase of $8.7 million will enhance security monitoring and response capabilities, and consolidate our IT infrastructure into a single enterprise network. In addition, NOAA needs to continue to replace key facilities to ensure employee safety and maintain mission continuity. This budget includes an increase of $14 million for the Pacific Regional Center which brings together NOAA programs on Oahu, Hawaii. While the ARRA funds we received in FY 2009 helped fund basic construction of the facility, additional funding is needed in FY 2011 to procure and install the information technology infrastructure for the new facility. The budget

[1] See the Federal Aviation Administration's Research, Engineering and Development Advisory Committee's *Report of the Weather—ATM Integration Working Group*, 3 Oct, 2007; available at *http://www.jpdo.gov/library/FAA_REDAC_Report.pdf*.

also includes an increase of $5 million to support the replacement of the bulkhead at NOAA's Atlantic Marine Operations Center.

NOAA's fleet plays an essential role in accomplishing NOAA's environmental and scientific missions. The FY 2011 budget continues the recapitalization of NOAA's fleet, critical for data collection to meet fisheries management mandates. A $6.2 million increase is requested to address vessel maintenance backlog, and to increase preventative maintenance rates for the fleet. An additional $7.4 million is requested to accelerate a planned FY 2013 Major Repair Period to address structural, mechanical, and electrical breakdowns of the Miller Freeman. Lack of repair to this valuable ship would result in lost days at sea and impact NOAA research. Finally, we request $3 million toward the design of a fishery survey vessel to replace the *Oregon II,* an aging fishery survey vessel operating in the Gulf of Mexico. Another $1.4 million is requested for project management of a new fishery survey vessel that is being built using ARRA funding.

Conclusion

Overall, NOAA's FY 2011 Budget Request reflects the commitment of the President and the Secretary to public safety, a healthy environment, sound science underpinning decisionmaking, and job creation. These resources are critical to the future success of meeting our needs in climate, fisheries, coasts, and oceans. I look forward to working with you, the Members of this Committee, and our constituents to achieve the goals I've laid out here through the implementation of the FY 2011 budget.

Thank you for the opportunity to present NOAA's FY 2011 Budget Request. I am happy to respond to any questions the Committee may have.

Senator CANTWELL. Thank you, Madame Secretary.

Senator Begich, do you want to make any kind of opening statement before we go to questions?

Senator BEGICH. No, I'll just go—wait for questions, Madame Chair.

Senator CANTWELL. We've also been joined by Senator LeMieux, no?

Senator LEMIEUX. No, I'll wait for questions.

Senator CANTWELL. All right, thank you very much.

Dr. Lubchenco, obviously I'm very concerned about the MOC–P project, and obviously in the—I'm just having trouble understanding how NOAA exempted itself from the normal processes that must be followed in doing this kind of a project. And, we have tens of millions of dollars at stake from the taxpayer, and OMB has a definition of what capital investments are, and what procedures must be followed, and you also have a capital facility planning and management manual and procedures that have to be followed. And so, why did NOAA exempt this particular facility acquisition process from those definitions and those standards?

Dr. LUBCHENCO. Madame Chair, it's my understanding that the process that we followed included an initial market analysis on potential lease costs for the new facility, and that this market analysis—which was conducted by a third-party brokerage service—indicated that the annual lease cost was below the GSA prospectus level of $2.66 million.

And so, based on that market analysis, NOAA applied for—and GSA approved—delegated authority for NOAA to conduct the lease award.

With respect to the NOAA and DOC reviews, the lease was approved by NOAA's Facility Oversight Board and NOAA leadership. The DOC Real Property Board did not review the proposal since it was a lease reward and the Board focuses primarily on review of capital construction projects.

The MOC–P decision was, however, reviewed and approved by the Department of Commerce leadership. So, I believe the bottom line is that NOAA conducted a transparent and fair solicitation and lease award process, and that it worked as it was intended.

Senator CANTWELL. I think you're missing the point, Dr. Lubchenco, and that is that to basically not comply, NOAA decided that it was not a capital investment, as required under OMB's definition. The whole process of making those decisions was to avoid the proper regulation and oversight that was required to make this decision. And so, the Agency has basically twisted the definition of capital investment, basically to evade oversight. And, why would NOAA do this? I mean, do you have something to hide in the decision? That's what I'm trying to understand in why you would not follow what is the NOAA Facility Investment Management Board of Commerce and their process?

Dr. LUBCHENCO. Madame Chair, it was my understanding that we followed the process that was appropriate. I'm not quite sure how to respond to your answer, I mean, your question. I would be happy to consult with my staff who are here, or to provide you with additional information. It's my understanding that there was no intention to undermine or avoid the appropriate steps and that we followed the process, as we understood it, to be appropriate.

Senator CANTWELL. Well, it's very clear from this circular here about what are capital assets, and this project meets the definition which would have triggered requirements and oversight that NOAA has evaded. And, obviously, we're going to be concerned, as I said, and asking for an Inspector General investigation of this process.

So, I'm going to turn questioning over at that point in time to my colleague, Senator Snowe, and probably come back to this issue.

Senator SNOWE. Thank you very much.

And Dr. Lubchenco, I'm going to raise one of the issues that I raised in my opening statement concerning the sardine cannery in Maine, because I think it illustrates the problem that we're facing as an industry with respect to what's happening in the Northeast where we have to deal with some very tough regulations and reductions.

Stock assessments are critical to determining the catch levels of a fishery. And here, with respect to this sardine cannery, they reduced the herring catch by almost 40 percent despite the fact that herring is not over-fished. But they didn't have confidence in the stock assessment itself, which is just so devastating because it means the loss of jobs.

And the fact of the matter gets back to the investments we're prepared to make, to ensure that we have the scientific research necessary to make those decisions upon which these catch-levels are based. And it seems somehow like we're saying, "Geez, we don't really know, we can't get it right, until we do, we're just going to have to drastically cut the amount of fish that can be caught. And it actually had a direct effect on the closure of this facility that's going to occur in April and which was announced just a couple of weeks ago.

So, I find that devastating. And, it's a direct connection. We need to make the investments necessary to get accurate stock assess-

ments and not just, sort of providing hypotheticals or guesswork and therefore devastating lives and community as a result of these decisions.

I just don't think that there's a realistic understanding of the impact. So, when we're making these drastic reductions because we're not really certain in terms of what level the stock is, that is a problem.

So I'm concerned because I look at the budget, I don't see the kind of investments in this budget that will produce sufficient stock assessment so that we can have accuracy and there can be confidence in the decisions that are made at the Federal level.

Dr. LUBCHENCO. Senator, I am not familiar with the particulars of the herring fishery, but I share your concern about the consequences of the closure to the communities and the individuals involved.

I also agree completely with the importance of having accurate fishery information data on which to base decisions. As you know, we invest a considerable amount of energy and time in doing that, but it is insufficient and would be—there is a lot greater need for many of our fisheries to have a lot more data than we do have. So, I share your concern about that.

Senator SNOWE. Well, I would appreciate your input on this and I would like to have you analyze it, because I truly am disturbed about the lack of certainty with respect to this type of decision, on which we should have the very best and most accurate information to make a decision on the total allowable catch.

And I noticed it, even in this current budget, some stocks may experience up to a 5 to 7-year delay in assessments. And, the Atlantic herring is an example of what has now occurred that's devastating lives. There are not exactly many options for alternative employment.

Clearly there was a problem, back last fall when the decision was made to cut the catch from 225,000 metric tons down to 90,000 metric tons. Ultimately it became 20 percent higher, up to 109,000, but it devastated this particular factory, the only one, as I said, remaining in the United States.

So, I'd like to have your input, I'd like to have you at least examine this issue, I think there has to be a dose of reality in Washington, among Federal regulators about what they're doing. Right now, there isn't, and it's having real life implications on the ground. And I truly feel that there's this disconnect saying, "Oh, well, we just didn't get it right, we're not sure, so we're going to just devastate the catch-levels," and ultimately close this factory.

This gets to the Catch Share Program, as well because when you're making enormous investments in this Catch Share program, and yet we haven't done enough to gather enough data even for sector management.

Again, it's getting back to the good quantifiable, scientific research upon which to base these decisions that really are fundamentally affecting the confidence and decisions that are made here, at the Federal level. So, I guess I'm surprised how much the budget is being devoted to Catch Shares I quoted to you, a Maine fisherman saying that it's "resource hungry," which is true. So, it's going to devour a lot of the dollars and the resources necessary

that we should be using for other parts of the program to get that right so that we have accurate data upon which these decisions are made.

Dr. LUBCHENCO. Senator, the issue of accurate and timely information about the stocks—the number of fish that are out there, if you will, the stock assessments—my new Assistant Administrator for NOAA Fisheries, Eric Schwaab, who has just recently come on board, and I have talked about the need to do a comprehensive review of the priorities for doing stock assessments and if there aren't ways that we can obtain more timely information and be making decisions based on more current data. And we will be implementing a project to do just that.

Relative to your question on Catch Shares—the significant increase in the budget for Catch Shares does reflect an intent to transition to fishery management that, we believe on balance, will be much better for fisherman and for fish. There is an up-front investment required in making that transition and in obtaining the information, setting up the monitoring systems, et cetera.

The evidence shows that once that's in place, those fisheries are fished in a much more sustainable fashion and are—bring many other benefits to the fishery that are important to fishermen. So, we see this as an important step in the right direction to get us out of what has been a downward spiral in fewer and fewer fish, and fewer and fewer fishing jobs. And, getting out of that, I think, is our primary focus. And Catch Shares have an important role to play in that for the commercial fisheries. They're not the panacea, they're not an answer to everything.

Senator SNOWE. Well, I know my time is up and I just think it's not so much that you're doing it in Catch Shares, as where you're taking it from, and that's the cooperative research program, which is the foundation of trust and confidence. And that program has taken a 60 percent reduction. So, it's where you're taking funding from that is so puzzling to me, at a very difficult time for our fisheries. It's that shift that is most bothersome, and in fact, the Inspector General indicated that when funding levels for cooperative research were higher in the Northeast ground-fish industry, relationships between NOAA and the industry were noticeably better than they are now.

So, it's the shift. I'm not arguing so much for or against the Catch Share as I am arguing about where you're drawing the money from that is really undercutting a fundamental aspect of any kind of trust we can build in terms of our stock assessments. Cooperative research is the avenue for achieving that.

Dr. LUBCHENCO. Senator, I would note that of the money that's in the budget for the Catch Shares, that $6 million of that is for cooperative research. And so, it's not quite the case that the drop in the cooperative—that the category that's labeled Cooperative Fishery Research—it's not as much of a drop as it looks like because there are $6 million in the Catch Share budget for that.

Senator SNOWE. But it's a $4 million reduction.

Dr. LUBCHENCO. That's correct. And I believe that——

Senator SNOWE. At a time——

Dr. LUBCHENCO.—those programs are very important and very essential, and I would like to see them be higher.

Senator SNOWE. But our fisheries are being devastated, as you well know. I mean, absolutely devastated—barely hanging on because of the Federal regulations that are coming down. And—as you well know, and it's having a profound impact. So, that's what's so mystifying and stunning to me, is taking money away at the very time we need it, desperately, to determine the accuracy of these stocks.

Senator CANTWELL. Thank you.

Senator Begich, did you have questions for the Secretary?

STATEMENT OF HON. MARK BEGICH, U.S. SENATOR FROM ALASKA

Senator BEGICH. I do, I have a few and I'll try to get through them very quickly. But I want to just echo the concern that Senator Snowe had in regard to the research. As a State that has 85 percent of our stock through a Catch Share program, the information is critical in order to determine that. So you're—we've been probably—we're probably the model of Catch Share, and it still has its controversy to this day, and I still get people coming to my office—when I was Mayor, they came for some reason, now I'm a Senator, they definitely are coming.

So, I understand the pain and agony right now in your fisheries, and we have a lot of lessons that we have learned in Alaska waters on how to deal with it, but also the research is critical. Without it, you have no concept of what you're divvying up, in essence—I'm using my simplistic terms, here.

So, you're—I was enjoying your conversation from afar. So, I hear what you're saying.

If I can ask you, Dr. Lubchenco, a couple of things in regards to the Ocean Policy Task Force, and you and I have had some conversation on this, and I know in the budget there are some dollars now being put to the planning effort, the regional partnerships to the tune of about $20 million and another $6.8 million—which is good, because I think the last time we talked, there was no money, but there was a lot of discussion about it.

My point was, "Well, great plan, no money." Now, a couple of issues that—that I'd like you to kind of respond to. And my question relates to, back in September, comments that NOAA made to MMS on the proposed outer continental shelf oil and gas leasing program of 2010 to 2015. Your response stated, at a minimum, NOAA believes that the lease area should not be further considered—and that was in the draft proposal until the CEQ-led Ocean Policy Task Force has released its recommendations and directives.

Can you—if you can—describe these CEQ directives might be—when they might be available, so we can see them and have that discussion? And how the new requested funding to support the Ocean Policy Task Force initiatives relate to moving forward on OCS development in Alaska?

Dr. LUBCHENCO. Senator, the comments that NOAA submitted to the Department of Interior Minerals Management Service were the initial part of an ongoing dialogue between NOAA and MMS. And we have had some meetings to discuss with them what some of the concerns are.

It's not a correct interpretation of the NOAA comments that we oppose all leasing until the completion of a multi-year coastal and marine spatial planning process is in place. Rather, we are suggesting that MMS take the recommendations of the Ocean Policy Task Force under consideration as they are making their decisions.

The funding that will be—the $20 million funding—that is in our budget request for a competitive grants program for regions would be that—a competitive program for different regions of the country to apply for resources to implement the priority activities for that region. And there is not yet a mechanism for doing that.

The President's Interagency Ocean Policy Task Force recommendations are going to the President soon, and following that, we will await word from the President about how he wants to act on those recommendations. And it's at that point we would have a mechanism for working with the regions as recommended in our task force recommendations.

Senator BEGICH. And when you say the regions, for example, in Alaska waters the regions will be defined—or the areas of priority may be, for example, in our area, oil and gas may be a part of that equation?

Dr. LUBCHENCO. Yes, Senator. The intention is for the grants to reflect the regional priorities.

Senator BEGICH. Who determines those regional priorities, then?

Dr. LUBCHENCO. Well, for most other regions, there is an agreement among Governors. So, for example, the three West Coast States—Washington, Oregon and California, along the—so those States have a regional agreement and they have laid out their priorities.

The Gulf Coast States have a regional agreement where they have laid out their priorities. Alaska is unique in having—obviously because it's so large—it isn't a partnership with other Governors for priorities. And so there needs to be some mechanism for someone identifying those priorities that would be analogous to the other regions. I'm not sure exactly what that would look like.

Senator BEGICH. If I could ask, just quick—my time is up on this round—and that is, when you say "mechanism" who will—can the State of Alaska say, we're going to propose what the priorities are? Or will it come from the Federal Government saying, "This is how we want you to do it."?

Dr. LUBCHENCO. We haven't completely worked out the details of how that will play out. The intent is to have the funds available to implement the priorities of the region. Now, there may be some categories that might be defined, or some priorities, but we haven't made those decisions, yet.

Senator BEGICH. OK. I'll end there. I have plenty of other questions, but we have plenty of time, I think. So, I'll leave it at that.

Senator CANTWELL. Senator LeMieux?

STATEMENT OF HON. GEORGE S. LEMIEUX, U.S. SENATOR FROM FLORIDA

Senator LEMIEUX. Thank you, Madame Chairman.

I want to echo the comments of my colleague from Maine. Dr. Lubchenco, you and I have spoken several times about this fisheries issue and the dramatic impact it's having on fishermen across

the country and specifically for my concern about fishermen in Florida.

We had a rally last week where fishermen came up from Florida and came from all over the country to talk about the dire situation that they're in. As you and I have spoken about, fishermen care about the fish stock, because it's their livelihood. They are very concerned about making sure that the fish stock is healthy, and they are for regulations that are reasonable in order to preserve the fish stock, because it's their way of life.

But what I'm hearing from the fishermen in Florida, folks like Bob Zales who was here helping to organize the event, is that in the red snapper fishery that they're seeing more red snapper than they have seen in three generations. Yet, there are these moratoriums on fishing that are preventing them from operating their charter boats, which is putting them out of business. These people are really hanging by a thread.

So, I want to echo the comments of Senator Snowe on how the money is being spent. I haven't come down one way or the other yet on the catch shares program, but certainly, I think we can all agree that we need the money to be spent on getting the proper scientific analysis and getting independent analysis, so that we know that the decisions that are being made are appropriate.

Because the word from the fishermen is that there is a huge disparity as to what the statistical information is saying versus their experiential information; what they're finding when they're actually going out and fishing.

So, in terms of these dollars that are going to be spent and cooperative research, do I understand that to mean that that's going to be research with independent folks to find out whether or not the information we're obtaining on the quality of the fishery is accurate?

Dr. LUBCHENCO. The cooperative research programs are typically programs that involve NOAA scientists and fishermen themselves, and oftentimes academic scientists who are working collaboratively together to get information about the size of a fish population, for example. And I think those programs have shown to be extraordinarily effective in having everybody have confidence in the data, and you clear recognize the importance of those programs.

Senator LEMIEUX. Is there enough money in here to do that on an expedited basis for, say, the Gulf fisheries so that we can know that the data that we're using to evaluate whether we want to close a fishery is appropriate?

Dr. LUBCHENCO. There's not enough money in the budget to do all of the cooperative research program that probably need to be done. And, as you are well aware, constructing a budget involves tradeoffs and this was as much as was possible, given other considerations But it would be—I think this an area where I think there is a much greater need than is reflected in the budget.

Senator LEMIEUX. Well, I just wanted to make the point that we need to be sounding the alarm. This is not a situation that's a problem 6 months from now, this is not a situation that's a problem a year from now, this is a situation where right now, families who have been fishing for generations are going out of business. They are losing their livelihood. When they lose their livelihood, not only

does that way of life go away, not only do they lose their jobs, but the diner down the street where the people who came in to charter the fishing boat used to eat goes out of business, and the hotel where they used to stay goes out of business.

We're in a time when we're talking about a jobs bill and we're putting in regulations based upon science that people don't believe in that is also putting people out of work in historic industries. The fishing industry in this country is as old as this country is, and it is a huge way of life for people in Florida.

You know, we've got more recreational fishermen than any place in America. These folks who have been out there generation after generation, they are some of our oldest families in Florida.

So, I'm very concerned that we work on this right now, that we have an action plan right now to figure out whether we can get some better science. Because it's the old expression, you know, garbage in, garbage out. If the science is bad and we're making Draconian decisions based upon bad science, or science we can't believe in that's affecting people's lives, that's wrong.

Senator Schumer has a bill, as you may know, to amend the Magnuson-Stevens Act to allow for some more flexibility when fisheries improve, to look at the economic impact and to not necessarily be on this 10-year timeframe. Do you have an opinion about that legislation?

Dr. LUBCHENCO. Senator, I'm happy to work with Members of Congress to try to figure out how we can get through the very real challenges that you just highlighted. I haven't examined the bill in detail, and so I'm not prepared to comment on it, but I do share the concern about the very dire situation that exists in many coastlines and for many fishing communities—both commercial and recreational. And given the very serious sort of context of a bad economy, it's even worse.

With respect to the red snapper fishery, I understand that fishermen may not have confidence in the data, but this is not a situation where we don't have good information. I think the challenge with something like red snapper is that the calculations about what is a sustainable level of fishing take into account how—what size the fish are and what many of the fishermen are seeing are lots and lots of younger fish and are assuming that that means that they are recovered and there are plenty out there.

And, in fact, it's important for those younger fish to get larger and reproduce for the future health of the fishery. And the complication with red snapper is very much that there is a directed fishery, they are also bi-catch in other fisheries, for example, grouper. And so they get hammered both directly and indirectly and we have been working hard to try to find the right balance in allowing some fishing to happen, but not preventing the recovery of those stocks.

Let me just conclude by saying that I very much want to work with you, I appreciate the urgency of this, and I think that we could put together some ideas about how we can not preclude the future health of the fishery and not lose a lot of important jobs right now.

Senator LEMIEUX. Well, I appreciate that. I want to renew, in closing, my offer to you to come down to Florida, and let's go on

a fishing boat and see these red snapper, because what my fishermen are telling me is not only are there many red snapper, but there are big red snapper, not just the juvenile fish.

In fact, people who have been fishing for 45 years say they've never seen as many in quantity or as in size.

They're not allowed to catch red snapper, so they go out on their fishing boat with a group trying to catch something else, and all they're catching is red snapper. So, they have to throw the fish back, because they're not supposed to be catching red snapper. Which means they're feeding dolphins, which they're not supposed to be doing, either, but the dolphins follow the boat out.

The practical effect is that they're trying to catch around the red snapper, and there are so many of them it's difficult to do. So, practically, I'm not sure we're even achieving the effect that we want to anyway, assuming the science was good.

I believe your sincerity on this issue. My point is that we can't wait until May or August or January to figure this out, we've got to figure it out right now.

Dr. LUBCHENCO. I look forward to taking you up on your offer.

Senator LEMIEUX. OK.

Dr. LUBCHENCO. And also, it's pretty obvious that there is a need for having better exchange of information between the scientists who are working on this and the fisherman, so that everybody can see the same information and have a real open exchange of information and perspectives. I think that would be very helpful.

Senator LEMIEUX. OK, thank you, Administrator.

Madame Chair, I don't have any more questions. Thank you very much.

Senator CANTWELL. Thank you, Senator LeMieux.

I think in consulting with my colleagues, we want to do another round with you, Dr. Lubchenco, and then we'll go to the second panel.

And if I could go back to this issue with the marine facility that we were talking about, I want to ask you about why NOAA didn't consider long-term costs as part of, you know, the indirect and long-term cost of such a facility?

Dr. LUBCHENCO. I mean, Madame Chair, it's my understanding that we did consider the long-term costs.

Senator CANTWELL. So, I don't think you did consider the long-term cost, indirect cost of locating a facility. It's very clear that, when you look at the requirements for the facility, that you are talking about proximity to research, in fact it says, "Proximity to the NOAA Western Regional Center in drivable miles," and it actually gives the exact location of 7600 Sand Point Way, Northeast Seattle. So, that's the proximity of the site and we are talking about, now, a facility that's hundreds of miles away, you're talking about access to an airport and proximity to an airport. That is also a major regional airport, hundreds of miles away, you talk about access to proximity to shipyard and dry dock—I'm assuming that's for repairs and I'm assuming that also is hundreds of miles away, and so what this really means is because NOAA didn't follow the rules and came up with a way to skirt the rules, basically saying, NOAA, you know, "We're exempt from the normal process that people go

through, we don't have to account for these things," and the issue is, is its long-term expense to the taxpayer.

You clearly outlined in your requirements that you wanted to be close to the NOAA Center in Seattle, you outlined that you wanted to be close to an airport, you wanted to be able to get ship repairs easily, but you skirted the responsibility by coming up with a way to say that it's not a capital asset, so that you didn't have to meet the requirements that both your agency and OMB specify for these actual acquisitions.

The issue is, then, that the taxpayer is going to have to pay extra costs on top of this because of a decision that NOAA just decided to evade answering the questions.

Dr. LUBCHENCO. Madame Chair, my staff looked at the operational cost impacts of the Newport lease award. The long-term costs do include the lease costs and I think some costs at Newport are anticipated to be higher, such as ship maintenance and transportation of goods to the facility, but the cost of Federal salaries, housing allowances, utilities and most importantly, the lease costs, are less expensive at the Newport site.

Senator CANTWELL. That's exactly my point, Dr. Lubchenco, and I'd hoped that you would drill down on this with your staff, because they're handing you notes that make no sense. Of course, they're trying to say that it's cheaper to operate in Oregon, ignoring the long-term costs that you have clearly stated in the RFP as it relates to proximity.

And so, you're going to have long-term costs because you're going to be further away from Seattle, and you're going to have to travel back and forth to consult with the scientists that are there and that's going to be expense, you're further away from dry dock and that's going to be an expense, and it's going to be a long-term expense for us as a country.

So, I think, you know, we're going to have to have the Inspector General review this issue, but I would—if I were you—drill down on the fact that the internal process that NOAA operated under was broke. It evaded the real responsibilities it had in this analysis.

So, let me ask you——

Dr. LUBCHENCO. Madame Chair, could I respond to that, please?

Senator CANTWELL. Yes, please.

Dr. LUBCHENCO. I do believe that we took into account the travel costs and associated costs that you are mentioning. And I think it's useful to know that approximately 22 percent of all of the scientists on the three vessels that are home-ported in Seattle—I'm sorry—of the scientists that are—let me say that differently.

Of all of the scientists that go on those 3 vessels, 22 percent of them are from the Seattle NOAA facility. So, I think that important information to understand. The other piece of information is that most of the scientists that go on these vessels don't board the vessel where it's home-ported, they fly to the port that is nearest to where they will be doing their research. And of the scientists on those three vessels, 67 percent of the scientists travel to go to the closest home port where they are.

So, for example, in the—different ships that operate different places, let's say there's a hake survey that's happening all along

the West Coast of the U.S. The scientists both from Seattle, as well as from other—either NOAA laboratories or academic institutions—would typically fly to San Diego or San Francisco to board the ship.

So, it's not—the travel costs to which you are referring assume that people are boarding the ship right in Seattle, and in fact that's not what typically happens.

Senator CANTWELL. Again, I think that NOAA is playing with the information at a hearing, which is just astounding to me. Your own documents say that 80 percent of the programs using the ship are in Seattle. The factors of site location, factor A, which are the primary reasons why you're looking for this site and what it should do, doesn't say anything about the scientists on the ship. That is the people behind you handing you a note telling you that's the reason why they made the decision.

But when you look at an acquisition process, it actually has to follow what the acquisition requirements are. And so, number three on the list is proximity to the NOAA Western Regional Center. It doesn't say how convenient it is for a few—a handful of scientists—to fly in and off of that site. It basically says, 80 percent of the programs are in Seattle and that's what you're interacting with. And so if you move that 300 miles away, you're now taking them away.

That would be like saying, "We're going to take, you know, this committee and operate it in, you know, someplace in Virginia," and ignore the cost of everybody having to travel back and forth to the Capitol to get access to everybody else who's here on Capitol Hill.

So, we will, I want to ask you one more question——

Dr. LUBCHENCO. Madame Chair, could I just clarify one thing, please?

Senator CANTWELL. Yes, but if you could also answer this question for me, if, in fact, NOAA has reached a final decision on this?

Dr. LUBCHENCO. We have not reached a final decision on this issue. We are proceeding with the recommendations of the GAO to look at the flood plain issues and whether there is a practicable alternative to Newport and we are in the middle of that process.

Senator CANTWELL. And that's why——

Dr. LUBCHENCO. And could I——

Senator CANTWELL. Yes.

Dr. LUBCHENCO.—clarify the——

Senator CANTWELL. I wanted to ask you about that, because in the same day that you say that there hasn't been a decision, in the newspaper a NOAA official said that other sites were not practical alternatives.

So, it sounds as if you've reached a conclusion and it sounds like you are moving ahead. So, if your own officials are being quoted as saying other sites aren't an alternative, I don't know how you can go—continue to go through the process.

So, we're looking for a real analysis of this, not a continuation of NOAA's policy to think that they can go down this path.

Dr. LUBCHENCO. I understand.

I'd like to just clarify the 80 percent figure. That refers to the number of projects that are sponsored by NOAA on those vessels. And for any particular project, there are many scientists—some of

whom are from our Northwest Fisheries Science Center lab, many are from other NOAA facilities, others might be academic individuals. And so the numbers that I quoted you—about 67 percent of the scientists having to travel to meet the ships, and only 22 percent of the scientists on the ship being from NOAA are not contrary to the 80 percent figure. They are—they're different numbers. The 80 percent are the projects that are sponsored by NOAA, but those projects might include individuals from a number of different places. Just to explain what those different numbers mean.

Senator CANTWELL. And I'm asking you to review factor A, requirements for location of the site. It doesn't say anything about scientists flying in and off the ships and what location. It says, "The proximity to NOAA Western Regional Center." That is what you've outlined as the number three priority of a list of 12 factors that are the primary A factors for considering this location.

So, it doesn't—it doesn't say anything about scientists or the number of scientists that can fly in and off of the vessel, it says "Proximity to the Western Regional Center," and actually gives the exact address.

So, that's pretty specific. And so, I think that we're going to have to get more insight because we're not going to leave the taxpayers on the hook for long-term expenses of this facility.

I know my colleagues have other questions, I'm going to turn it over to Senator Snowe.

Senator SNOWE. Thank you, Madame Chair.

I have a question regarding blue-fin tuna. I understand there was an announcement this morning by the U.S. Fish and Wildlife Service's Assistant Secretary Tom Strickland saying we will support the international petition for listing the blue-fin tuna as endangered under the Convention on International Trade in Endangered Species.

As you know, I and 14 of my colleagues sent a letter to you and to Fish and Wildlife stating our opposition to listing the tuna. After all, we know that our fishermen have been engaged under ICCAT, taking conservation measures, over the years, and ICCAT has agreed to a limit that would help to rebuild the stock by 2023, at least creating a 60 percent probability that would happen. They're paying a price, now, a penalty via this listing, because they will not have a market to sell blue-fin tuna, especially in the summer months.

This is devastating. Other countries, like Japan, have indicated they may opt out of this listing. So, I don't know where that places our fishermen, and exactly what you and Fish and Wildlife will do to assist these fishermen during this very difficult time.

And, what's troubling is the fact that they have operated under ICCAT; they have taken conservation measures. Even the press release that was issued today by the Department of Interior regarding the decision to support the listing of blue-fin tuna states, "We understand the frustration of our U.S. fishermen who have followed the scientific recommendations and regulatory provisions of ICCAT for many years while their counterparts in the Eastern Atlantic and Mediterranean have often over fished and engaged in ineffective management," Mr. Strickland said. "The U.S. Government is committed to working with many of our international partners

to continue to rebuild Atlantic Bluefin tuna and ensure its sustained conservation and management of the species into the future." It doesn't say exactly how it's going to help our fishermen that have been compliant and responsible, and conservative in their approach, and now they're going to be devastated by this listing, once again. Wasn't there another way of addressing this issue, short of doing this?

Dr. LUBCHENCO. Senator, I believe that there is serious concern about the possible impact that a CITES listing would have on our fishermen. They have followed the rules. I would note that last year—or in 2008—the U.S. fishing fleet exported approximately 50 percent of the Bluefin catch and so that the majority of that product goes to Japan. And so I think it is likely that there would be an impact. Although the extent of that impact is hard to predict. There is still the domestic market and fishermen would be able to sell their product domestically.

It's not clear, on balance, exactly what the impact would be, I think it is likely there will be an impact. That was taken into account in the decisions that were made.

Senator SNOWE. Well, there will be a seasonal impact. They have too much in the Summer and they will have no place to sell it. So, it's an unevenness, to say the least, not to mention losing the markets, paying a penalty for adopting conservative measures.

So, I don't see what the incentive is here for our country and others who have been taking a conservative approach and have adopted standards, and now they're paying the price.

So, I just wonder, will there be a connection to making any decisions that will help those engaged in this fishery? I mean, that's the point. By making these decisions, you're saying "Oh yes, we understand." But we really don't because basically it ends there. There's a regulation, a decision that's made, in this case, with a listing on an international basis and our fisherman are going to pay the price, even though they had adhered to certain standards of conservation, knowing full well that other countries did not. And now they're paying the price.

And so, I'm just wondering if the government's going to step up and help them because that's going to be a problem. I just think that there's always a disconnect. It's one thing to make a decision in Washington, but what about the men and women on the ground trying to eke out a living? I mean, that's the problem, here. I see a big gulf in reality, frankly. It's just, I don't think people understand. So, we make these decisions on high, go on and, "Oh yes, we understand, we know it's a problem, but we're not going to do anything about it." I mean, I don't think it's fair, and I think that's why you're seeing the reactions in the fisheries about some of these decisions, because I don't think that there is a dose of reality.

And with this decision, I was looking for help in this press release, that somehow they'd say, "We're going to help out, here," but it doesn't say that.

Dr. LUBCHENCO. We would look forward to working with——

Senator SNOWE. It doesn't even acknowledge what our fishermen have been doing: following for many years the scientific and regulatory of ICCAT and their recommendations, and now they're going to pay the ultimate price.

Dr. LUBCHENCO. We would look forward to working with you and try to find what—identify what that help would look like.

Senator SNOWE. Maybe there should be a requirement in that regard. Any regulation that's going to devastate a fishery, there has to be an associated solution, a mitigation effort. Because I just think that there is truly a disconnect in somehow saying, "Oh yes, well, it's going to help some, it's going to hurt others." In this case it's just taking an international position without regard to what's happening here, especially because the fishermen in this industry have been very responsive to conservation methods and recommendations.

So, I think there should be a responsibility in that regard to say, "This is what we're going to do to help."

Dr. LUBCHENCO. I agree.

Senator SNOWE. Thank you.

Senator CANTWELL. Senator Begich?

Senator BEGICH. Thank you, Madame Chair.

And let me do a quick follow up on the conversation we just had on the Ocean Policy Task Force. One of the things we talked about was in the past, about making sure, as that policy task force moves forward, we've talked about it, I think, the direct route of the White House, we've talked about it, and that is what are the—was there any additional work when this final report comes out—because I haven't seen it, obviously—that the economics were also measured in the fisheries, as well as the impact—and it kind of follows a little bit to what Senator Snowe is talking about, because as you make these policies you're going to have economic impact. And we talked briefly about that some months ago. Do you know if they augmented their report and research in regards to the economic impact of this study?

Dr. LUBCHENCO. Senator, I'm not sure to what you're referring. The Ocean Policy Task Force recommendations that will go to the President——

Senator BEGICH. Right.

Dr. LUBCHENCO.—lay out a potential national ocean policy.

Senator BEGICH. Right.

Dr. LUBCHENCO. And a mechanism for the agencies to work together.

Senator BEGICH. Yes, let me hold you there—that's exactly right. But, what I'm saying is I remember this conversation very well because I compared it to zoning law changes, as a former Mayor, when you come up with a comprehensive—this is what this really is—it's water zoning. And on land, we did land zoning, and when you do that and you change the lay of the land, what you end up with is winners and losers—no matter how you do it, because you're kind of re-zoning the place.

And so, I know when we had to do this for the city I was Mayor of, we also did an economic analysis of the impact of those decisions, because they're going to have an economic impact on the effect—in this case—it would be the affected fisheries, in our case, oil and gas, and in some cases, in some communities, there might be future energy opportunities—wind, tidal, ocean, whatever else there might be. Is that part of this at all?

Dr. LUBCHENCO. I now know what you're asking——

Senator BEGICH. Now you remember, it all clicked.

Dr. LUBCHENCO. Thank you for clarifying.

Senator BEGICH. I knew it would.

Dr. LUBCHENCO. So, this is with respect to the Coastal and Marine Spatial Planning Framework——

Senator BEGICH. Yes.

Dr. LUBCHENCO.—that will be part of the task force's recommendation.

Senator BEGICH. Correct.

Dr. LUBCHENCO. And that framework simply lays out the concept of doing what you're calling zoning. It simply says, we need to have a mechanism for considering the combination of activities that can coexist in an area to minimize conflicts among users and to minimize impact on the environment. It does not propose any particular changes in uses, it simply says, "We need a better mechanism than considering this activity in a vacuum, and this activity in a vacuum."

Senator BEGICH. I hear you. But will they make—will they, in that recommendation, also say, in the process of doing that, that will also measure, in this equation, the economic impacts of whatever those future decisions—if they are future decisions? I mean, that's the piece that I'm very nervous that we'll do a lot of stuff on the environment which I'm, you know, I'm very happy to work and do that, but then they will never measure the economic impact. I think that's, in some cases, what you're starting to hear in this discussion.

Dr. LUBCHENCO. Right.

Senator BEGICH. And we would never do land zoning without understanding the economic impact of those government decisions.

Dr. LUBCHENCO. Yes.

Senator BEGICH. So, do you—I guess let me end there and just say, I'm saying—from my perspective—I think it's important if that final report comes out and doesn't have any of that, honestly I will say it's a flawed report. Just so you know. Without that—even if it doesn't say, "Here's the zoning changes, but here is the mechanisms we're going to use, part of that mechanism is understanding the economic impact.

Dr. LUBCHENCO. I think that's an excellent suggestion——

Senator BEGICH. OK, I'll——

Dr. LUBCHENCO.—and let me just clarify further that the intent is to set—one of the recommendations will be to work with regions of the country——

Senator BEGICH. Yes.

Dr. LUBCHENCO.—and they would be actually doing the plans, and it should be part of those plans to do an economic analysis, I agree with you.

Senator BEGICH. And I would make sure that's consistent, because we do in Alaska waters will affect the waters of Washington, for example.

Dr. LUBCHENCO. Yes.

Senator BEGICH. And if they're doing—if they don't do an economic model, and we do, there's a disconnect. So, there should be a broader——

Now let me move to two quick other things. One, NOAA has a lot of investment in oil spill research. Is this—in your budget, do you have additional resources or additional dollars going into oil spill research? Because as you talk about issues within the Arctic and other areas of offshore, research is part of the equation. So, do you have any increase in that? And if so, how significant is it?

Dr. LUBCHENCO. Senator, I frankly don't remember those numbers. Let me just check.

Senator BEGICH. If you don't have them, why don't you get them for the record?

Dr. LUBCHENCO. I do not believe there is an increase, but I can get the numbers to you.

[The information referred to follows:]

NOAA does not have a request for oil spill research funds in the President's FY 2011 Budget Request. NOAA's most recent effort in oil spill research was through a partnership with the Coastal Response Research Center (CRRC) at the University of New Hampshire. The last year of that funding was FY 2007.

Senator BEGICH. OK, that would be great. And if there's no increase, that's of concern when you're making policy about what's going to happen in OCS, but you're the lead in some of the oil spill research, and you're not increasing that.

The last thing I'll mention is on ocean acidification. This is probably our biggest threat—warming waters, ocean acidification for Alaska's waters, which control 62 percent of the fish stock of the country. And, so my concern is your budget only represents about 10 percent of the research and the issues around ocean acidification, but yet we control 62 percent of the freshwater-caught product. So, I think there's a slight imbalance. Plus, the permanent ocean acidification sensor's collecting data—as of today, and I know you may have plans, and that's what I want to know—there's none in Alaska waters.

Dr. LUBCHENCO. Yes.

Senator BEGICH. But yet it's 62 percent of the fisheries stock.

Dr. LUBCHENCO. Yes.

Senator BEGICH. So help me understand what you're doing to improve that. Because without that knowledge—that's what's threatening us. It's not over fishing, it is now acidification and warming of the waters.

Dr. LUBCHENCO. I'm glad you appreciate the potential importance of ocean acidification to our fisheries and to the health of the oceans. The proposed increases in this year's budget focus on doing research to understand the consequences of ocean acidification to different species. There are additional needs—not reflected in the budget—for more monitoring and more sensors in a larger array of areas than we currently have them. That's not in this current budget. But if we look at the long-term plans that our ocean acidification scientists have put together, they've identified a number of additional sites that would be very important to have, and Alaska is among those.

Senator BEGICH. Thank you very much.

Thank you, Madame Chair.

Senator CANTWELL. Senator Nelson?

STATEMENT OF HON. BILL NELSON,
U.S. SENATOR FROM FLORIDA

Senator NELSON. Thank you, Madame Chairman.

Dr. Lubchenco, thank you for your public service and the good job that you're doing. And you, no doubt, are aware by some of the comments that have been made, here, that we are concerned about NOAA and the National Marine Fisheries pushing the Catch Share Program for fishing. And at the same time, cutting back on research, because to determine an appropriate Catch Share, you have to have intensive data. Has that concern come through to you?

Dr. LUBCHENCO. It has, indeed, Senator, and I share it.

Senator NELSON. Needless to say, our fishermen are quite concerned, and it's not just the commercial fishermen—they have now banded together with the charter boat captains and the recreational fishermen—on the closure of the fisheries, for example, on red snapper in the Gulf of Mexico as well as the South Atlantic. What we are asking you all to do in National Marine Fisheries it to make sure that your data is correct. They disagree with the data.

If we could all get an agreement that the data is correct, then the fishermen are clearly willing to accept it, because they don't want to over fish the population, because that doesn't do anybody any good. But it comes back to the question—they think you have faulty data in cutting off the fishing. And it's not only the Atlantic, it's the Gulf, and that has been going on for quite a while. It's not as intense in the Gulf, now, because the closure is not nearly as long, now, as what you're proposing for in the South Atlantic.

And therefore, coming back to the budget, it seems at cross-purposes that you cut your research dollars to determine the correct data in order to come up with a Catch Share. It's at cross-purposes. So, we've got to get this thing solved.

Dr. LUBCHENCO. Senator, I share the importance of cooperative research programs and getting, I mean, those cooperative research programs are very important. They are not the only way that we get data on the size of the catches.

I think that the Gulf of Mexico red snapper program that is now a Catch Share program is doing much, much better because it is now a Catch Share program and it's an example of why that approach is, in fact, is a very useful one.

My suggestion for the South Atlantic is that we consider having some meetings with the recreational fishermen in that region and simply walking through the information that is available and having an opportunity to hear from them what their concerns are and share with them the information we have. Because I think a lot of what is playing out are assertions and without an opportunity to simply look at the information and challenge it, understand it and come to a better exchange and better understanding.

Senator NELSON. Well, whatever the venue is, we've got to get to the bottom of this. And at the end of the day, it's going to affect Senator Snowe, it's going to affect Senator Begich on their fisheries. But right now, it's intense because it's the Gulf of Mexico and the South Atlantic. And people are being driven from their livelihoods.

Now, if the fishery is being over fished, we need to stop it, so the stock can replenish itself. But we need to give a greater satisfaction to the fishermen that they—that you are dealing with correct data.

Now, I've made a request to the Chairman and our Commerce Committee Chairman, Senator Rockefeller, that we have a hearing on this to try to bring some focus on the correct data. So, if you want to have preliminary meetings like this, I think that's a good idea, prior to having this. But we need to go on, because these people are being run out of business as we speak.

It's obviously compounded by the fact that we're in the middle of a recession. But they deserve to have some satisfaction that your data is correct. So, I've already made that request in writing to the chairman that we have a hearing.

Senator CANTWELL. Are you finished, Senator Nelson?

Senator NELSON. I had a couple of other questions, here, but that's the main thrust of what I wanted to talk about. I think you've got a science center that does it for regions, and most of your regional science centers only work for two regional councils. In the case of the Southern one, it works for three regional councils and so what's the appropriate funding for that regional science center, since it's doing three times the work instead of two times the work?

Senator CANTWELL. Well, Senator Nelson, thank you for your line of questioning, and I can assure you we are going to pay more attention to this issue and I appreciate the attendance of members and their regional interests, but this really is a national issue, as well. People underestimate what our ocean's economy really does mean to our U.S. economy. And we are going to—on this committee—continue to bring light to that, and so that we can have the best policies, moving forward, as a nation.

Senator NELSON. And Madame Chairman, the Magnuson Act worked, on a fishery—particularly up in New England that was being over fished. And it brought back that stock. So, if it works—when it's got accurate data. And that's what we want to make sure of, and I need your help to get to the bottom of it, to make sure they've got accurate data.

Senator CANTWELL. Well, I think you've brought up an important point that the research and the data have to be there, as well.

So, let's go to our next panel, because I think we're going to just continue this discussion. Ask the Inspector General of the Department of Commerce, Todd Zinser, to join us and to—I know the Under Secretary wants to make a statement on this panel, as well, so we'll ask both of you to make remarks. If you can keep them to 5 minutes, and then we'll go to another round of questioning.

And I guess we're going to start with you, again, Dr. Lubchenco. Go ahead, Dr. Lubchenco.

Dr. LUBCHENCO. I appreciate the opportunity to testify before you today on the recent Inspector General report.

Congress has acknowledged the value of our marine and coastal environment through several laws, including the Magnuson-Stevens Fishery Conservation and Management Act. Under this law, NOAA has regulatory obligations to ensure the sustainability of marine resources and their habitat. NOAA, fishermen, and the public share a common goal of preserving and protecting the ma-

rine environment and our fisheries for the long-term health of both our fishery resources and fishing-dependent communities.

Proper regulation and enforcement are vital to this effort, and to the economic vitality of our coastal communities. For all of this to work, commercial and recreational fishermen must know the rules and believe that, if they follow the rules, others will, too. But these rules must be consistently and fairly enforced.

NOAA is committed to improving its enforcement program to assure that it is both effective and fair. A lot of hardworking investigators, agents, and lawyers work every day to protect our Nation's ocean and fishery resources, but there must be a level playing field, and fishermen have to have confidence in the system.

I spent a few hours just yesterday morning with fishermen in Gloucester. Doing so is part of my commitment to have an open, productive dialogue with fishermen, and understand their perspectives, hear their ideas for solutions, and work with them as partners.

And, in fact, I met with fishermen on my first full day on the job last March, almost a year ago, and heard—among other things—their frustration with NOAA's law enforcement. A couple of months later, I heard concerns from Members of Congress about NOAA's enforcement programs, and in response I requested the Department of Commerce Inspector General to conduct a review of these programs.

I requested this review because I believe in the importance of NOAA's law enforcement efforts, and felt it was time to take a fresh look at how well NOAA's enforcement efforts are supporting our mission to rebuild fisheries and the associated economic opportunity within our coastal and fishing communities.

The IG report—released January 21—identifies a number of very serious issues with NOAA's enforcement program, and it recommends several steps we should take to address the deficiencies. I take this report very seriously, and I am committed to responding in a comprehensive, thoughtful, and timely fashion.

In response to the IG report, I have instructed my new NOAA General Counsel, Lois Shiffer, and the new National Marine Fisheries Service Assistant Administrator, Eric Schwaab, to address the IG recommendations and to continue to work to improve our outreach and engagement with the fishing community at large.

While we develop a comprehensive plan to address the Report recommendations in the allotted 60-day time-frame, we have already taken a number of actions in response to the IG report. My written testimony is more thorough, but let me briefly outline some of the changes that have already taken place, and then talk about some of the longer-term actions we are planning.

First, I have instituted a freeze on the hiring of criminal investigators until an internal workforce analysis is done to address the appropriate mix of criminal investigators and regulatory inspectors in the Enforcement Office. This action will better position the Agency to address the Report's observation that the Office of Law Enforcement may not have the appropriate workforce balance.

Second, I have shifted oversight of the Asset Forfeiture Fund from NOAA's National Marine Fisheries Service to NOAA's Comptroller. This immediate step will begin to address the IG's criticism

that internal controls over this fund are lacking. We are actively working with the IG to conduct a forensic audit on this fund, and will further review this issue once we have the results of that audit.

Third, I have asked the General Counsel—and she has committed—to institute higher level reviews for penalties, permit sanctions and settlements to ensure consistency and predictability. This addresses the Report's observation that NOAA lacks formal procedures for sufficiently documenting penalty decisions resulting in the appearance of arbitrary decisionmaking.

Other actions that I would like to highlight fall into the category of improved communication and enhanced oversight, which are major themes of the IG Report. We are planning a number of actions to improve communication and increase transparency with the regulated community. A top-level management team is developing detailed plans for a summit on law enforcement practices, to be held no later than June 30 of this year. The summit will help us formulate long-range policies for properly and fairly executing the Agency's enforcement actions, and develop forward-thinking approaches to enforcement efforts.

We're also well on our way to implementing much-needed improvements to our management information systems. This information is intended to address current system inefficiencies and data integrity issues. The IG's Report identified a lack of oversight in several aspects of our enforcement programs. To address this, we are working on several initiatives, including developing standardized procedures for setting enforcement priorities. We are also strengthening the operating procedures for our enforcement attorneys.

These steps are intended to being to respond to the issues identified by the IG. NOAA will build upon these steps and respond to all of the IG's recommendations and to improve our enforcement program.

Our marine and coastal resources are of immense value to the Nation—effective, fair, and transparent enforcement is critical to ensuring the long-term sustainability of these resources. I echo the urgency for change, and I commit to serious, measurable reforms to address the IG's recommendations and enhance our work with the fishing industry.

Thank you, Madame Chair.

Senator SNOWE. Mr. Zinser?

STATEMENT OF HON. TODD ZINSER, INSPECTOR GENERAL, U.S. DEPARTMENT OF COMMERCE

Mr. ZINSER. Chair Cantwell, Senator Snowe, members of the Committee, we appreciate the invitation to testify on our recent report concerning the fisheries enforcement programs and operations at NOAA. My testimony today will briefly summarize our report.

We undertook our review at the request of Under Secretary Lubchenco, the Under Secretary's request was in response to congressional inquiries asking for a review of the policies and practices of Office for Law Enforcement within NOAA's National Marine Fisheries Service, and NOAA's Office of General Counsel for Enforcement and Litigation.

The Under Secretary could have chosen to undertake this review using an internal NOAA team, but instead she chose to ask for our independent review. It was my view then, and it is still my view, that the Under Secretary wants to know what the problems are with her enforcement operations and wants to try to fix them.

Our review included speaking with over 225 individuals in various parts of the country, including fishermen, boat captains, industry association representatives, conservation officials, Fishery Management Council members, and current and former NOAA personnel. We reviewed enforcement records and examined NOAA's management information systems. We reviewed Department of Justice policy and guidelines and analyzed comparable Federal regulatory enforcement agencies.

Our report details our three principle findings. First, NOAA senior leadership and headquarters elements need to exercise substantially greater management and oversight of the agency's regional enforcement operations, to include setting enforcement priorities.

Second, NOAA needs to strengthen policy guidance, procedures, and internal controls in its enforcement operations to address a common industry perception that its civil penalty assessment process is arbitrary and unfair. We found the process use for determining civil penalty assessments includes significant discretion on the part of individual enforcement attorneys, with minimal guidance on how to exercise that discretion. As such, we found it difficult to argue with the view that the process is arbitrary and in need of reform.

Third, NOAA needs to reassess its OLE workforce composition which is presently 90 percent criminal investigators, to determine if this criminal enforcement-oriented structure is the most effective for accomplishing its primarily regulatory mission. Based on NOAA's own data, its enforcement results for the past two and a half years was about 98 percent non-criminal.

While we recognize NOAA's need to maintain a criminal investigative capability, its caseload reflects that its current staffing is disproportionate to Agency function and operational need, particularly compared with other agencies with similar mission profiles and enforcement responsibilities.

For instance, agencies such as EPA and Interior's Fish and Wildlife Service separate their regulatory and criminal enforcement functions with inspectors who handle regulatory enforcement, and criminal investigators who handle criminal investigations.

Our Report presents specific recommendations for NOAA to strengthen its enforcement programs and operations. These include, one, NOAA leadership's regularly addressing and providing input to enforcement priorities and strategies with regional management.

Two, instituting a robust ombudsman program, specifically for fisheries enforcement issues, to provide an effective interface with the commercial fishing industry.

Three, determining whether NOAA has an appropriate balance and alignment of uniformed enforcement officers and criminal investigators, based on mission need.

Four, ensuring that there is an operating procedures manual for enforcement attorneys, and that the operations manual for its spe-

cial agents is current and provides sufficient policy guidance for both regulatory and criminal investigations.

Five, ensuring follow-through on the process improvement initiatives outlined by the General Counsel for Enforcement and Litigation in December.

Six, instituting a mechanism for higher-level review of civil penalty assessment determinations, and;

Seven, developing and implementing effective, integrated case management information systems for its enforcement mission.

We note that the Under Secretary has directed a series of actions—some immediate, some in the near future—and we look forward to working with the Under Secretary and monitoring their implementation of those actions.

This concludes my summary, Madame Chair, and I will be happy to answer any questions.

[The prepared statement of Mr. Zinser follows:]

PREPARED STATEMENT OF HON. TODD J. ZINSER, INSPECTOR GENERAL, U.S. DEPARTMENT OF COMMERCE

The National Oceanic and Atmospheric Administration's Fisheries Enforcement Programs and Operations

Chairman Rockefeller, Ranking Member Hutchison, Subcommittee Chairman Cantwell, Subcommittee Ranking Member Snowe, and members of the Committee:

We appreciate the invitation to be here today to discuss our recent report on the fisheries enforcement programs and operations of the National Oceanic and Atmospheric Administration (NOAA).[1] My testimony today will briefly summarize our report, and we request that our entire report be made part of the record.

We undertook our review at the request of Dr. Jane Lubchenco, the Under Secretary of Commerce for Oceans and Atmosphere, who also serves as the Administrator of NOAA. She had been contacted by the Massachusetts congressional delegation and state elected officials, as well as by both U.S. Senators and multiple Representatives from North Carolina, recounting complaints of excessive penalties and retaliatory actions by NOAA fisheries enforcement officials. Our review, then, evaluated the policies and practices of the Office for Law Enforcement (OLE) within NOAA's National Marine Fisheries Service (NMFS) and NOAA's Office of General Counsel for Enforcement and Litigation (GCEL). We examined their overall conduct of enforcement actions; how they prioritize actions and set penalty assessments; and their use of resources, including funds obtained through imposed penalties.

We faced two conditions that limited our ability to fully meet our objectives. First, inadequate management information systems were a significant detriment. For instance, while NOAA's data shows regional disparity in aggregate civil penalty assessments, fostering a perception that such assessments in the Northeast have been arbitrary, NOAA's lack of effective case management systems and useful data made more in-depth analysis impossible. As we further explain below, if NOAA is to succeed in bringing a greater level of management attention to its enforcement programs, it will need substantially improved data systems.

Second, we were constrained in our ability to meet our objective to examine the use and management of what NOAA calls the asset forfeiture fund. We found that despite a balance of $8.4 million as of December 31, 2009, OLE officials were not aware of the fund's having ever been audited, and internal controls over the fund had not been tested. As a result, we have commissioned a forensic review of the fund as a follow-up action, and that review is underway.

Our review included speaking with over 225 individuals in various parts of the country, including the Northeast—fishermen, boat captains, industry association representatives, conservation officials, Fishery Management Council members, and current and former NOAA personnel. We also established a dedicated e-mail address for interested parties to use to provide potentially relevant information. Further, we reviewed numerous OLE and GCEL enforcement records and related docu-

[1] *National Oceanic and Atmospheric Administration: Review of NOAA Fisheries Enforcement Programs and Operations*, Final Report No. OIG–19887, January 21, 2010. OIG reports are available at our website: *www.oig.doc.gov*.

ments, and examined OLE's and GCEL's case management information systems. Finally, we reviewed Department of Justice policy and guidelines regarding enforcement techniques, and analyzed comparable Federal regulatory enforcement agencies, including the Environmental Protection Agency (EPA) and the Department of the Interior's Fish and Wildlife Service.

Summary of Results

Our report details our three principal findings:

1. NOAA senior leadership and headquarters elements need to exercise substantially greater management and oversight of the agency's regional enforcement operations, to include setting enforcement priorities based on integration and coordination with headquarters fisheries management and science center elements; implementing effective management information systems; and utilizing data to inform its management decisions and enforcement activities.

2. NOAA needs to strengthen policy guidance, procedures, and internal controls in its enforcement operations to address a common industry perception that its civil penalty assessment process is arbitrary and unfair.

3. NOAA needs to reassess its OLE workforce composition (presently 90 percent criminal investigators), to determine if this criminal enforcement-oriented structure is the most effective for accomplishing its primarily regulatory mission.

An important backdrop framing the issues we examined and the results we further discuss below, is recognizing that regulation of the fishing industry is highly complex and dynamic—presenting NOAA with a particularly difficult mission. This backdrop underscores a continual need for NOAA to understand industry perspectives and changing conditions within its fisheries and the industry; establish and follow enforcement priorities that are well-grounded and involve integration with the agency's science elements; ensure well-managed programs and operations carried out by a workforce structured solely according to operational needs; and maintain effective communication with the industry. Essential to NOAA's overall program effectiveness is ample involvement and oversight by NOAA leadership, to include ensuring that there are adequate checks and balances for enforcement operations.

Our report presents specific recommendations for NOAA to strengthen its enforcement programs and operations, in the interest of promoting greater transparency, consistency, and oversight. These include:

- NOAA leadership's regularly addressing and providing input to enforcement priorities and strategies with regional management, to include integration and coordination with headquarters fisheries management and science center elements.
- Instituting a robust ombudsman program to provide an effective interface with the commercial fishing industry.
- Considering reestablishment of an ombudsman position to serve as an interface with the industry.
- Determining whether NOAA should continue to approach enforcement from a criminal-investigative standpoint, and determining whether the agency has an appropriate balance and alignment of uniformed enforcement officers and criminal investigators, based on mission need.
- Ensuring that GCEL implements and follows an operating procedures manual that includes processes, methods, and justification for determining civil penalty assessments and fine settlement amounts; and that OLE's enforcement operations manual is current and provides sufficient policy guidance on its authorities and procedures for civil and criminal enforcement activities.
- Ensuring follow-through on GCEL process improvement initiatives outlined in its memorandum of December 1, 2009.
- Instituting a mechanism for higher-level review of civil penalty assessment determinations by GCEL attorneys in advance (*e.g.,* by a panel established within NOAA headquarters).
- Ensuring that GCEL and OLE develop, implement, and effectively utilize reliable, integrated case management information systems.

We note that the Under Secretary has directed a series of actions, some immediate and others in the near future, that are responsive to our findings and recommendations. We have asked for a specific response to our recommendations and will assess NOAA's progress by reviewing and reporting on the status of these and other agency actions.

Findings

NOAA is entrusted with broad statutory enforcement powers to promote compliance and deter violations within the commercial fishing industry. This calls for the highest degree of oversight by NOAA leadership to ensure fairness and consistency in enforcement activities and sanctions, promote program integrity and accountability, and avoid even the appearance of abuse of authority. The agency's enforcement operations have not garnered a great deal of attention from senior management within the large, science-based organization. Yet these offices have great potential to affect the fishing industry, the livelihood of individual fishermen, and the public's confidence in NOAA and the Department of Commerce. Our three primary findings are as follows:

1. NOAA senior leadership and headquarters elements need to exercise substantially greater management and oversight of the agency's regional enforcement operations.

Given the complexities of NOAA's mission and organization, the industry, and the current enforcement climate, its establishment of enforcement priorities is essential. This should involve integration and coordination with its headquarters fisheries management and science center elements, including the Assistant Administrator for NMFS, to whom OLE reports. Such linkage, with corresponding use of both science and enforcement-related data, would better enable NOAA to establish priorities and target its enforcement operations to those areas warranting such focused attention.

We concluded that a lack of management attention, direction, and oversight led to regional enforcement elements operating autonomously; in the Northeast Region, this contributed to aggregate fine assessments that are inconsistent with those in the other regions. Specifically, as shown in the following table, GCEL data for closed cases for the 5-year period from July 1, 2004 through June 30, 2009, illustrate that the Northeast Region's initial fine assessments totaled nearly $5.5 million—an amount two-and-a-half times greater than the second highest region, and about five times or more greater than the other four regions. Of further significance, the data show the Northeast as the region with the greatest percentage reduction from assessed to settled fine amounts (approximately $5.5 million assessed to approximately $1.6 million settled—a nearly 70-percent reduction). This substantial difference between initially assessed and settled fines in the Northeast fosters the appearance that fine assessments in that region are arbitrary.

Table. Total Fines and Penalties, by NOAA Region

(July 1, 2004–June 30, 2009) [a]

Region	"Notice of Violation" (Initially Assessed) Amount	Settled Amount[b]
Alaska	$1,549,311	$1,835,597
Northeast	*5,471,550*	*1,572,275*
Northwest	599,751	334,642
Pacific Islands	1,190,500	994,555
Southeast	2,245,387	1,152,445
Southwest	1,293,120	594,522
Total	*12,349,619*	*6,484,036*

[a] Figures have been rounded to the nearest dollar.
[b] The settled amount represents the agreed upon, reduced penalty amount between GCEL and the respondent. According to GCEL, reductions result from a variety of reasons, most notably ability to pay. Further, most of the Pacific Islands figures relate to a single large case.
Source: NOAA.

GCEL's explanation for this inconsistency is that initial assessment amounts involve complex factors, which are considered on a case-by-case basis, using NOAA's Civil Administrative Penalty Schedule and accompanying internal guidelines. However, no formal process exists for sufficiently documenting decisions regarding fine assessments and settlement amounts, making GCEL's explanations for regional differences unauditable and thus unverifiable. Further, information contained in the table required substantial data manipulation, time, and effort for OLE to produce. NOAA also collects funds from asset forfeitures (*e.g.,* fish seizures); such information is not included in the table. Inclusion of those figures would require a similarly labor-intensive manual effort.

We also found that NOAA leadership has had minimal involvement in setting enforcement priorities, linking enforcement to its fishery management goals, or evaluating enforcement program effectiveness. Similarly, regionally-established enforce-

ment priorities, even if documented, have not typically been disseminated to headquarters.

2. NOAA needs to strengthen policy guidance, procedures, and internal controls in its enforcement operations to address a common industry perception that its civil penalty assessment process is arbitrary and unfair.

GCEL's process for determining civil penalty assessments includes significant discretion on the part of individual enforcement attorneys, with minimal guidance on how to exercise that discretion. As such, it is difficult to argue with the view that the process is arbitrary and in need of reform. One reform that NOAA should consider is instituting a process that includes higher-level review of civil penalty assessment determinations by GCEL attorneys in advance. NOAA should also revise applicable procedural regulations and penalty schedules in order to provide greater consistency and clarity, and reduce confusion among affected industry parties.

Additionally, NOAA's data for fines are inherently unreliable because of weaknesses in GCEL's and OLE's current case management information systems—in particular, data that are missing, entered into the systems inconsistently, or vague. For example, based on our comparison of "closed" case data between OLE and GCEL data systems, out of 2,726 unique case numbers in OLE's system, only about 5 percent match GCEL's system for cases closed from July 2007 through June 2009.

To its credit, in response to the results of our review, GCEL has recently initiated several steps to promote transparency, help ensure fairness, and open lines of communication with the fishing industry. They include initiatives to: (1) revise procedural regulations and penalty schedules; (2) develop an internal operating procedures manual; and (3) implement a new case-tracking data base, linking to OLE's case management system.[2]

3. NOAA must reassess its OLE workforce composition, which is now 90 percent criminal investigators, to determine if such an emphasis on criminal enforcement is the most effective for accomplishing a primarily regulatory mission.

Based on OLE's own data, its caseload from January 1, 2007 through June 30, 2009, was about 98 percent noncriminal. Ten years ago, NOAA increased its already predominantly criminal investigator workforce (then 75 percent) to today's 90 percent. There are indications in the record that this workforce composition was driven by considerations of the better pay and benefits that apply to Federal criminal investigators, rather than by strict mission requirements.

OLE's fundamental mission is to assist in the protection of fisheries by enforcing resource protection and fisheries management laws. OLE caseload data for January 1, 2007 through June 30, 2009, illustrate that its mission has principally involved enforcement of the Magnuson-Stevens Fishery Conservation and Management Act[3] (65 percent of cases). The criminal provisions of the Act are narrowly-focused and nearly all are misdemeanors. Yet because the office is staffed largely with criminal investigators, OLE's orientation is to conduct criminal investigations. This despite the fact that the only felony provisions involve the use of a dangerous weapon during the commission of an act prohibited by Magnuson-Stevens and the assault of observers and officers authorized to enforce the Act.[4] According to OLE, violations of the Act typically do not result in criminal charges; most violations (such as exceeding catch limits) result in administrative penalties alone.

While we recognize OLE's need to maintain a criminal investigative capacity, its caseload reflects that its current staffing is disproportionate to agency function and operational need, particularly compared with other agencies with similar mission profiles and enforcement responsibilities. For instance, agencies such as EPA and Interior's Fish and Wildlife Service separate their regulatory and criminal enforcement functions, with inspectors who handle regulatory enforcement and criminal investigators who handle criminal investigations.

NOAA Actions in Response to OIG Findings and Recommendations

In a memorandum dated February 3, 2010, Under Secretary Lubchenco announced a two-pronged approach to addressing our findings and implementing our recommendations. This approach, which the Under Secretary characterized as initial steps, entails a series of immediate actions and other actions to be completed by March 21, 2010, summarized as follows:

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[2] These efforts are detailed in a December 1, 2009, memorandum from the Assistant General Counsel for GCEL to NOAA's Deputy General Counsel.

[3] The Act is codified, as amended, at 16 U.S.C. § 1801 *et seq.* For more information on the Act, see our January 21, 2010, report.

[4] *See* 16 U.S.C. § 1859.

A. Immediate actions:

1. Subject to compliance with applicable labor relations requirements, NOAA General Counsel shall immediately institute higher level reviews of proposed charging decisions, including proposed penalties and permit sanctions, and proposed settlements to ensure consistency and predictability.

2. An immediate freeze on the hiring of criminal investigators until NMFS completes an internal workforce analysis to address the appropriate mix of enforcement personnel and it is approved by the Under Secretary.

3. An immediate shift in oversight of the NMFS Civil Monetary Penalties Fund (also known as the Asset Forfeiture Fund) from NMFS to NOAA's Comptroller.

4. NMFS, in consultation with NOAA's Office of Communications, will direct resources to improve communications on enforcement issues, particularly in the Northeast.

5. NOAA's General Counsel, NMFS, and NOAA's Director of External Affairs will develop specific objectives and detailed plans for a summit on law enforcement practices to be held no later than June 30, 2010.

B. Actions to be completed by March 21, 2010:

1. NMFS's Office of Law Enforcement and NOAA's General Counsel, in cooperation with NOAA's Chief Information Officer, will develop a strategy and schedule to improve management information systems, including recommendations on actions to take advantage of the Internet to increase transparency.

2. The Assistant Administrator for Fisheries, with input from NOAA's leadership, will develop a plan and schedule to implement standardized procedures for setting enforcement priorities.

3. NOAA's General Counsel for Enforcement and Litigation will develop a plan and schedule to strengthen its operating procedures, prosecution of charged cases, and settlement actions.

4. The Assistant Administrator for Fisheries, in collaboration with the NOAA Communications Office and General Counsel for Enforcement and Litigation, will develop an outreach strategy to improve engagement with the local fisheries community and the public.

5. The Assistant Administrator for Fisheries, in consultation with the Director of the Workforce Management Office, will formulate a plan to review the NMFS Office of Law Enforcement's staffing and procedures. This plan will explicitly address both civil and criminal requirements, with specific focus on ensuring that criminal procedures are not applied to civil offenses. Development of the plan should include appropriate independent review.

Office of Inspector General Follow-up

We have identified three areas for additional review:

1. *Individual Complaints.* In order to carry out this review in a timely manner, it was necessary to closely define our scope and focus on the management of the programs and operations related to fisheries enforcement. At the same time, expectations rose that we would investigate individual cases, brought to our attention or reported in the media, in which fishermen believe they were treated unfairly or were subject to overzealous enforcement. We could not accomplish both at the same time. Therefore, our initial focus is on the management issues we identified. As noted below, we will follow up and examine individual cases about which we received complaints and will determine whether additional action by our office or NOAA is necessary or recommended. Based on our review to date, allegations of abusive treatment are not widespread; however, I feel that it is important that we do all we can to get to the bottom of these concerns and the facts surrounding these cases.

2. *NOAA's Retention of Civil Penalties and its Asset Forfeiture Fund.* Fishermen and other industry sources expressed concern to us that NOAA's fines are excessive, constituting a form of bounty, because the agency is able to retain the proceeds from its enforcement cases. This is not an uncommon charge against law enforcement agencies granted authority to seize assets. The most effective way to counter such charges is for the agency to demonstrate in a transparent way how the proceeds of its enforcement actions are used. NOAA has the statutory authority to retain proceeds from the civil penalties it imposes and collects, and pursuant to asset forfeitures (such as the sale of seized fish, vessels, etc.) for

Magnuson-Stevens Act violations to pay for expenses directly related to investigations and civil or criminal enforcement proceedings.[5]

We determined that NOAA has an asset forfeiture fund comprising such proceeds, the balance of which the agency reported as $8.4 million as of December 31, 2009. However, the account under which these proceeds are maintained has weak internal controls, and we could not readily determine how NOAA has utilized these funds. This is because while the fund's balance is included in the Department's overall financial statements, internal controls over the fund are not tested as part of the Department's annual financial statement audit, due to the relatively small size of the fund; neither are they tested as part of the annual Department-wide financial audit. As mentioned, we are commissioning a forensic review of the fund, and will issue our findings upon its completion.

3. *GCEL Progress.* While GCEL has reported development and planned implementation of a number of specific actions and measures for programmatic enhancement that are responsive to our findings and recommendations, we will carry out follow-up reviews to assess their progress.

Mr. Chairman, this concludes my prepared statement. I would be pleased to respond to any questions that you or other members of the Subcommittee may have.

Senator SNOWE. Thank you, Mr. Zinser.

You know, I find the report stunning, actually.

And it really was enlightening, and revealing, and say extremely disappointing in terms of the magnitude of the problem within the Law Enforcement Division. And I just am deeply troubled by what has happened, and the impact on law enforcement—on the fishing community. I mean, I think it's staggering, to be honest with you.

And I'm just surprised it didn't come to light sooner, in terms of the disproportionality of fines, and particularly in the Northeast. And it just is reflected in, obviously, the fines and in the weight of some of the decisions, but just in looking at the penalty and fine chart, obviously the Northeast had the highest amounts, but 2.5 times higher than the second-highest region, and 5.5 times greater than the other four regions? I think that's illustrative of the weight of the impact of these decisions.

Mr. Zinser, I thank you for your work. There's no question that it has underscored the lack of consistency and accountability for fisheries enforcement, and I think it certainly is revealing with respect to the critical flaws and weaknesses that exist with the law enforcement programs.

It's also telling from the standpoint that not much has changed from, oh, more than 10 years ago when we had a similar report, based on similar issues.

So, the key now is that Dr. Lubchenco has concurred with your findings, has submitted a response, and has begun to address some of these issues. And what I would like to know, Mr. Zinser, first of all, do you think NOAA's response is appropriate with respect to your findings?

Mr. ZINSER. Thank you, Senator Snowe.

Yes, I—my experience with Under Secretary Lubchenco and the staff that is at the leadership at NOAA now, I do think they are committed. I think the steps that they have outlined—that the Under Secretary outlined here, this morning, are consistent with our recommendations and I think that the key is going to be putting people in charge who are committed to implementing the recommendations.

[5] 16 U.S.C. § 1861(e)(1)(C).

Senator SNOWE. In this respect, Dr. Lubchenco, how are you going to create the balance in each of the issues that Mr. Zinser raised here this morning? And I know, I saw your response to the new General Counsel, Ms. Shiffer? Is that correct?

Dr. LUBCHENCO. That's correct.

Senator SNOWE. Is it going to encapsulate all of the issues that Mr. Zinser has raised, and also the fact that you have 90 percent criminal lawyers within the Enforcement Division? Is that going to change, that allocation?

Looking at the complaint examples within Mr. Zinser's report—I was horrified to see some of these examples. I can't imagine in any one of those scenarios, to bear the brunt, and the weight, and the full force of the Federal Government and a regulatory agency, and lawyer coming down on me, in some of these horrifying situations.

It just is so disproportionate, and to think of these individuals who have no ability to come back and to fight it. When I see these complaint examples, I think, I hope this is going to change almost immediately and is going to garner higher attention within your Agency and within the Enforcement Division to make sure these types of examples do not repeat themselves. It's just simply horrible to think that they had to face these devastating and arbitrary consequences.

That's the thing, it's the arbitrary nature of it, and thinking about $10,000 for each count and there were 18 counts? I mean, it's just—the whole thing.

So, are we going to have assurances that this is going to change almost immediately, in this regard?

Dr. LUBCHENCO. Yes, Senator. We have already implemented a number of immediate changes that address some of the recommendations in the IG report and have set in motion the kinds of analyses we need to do, for example, the composition of the workforce to address the additional items that were mentioned in his report. And I have charged both my General Counsel, Lois Shiffer, and my Assistant Administrator for NOAA Fisheries, Eric Schwaab, with being responsible for make sure that the changes are implemented.

As you know, we have 60 days to respond to the IG Report, we're in the process of finalizing those recommendations and we are grateful for those recommendations and look forward to working with the Inspector General as well as with you and I fully expect everyone to hold our feet to the fire and to make sure that the changes that we are committing to, in fact, are done.

Senator SNOWE. I appreciate that. I also wanted to ask you about the issue of the climate of trust, and certainly, you know, that problem is a major issue in the Northeast. And, I know Mr. Zinser raises the issue, as well, in his report. What specific actions have been taken to resolve that question? I mean, it clearly is a dysfunctional relationship that exists. And, we need to reestablish the element of trust and confidence within the fishing community, with the regulators, with the scientists, and right now it's in a bad state of repair.

So, what is it that you're doing specifically to mitigate those issues; I know we had this discussion early on in your tenure and to address the Inspector General's report?

Dr. LUBCHENCO. Senator, the report provides us with some concrete ways to begin to change some of the fundamental problems that underlie the lack of trust. In addition to that, though, we will be developing plans to try to rebuild that trust with the fishing communities, with fishermen. And I think that's going to require a very concerted effort, it's not going to happen overnight, it's something that will take time. And, we are committed to making that happen.

I think that will involve significant fraction of attention on the part of many of the folks within NOAA, in different regions. But we intend to address that head-on.

Senator SNOWE. Thank you.

Madame Chair, thank you.

Senator CANTWELL [presiding]. Thank you.

Dr. Lubchenco, there was a 1998 Inspector General report that was similar, you know, in addressing these NOAA fishery issues, and it found a greater need from NOAA—for leadership and changes in the ratio of these various positions. And so, why weren't these earlier recommendations—why weren't they implemented, why were they ignored?

Dr. LUBCHENCO. Madame Chair, I can't answer that, because it was before my time. The first that I was aware of this earlier report was the IG's, from the current IG's report.

Senator CANTWELL. Could you go back and do and analysis for us and give us an answer on that, because I think you'll find that the same issues of why those recommendations weren't implemented will be the same reasons why these won't be followed up on, as well. So, that would be a—many times these things are inherent in large organizations who resist the change, or change isn't implemented, and so it's very important to find out what resistance occurred from the last report, because we don't want to do another report in a few years and find the same issues.

So, these are cultural barriers within organizations that have to be broken down. And until you go back to find out why the last time they weren't adhered to, I think you're going to find you're going to have a tough time moving forward.

Dr. LUBCHENCO. I appreciate that suggestion.

Senator CANTWELL. Thank you. And so we'll look forward to hearing your answer to that.

Senator CANTWELL. So, Mr. Zinser, what is the root of this, you know, perception? I mean, elaborate on your findings that existing law enforcement actions against fisheries are perceived as arbitrary and unfair. So, what do you think is at the root of that perception?

Mr. ZINSER. I think at the root of that perception is the fact that when a fisherman is violated or charged with a violation, the decision on what will be charged, how many counts will be charged, how much will be assessed for each charge is uncertain to the fisherman. The penalty schedule that currently exists for NOAA's civil penalty assessments gives the individual enforcement attorneys broad discretion whether to assess at the lower end of the schedule

or at the upper end of the schedule, gives a broad discretion on whether they get charged one time or numerous times, up to 20 and 30 times.

And, there are also cases where the fishermen will know that they have been found to have violated the regulations, but it could take months and sometimes years for them to actually get the notice from NOAA of what the assessment is going to be. I've heard stories of fisherman going out to their mailbox every day worried that today is the day that the assessment is going to come. That perception is throughout—at least New England—lesser so in other parts of the country.

Senator CANTWELL. And why do you think that is?

Mr. ZINSER. I think that the enforcement personnel in the regions have been left to implement regulatory enforcement without sufficient guidance from the national leadership.

Dr. LUBCHENCO. And in other regions those issues have been resolved.

Mr. ZINSER. We did not find the same type of issues in other regions, somewhat in the Southeast, but our concern is that the types of, or the lack of management that exists—you could have the same issues cropping up in other parts of the country and I think that needs to be fixed.

Senator CANTWELL. Thank you.

Senator Begich?

Senator BEGICH. Thank you very much.

We were one of the regions that had very little issue. But let me walk—I'm listening to this and I just remember my days as Mayor, one of the things—I mean, what it tells me, Dr. Lubchenco, that the system you have right now is totally dysfunctional even though it works to some degree, because it varies. If the enforcement isn't consistent in all regions, then it's not working. And this was something that we experienced, oddly enough, in Arizonian enforcement. People who violated zoning laws felt like they were criminals, and we changed the whole system.

And I'm going to give you a recommendation here that I would like you to think about. To follow up on what the Chairwoman talked about, the culture of changing within an organization, knowing that you are an administrator that is there for 2 years or 6 years or 8 years max, that the system chews on you. And one of the things we used to do is we just eliminated the whole program and created a new one. And everyone had to reapply and you created the new culture.

Because, if you don't do that dramatic change to something that now—I've heard now, it has gone on for 10 years, two reports—and I think I agree with the Chairwoman, that were we, you know, if I'm lucky and fortunate enough to be here 10 years from now, that I'll probably be seeing a report again, hopefully not effecting Alaska as it is effecting the Northeast.

So, you know, you radically have to change it. A fee schedule, not having a fee schedule and leaving officers to determine the process of fee, maybe in consultation with an attorney, is asking for problems. So, I would highly recommend—and I'm not bashful about, if legislatively we should recommend it, and say, "You know what, there has to be a new hearing officer process, a civil process, a fee

schedule," and just do it. Because if you don't change the culture, that's going to be your problem, not—you know, you can develop a nice fee schedule and all the training you want, but if you do not change the culture.

And we had to do this painfully, it is probably something I'll never forget, when I did it with zoning, I did it with our librarians, which, you know, I visualized a front page headline story still to this day. But after that, our library system is much stronger because of it. But we had to basically change the system and laid off everyone, and then rehired based on the needs that we really had. And it worked.

So, are you willing to—I mean, you know, again, my State is not as affected as the Northeast. So, I mean, I looked at the report. You actually get more settlements that the NOVA amounts in our State, the only region which—I don't understand that, but that's another day, another question.

But, are you willing to take that radical step to say, "Look, this system is broken, we're going to throw it out, we're going to put a new system in there, we're going to create a hearing officer, a schedule system, we're not going to make it,"—you know, there are violators that need to have strong criminal actions, but, you know, how do you—are you willing to take a kind of a radical step to make it, you know—I mean, the system will wear you out, I guarantee you. As former Mayor, they worked every day until I called a few of them and explained that I'm here for a period of time, so get used to it. And then we changed the system.

Dr. LUBCHENCO. Senator, I appreciate those suggestions. I believe that the steps that we are taking now to completely review, top to bottom, all of the ways that our law enforcement system operates, what the composition of the personnel is, what their background is, how their reviews are done, what kind of discretion they have, who's in charge of the Asset Forfeiture Fund, all of that that was recommended by the IG report, we have committed to doing. And, I believe that those changes will make a very considerable difference.

I think the Chair's suggestion of an analysis of why weren't earlier recommendations completely implemented, why are we where we are today, is a very useful additional analysis that we will fold into our consideration.

It's not obvious to me that there is need for additional action, but I think what we are setting in motion in response to the IG's report will result in some very substantial challenges——

Senator BEGICH. What's your timeline?

Dr. LUBCHENCO.—changes.

Senator BEGICH. What's your timeline?

Dr. LUBCHENCO. We have—some of the things that I have announced we have already done. For example, the Asset Forfeiture Fund is now under direct control of the NOAA comptroller instead of being in—at a lower level. Many of the other things, for example, the analysis of the composition of workforce, what their backgrounds should be, how many should be special agents that were called in the IG's report, criminal investigators, what the right balance is relative to our needs, is part of the analysis that we are doing.

Senator BEGICH. And your timeline for that?

Dr. LUBCHENCO. It's not clear now how long all of that will take. I have asked the General Counsel and the Director of NOAA Fisheries who are responsible for this, that in our report to the IG, we will lay out what we will do and how long it will take. But I can't tell you right now how long each of those steps will take, because we're in the process of preparing that analysis.

Our response to the IG is due—60 days is up—is it March 12?

Mr. ZINSER. March 21.

Dr. LUBCHENCO. March 21. So our report to the IG is March 21. So we will have some of those answers in that timetable, at that point.

Senator BEGICH. Let me just say, and I'll end on this, and that is, again, as former Mayor, we had lots of internal audit reports and the responses were great because we had to respond to them. It's the action date that's critical, and I'm just going to give you my two bits. You are now almost 2 years into the current Administration, people are counting the days, I can guarantee you, people have been there a long time in the system, thinking that 2 years from now maybe it might change or maybe 6 years. The clock is ticking, and I would not hesitate to be radical about your decisions and be forceful on a timeline. That's all I would recommend, from my own experience, how the system can chew on you and wait you out. And this sounds like a very important piece of the puzzle.

Senator CANTWELL. Thank you.

Senator Snowe, do you have further questions?

Senator SNOWE. Thank you.

I just want to follow up and I appreciate what the Senator from Alaska has said, because I couldn't agree more. I think that there—there has to be a level of urgency, very aggressive, assertive leadership, and a timetable for which to accomplish it. And in the meantime, I would hope that there would be the highest level review on any penalties that are going to be imposed here on out, and what methods are being used, and how and why, and that garners your attention at the highest levels here until this is squared away.

And I appreciate what the Chair has asked for, you know, is to have that timetable and the analysis as well, as to why the 1998 report was not implemented. Now, the ratio back then was recommended, as the Chair said, 50/50. And now we have, like, as we said, 90 percent, which is 149 out of 164 offices are criminal investigators. So, that's the ratio of criminal investigators to civil. And again, according to my staff, that the rational for this odd ratio, is that criminal investigators are classified differently under a Federal benefits program than uniformed civil investigators, and that other agencies have eliminated the financial incentive by leveling the playing field for benefits and pay among inspectors and agents. Is that something that's come up—because—is that something that could help in this instance?

Mr. ZINSER. Yes, Senator, I think that—what we saw was a workforce report that was done, and one of the issues that was significant in there were the benefits that accrued to either a criminal investigator or non-criminal inspectors. And instead of deciding to provide those benefits or get whatever law change that they needed

to get those inspectors the same benefits, the idea was to move the inspectors into the criminal investigative workforce.

Senator SNOWE. Oh boy, it created, certainly, a tremendous effect.

I would hope, Dr. Lubchenco, that everybody in the legal enforcement, the Law Enforcement Division has the opportunity to read and has read this report, and particularly the complaint examples, because they are deeply disturbing.

And—but Mr. Zinser said, you know, imagine people's hearts palpitating every day about what's in their post office box, and isn't that a horror? I mean, it just really is. And, I just don't think people understand the effects that they create on the well-being of people by, you know, fully imposing the brunt of the Federal Government, and the weight of these enforcements. The broad discretion that was exercised in imposing these penalties, which is also breathtaking, and how they ever had that broad discretion to, you know, to impose those types of penalties in the instances that we examined here, and the threats that were issued to individuals. I mean, that has to cease.

And so, I hope that everybody is required to read this report, to read those complaint examples, specifically. And that we get a report back, because we need to be informed of how this is happening. We have a responsibility now to radically change this and to eradicate this mean by which they've been enforcing Federal regulations, so this never repeats itself. And the sooner the better.

Dr. LUBCHENCO. We will keep you informed of our progress.

Senator SNOWE. Thank you.

Senator CANTWELL. Thank you. I want to thank my colleagues for attending the hearing.

And Dr. Lubchenco and Mr. Zinser, thank you very much for being here.

I guess one could say the good news is we didn't spend a whole hearing talking about the NPOESS satellite system, but on the other hand, I think all politics are local, and you can see that the economic impact that NOAA has on communities around our country are real. And so, we are going to continue to focus on these issues and NOAA's budget concerns of making sure that the agency has the resources it needs. So, we'll continue this discussion and look forward to the information we've requested at the hearing.

So, thank you very much for being here. The hearing is adjourned.

[Whereupon, at 12:03 p.m., the hearing was adjourned.]

APPENDIX

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. JOHN D. ROCKEFELLER IV TO DR. JANE LUBCHENCO

Question 1. In 2009, the National Weather Service (NWS) initiated the "New York Aviation Demonstration" project to reduce aviation delays due to weather. How successful has the demonstration project been in reducing weather related aviation delays?

Answer. The demonstration project was very successful. First, a 50 percent reduction in air traffic delays was observed during the demonstration period. However, the results are likely due to multiple factors in addition to improved weather forecasts, including Air Traffic Control efficiencies and overall reduced traffic. Second, the demonstration's stated purpose was to show improvement in weather forecasting with focused effort and additional resources. The National Weather Service witnessed a 10 percent improvement in the accuracy of aviation ceiling and wind speed forecasts in the New York City area during the demonstration period. Third, the Federal Aviation Administration's air space managers were better informed of weather and incorporated that information into their air space management decisions.

Question 2. Is the NWS going to make the demonstration project permanent and expand it to other cities in 2011?

Answer. Recognizing the New York Aviation Demonstration's successes, the National Weather Service and the Federal Aviation Administration will continue current efforts to measure the impact of weather forecasts on air traffic management decisions and, by extension, on aviation delays. The National Weather Service is currently planning similar demonstrations at two additional high-impact Air Route Traffic Control Centers covering the major air traffic hubs of Atlanta, Georgia and Chicago, Illinois.

Question 3. Will the NWS be conducting a cost benefit analysis of the savings from the reduction in weather related delays versus the cost of additional forecasters?

Answer. The National Weather Service will work with the Federal Aviation Administration to determine benefits and other measures of success.

Question 4. Several years ago, the Southern Region Director of the NWS proposed implementation of an "Emergency Response Meteorologist" program at each forecast office to assist local emergency management personnel. The proposal was modeled on the NWS's Incident Meteorologist program which dispatches meteorologists into the field with wild land firefighter crews. What is the status of that proposal, as well as other initiatives the NWS is considering in the area of decision support to local emergency managers?

Answer. Decision support to local emergency managers and our Federal partners with similar life-saving missions remains a critical focus of NOAA's National Weather Service (NWS), at all levels of the organization. NWS is currently developing a comprehensive decision support services plan. The "Emergency Response Meteorologist" proposal is being considered for inclusion into the plan. Meanwhile, NWS has dedicated staff supporting local and state emergency operations centers during critical weather related events. This spring's flooding of the Red River of the North is a prime example of NWS on-site support to Federal, state, and local government officials responsible for life and property decisions. In addition to wildfires, Incident Meteorologists respond to events such as flooding, chemical spills, as well as major public venues such as national political conventions and major sporting events (Superbowl, etc.). To enhance emergency support readiness and more fully integrate operations into emergency responses, Incident Meteorologists are taking Department of Homeland Security required first responder and disaster workers training.

Question 5. Does the NWS have any plans to develop any additional forecast products that would support the Nation's transition to alternative energy, such as: high resolution wind forecasts for wind farms nested within; high resolution wave fore-

casts for ocean energy; forecasts of meteorological and astronomical tides; river flow forecasts for bridges and other structures that contain turbines; or a "solar index" that combines sun angle, opaqueness of clouds and surface visibility?

Answer. NOAA's National Weather Service (NWS) currently provides baseline observations and forecasts that enable many components of the renewable energy industry to operate and expand today. For example, the wind energy industry relies on NWS model forecasts of weather conditions in the lower atmosphere to be used as input into power generation algorithms for the operation of wind farms, and hydroelectric utilities rely on NWS river stage and flow forecasts which provide guidance about water resource management.

NWS is working with other NOAA line offices on the research phase of NOAA's renewable energy portfolio. In addition, NOAA is working with other Federal agencies and the renewable energy industry to better understand industry requirements and to incorporate these needs into future operational capabilities. For example, the Department of Energy (DOE) and NOAA are partnering to perform a field demonstration in FY 2011 to improve short range wind forecasts at the turbine level. A consortium consisting of NOAA and DOE laboratories and partners in industry will quantify forecast improvements and impacts to the efficiency of wind generation within the test domain.

NOAA is planning higher resolution forecast models which provide fundamental parameters (such as onshore and offshore wind forecasts) at levels and timescales which can be better used by energy industry decisionmakers nationwide. These models will contain better characterization of moisture and clouds which can be used by solar interests. NWS is improving river forecast models to provide better water inflow forecasts which can be used for hydroelectric generation. NWS and NOAA's National Ocean Service are exploring the applicability of existing oceanic models to foster the emergence of hydrokinetic and ocean wave forecasts.

The NWS will use the existing strong partnerships with America's Weather Enterprise to take the improved NWS forecasts and create customized products for specific renewable energy industry needs.

Question 6. How can wind farms impact NWS radar and weather forecasting? What actions is NOAA taking to minimize the impacts of wind farms on radar and weather forecasting?

Answer. Wind farms can have a detrimental effect on the NEXRAD radar network, depending on how close the wind farms are to the radar, and on the orientation of the wind farm. Some radars already have a "return" from wind farms, causing new users who see the "returns" to contact NWS about the severe weather on the radar, when there is no weather at all, only radar returns from the wind farms. Users do become used to the clutter, but the radar clutter from wind farms may also make it difficult to detect severe weather that is occurring over or near a wind farm. The National Weather Service (NWS) is working with the Department of Defense and the Federal Aviation Administration, with the wind energy industry, as well as with Members of Congress and their staff, to ensure potential impacts of wind farms are known and addressed. NWS is also working on clutter mitigation efforts to alleviate the impact of existing wind farms on the NEXRAD radar network.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARIA CANTWELL TO DR. JANE LUBCHENCO

Question 1. Last year, NOAA was asked to provide the Committee its 100 percent requirement—the funding that the agency requires to fully meet its mandates and missions. Without this information, it is very difficult for the Committee to properly provide oversight. Is the FY 2011 NOAA Budget request sufficient to meet this 100 percent requirement for the agency?

Answer. The Administration has proposed an FY 2011 budget for NOAA that is a 17 percent increase over the FY 2010 Enacted. This budget will ensure that we can meet our highest priority requirements and the performance targets we have set for FY 2011. It reflects our efforts to focus on our highest priorities and program needs, identify efficiencies, and ensure accountability.

Question 2. What funding level is necessary to meet the 100 percent requirement and how did you arrive at this number?

Answer. Many dynamics affect the question of requirements and available resources, including economic changes, socio-economic benefits, emerging technologies, near term needs versus long term vision, congressional earmarks, aging equipment, and fiscal constraints. Within the Administration, we must develop budgets in the

context of competing priorities and needs across the entire Federal Government. The President's Budget request represents our highest priorities.

Question 3. Can NOAA tell the Committee the total funding needed for authorized programs?

Answer. NOAA does not have an estimate of total funding needed for authorized programs.

Question 4. Does the FY 2011 budget request take into account funding that is needed to address top policy priorities including establishing a National Climate Service, fully funding the satellite programs, and implementing the coastal and marine spatial planning and national ocean policy?

Answer. Yes, the FY 2011 budget request does take into account funding that is needed to address top policy priorities. Some of the highlights include:

- *NOAA Climate Service*: On February 8, 2010, the Secretary announced his intention to create a NOAA Climate Service to enable NOAA to better address the growing need for climate services. The FY 2011 budget does not propose a new NOAA Climate Service; however, the FY 2011 request does includes $435 million in support of the U.S. Global Change Research Program, with $77 million in new increases for core climate services and observations needed to enable the Nation to more effectively address the impacts of climate change. Any reorganization of the Agency would be presented to the Congress in a reorganization proposal per the requirements of the Appropriations Act.
- *Satellite Programs*: With the FY 2011 budget request, NOAA will invest in multiple satellite acquisition programs for the continuity of critical weather, climate, and oceanographic data. The National Environmental Satellite, Data, and Information Service (NESDIS) requests $2,209.0 million in FY 2011, reflecting a net increase of $810.5 million over the FY 2010 Enacted. This budget request supports NOAA's management of all aspects of satellite acquisition programs and supports data processing for advancing climate change.
- *Coastal and Marine Spatial Planning*: NOAA's FY 2011 request supports the goals of Executive Order 13547 which adopts the Final Recommendations of the Interagency Ocean Policy Task Force to manage and effectively balance ecosystems and resources. In FY 2011, NOAA requests an increase of $6.8 million to support coastal and marine spatial planning, which will enhance existing efforts for sustainable fisheries, safe navigation, improved water quality, living marine resources and critical habitat protection. In addition, a $2 million increase is requested to support the Gulf of Mexico Coastal and Marine Elevation Pilot that strives to understand coastal community resilience, wetland loss and erosion, and the potential for degradation of key ecosystem services through coastal and marine spatial planning. These requests are a good start for this new initiative. The FY 2011 request also includes $20 million to establish a competitive grants program to advance effective ocean management through regional ocean governance. This grant program will support priority actions identified in plans of the existing regional ocean partnerships (including Regional Coastal and Marine Spatial Planning), as well as supporting the development and implementation of ocean management plans in other regions, and addressing regional activities in other parts of the country.

Question 5. How much is NOAA requesting for activities authorized by the Tsunami Warning and Education Act and how will NOAA spend this funding?

Answer. NOAA's FY 2011 Budget Request includes a total of $23.3 million for strengthening the U.S. Tsunami Warning Program. In addition, NOAA will supplement this $23.3 million in FY 2011 with approximately $12.7 million in reimbursable funding provided by the National Telecommunications and Information Administration (NTIA), from the analog spectrum auction proceeds as specified by the Deficit Reduction Act of 2005. Under this Act, NOAA will be provided a total of $49.7 million in auction proceeds to be obligated between FY 2009–2012 at an average rate of $12.4 million/year to strengthen the Nation's tsunami program.

NOAA's request of $23.3 million in FY 2011 includes the following:

- $3.5 million for operations and maintenance of the two dedicated 24x7 Tsunami Warning Centers (the Pacific Tsunami Warning Center and the West Coast/Alaska Tsunami Warning Center);
- $12.0 million for operations and maintenance of the Nation's Deep-ocean Assessment and Reporting of Tsunami (DART) buoy station network (39 stations);
- $0.75 million for the operations and maintenance of the NOAA sea-level stations, for stations that have been installed or upgraded and provide high-frequency data for tsunami warnings;

- $4.0 million to support expansion of the National Tsunami Hazard Mitigation Program to all 29 coastal ocean U.S. states, commonwealths and territories;
- $0.75 million in support of NOAA's TsunamiReady communities;
- $2.0 million for Tsunami Research and Development; and
- $0.3 million to support NOAA's quality controlled tsunami data archive.

NOAA plans to spend the $12.7 million in funding provided from the spectrum auction proceeds as follows:

- $3.5 million will improve NOAA's Tsunami Warning Center Operations including IT Systems;
- $1.5 million will expand tsunami research and development;
- $4.5 million will accelerate the transition of forecast models to operations;
- $2.6 million will expand and/or accelerate tsunami hazard mitigation programs; and
- $0.6 million go toward NWS Administrative Overhead Assessment (5 percent).

NOAA's planned obligations for the Tsunami Warning Program are compliant with the amounts authorized and mandated by the Tsunami Warning and Education Act (TWEA).

Question 6. What are the most difficult challenges that NOAA faces detecting, forecasting, and modeling tsunamis?

Answer. The most difficult challenges NOAA faces in detecting, forecasting and modeling tsunami events are:

- *Operation and maintenance of the Nation's 39-station Deep-ocean Assessment and Reporting of Tsunami (DART) Network*: DART station outages have occurred due to the extreme environmental conditions in some locations resulting in failed moorings. Fortunately, to date, these outages have not resulted in significant impacts on the ability to forecast and model tsunami events. Outages, however, have the potential to limit the ability to confirm tsunami propagation or to cancel warnings and advisories.
- *Understanding the impacts of tsunamis at the coast*: One of the major challenges is to better model tsunami impacts at the coast, including implementing a methodology for measuring tsunami-induced currents in harbors and at the coast, improving hydrodynamic modeling, and developing credible fragility models of the interaction of tsunamis with the built and natural environment.
- *Incorporation of international data into existing tsunami modeling capability*: Improved capability to model tsunamis based on international data would enhance our tsunami forecast capability.
- *Improved characterization of tsunami sources*: The low density of the seismic network in some areas delays the identification and estimate of earthquakes, which may result in delays in warning issuance. An additional challenge is the detection and warning for sub-aerial and submarine landslides that generate tsunamis.

Question 7. How is NOAA measuring its success in improving tsunami research, hazard mitigation, and education programs?

Answer. NOAA measures its success in improving tsunami research, hazard mitigation, and education programs as follows:

- NOAA's Tsunami Program has established and monitors a significant number of performance measures including:
  - Reduce elapsed time from earthquake to Tsunami Message Product issuance for distant events from 22 minutes to 16 minutes by 2013;
  - Reduce elapsed time from earthquake to Tsunami Message Product issuance for regional events from 10 minutes to 5 minutes by 2013;
  - Reduce time to cancel a Tsunami Warning or Watch from 3 hours to 2 hours by 2013;
  - Increase the number of TsunamiReady communities from 74 to 120 by 2013; and
  - Increase the number of Inundation Forecast Models developed for specific high-risk areas from 26 to 75 by 2013.
- The number of U.S. state, territorial, and commonwealth partners now participating in the National Tsunami Hazard Mitigation Program (NTHMP) increased from 5 (prior to TWEA) to 29 (current).

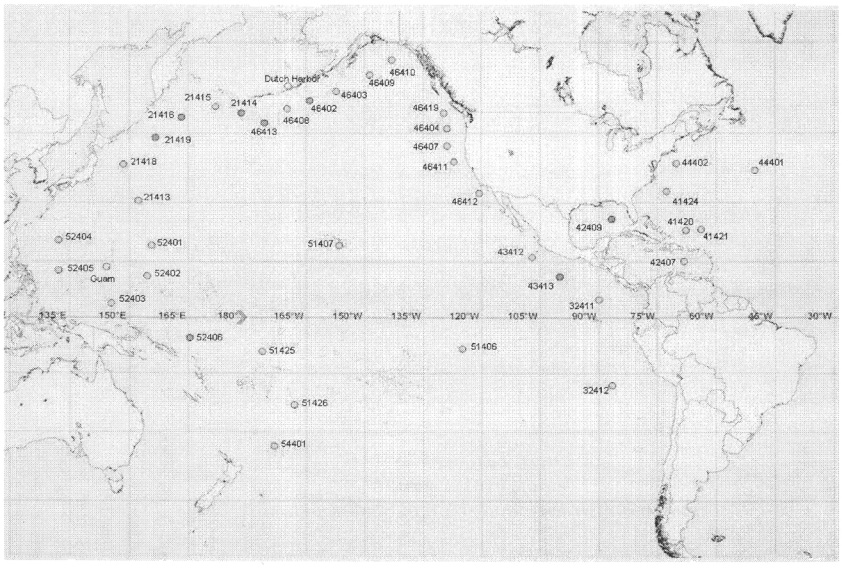
- As referenced in the NTHMP Strategic Plan, the NTHMP manages several performance measures that are tracked and reported annually. For example:
  - Establish a benchmark procedure for tsunami inundation models in 2010;
  - Develop educational guidelines in 2010;
  - Establish guidelines for evacuation maps in 2010;
  - Integrate tsunami information into K–12 education through at least one state pilot project by 2011;
  - Conduct annual tsunami table-top exercise to ensure response plans to tsunamis are integrated and effective in 2010;
  - Develop decision support tools for emergency responders to better visualize and plan for potential impacts by 2013;
  - Develop and distribute tsunami education products for the tourist community (*e.g.,* hotels, cruises, and vacation rental homes) by 2011; and
  - Establish a national tsunami awareness week by 2012.

NOAA's Tsunami Program is also currently undergoing two external reviews as called for by TWEA, one by the Government Accountability Office and another by the National Academy of Science, which will evaluate the Program's success and provide recommendations for improvement.

Question 8. At the time of the most recent tsunami, which was generated by the 8.8 earthquake in Chile, 7 DART stations were out of operation. How did that impact NOAA's detection and forecasting of the tsunami resulting from the earthquake in Chile?

Answer. The lack of DART data from the seven (7) inoperative DARTs (see red dots in the map below) in the Pacific Ocean did not impact NOAA's ability to detect and forecast the tsunami resulting from the recent 8.8 magnitude Chilean earthquake (105 km, or 65 miles NNE of Concepcion, Chile). As shown in the map below (green dots), numerous stations that were important for the detection and assessment of the tsunami were operational for this event. In addition, other NOAA sea-level stations provided critical data that refined the accuracy and resolution of NOAA tsunami forecast models. A major benefit was that the combination of data and forecasts eliminated unnecessary evacuations along the U.S. west coast.

DART® Deployed Network
March 2, 2010 status
Non-operational Stations indicated with red dots



Question 9. The Administration's budget proposes a major restructuring of NPOESS. Why has the Administration recommended splitting up the program and starting over with a new satellite system?

Answer. The President's FY2011 budget contains a major restructuring of the National Polar-orbiting Operational Environmental Satellite System (NPOESS) in order to put the U.S. on a more sustainable pathway to meet its needs for space-based operational environmental data. The U.S. retains as a national priority the requirement for a satellite system that can meet both civil and military weather-forecasting, storm-tracking, and climate-monitoring requirements.

To be clear, the administration is not canceling the NPOESS program or starting over with a new system. We are merely restructuring the existing procurements for the Nation's system of polar-orbiting environmental satellites. We will be taking maximum advantage of the investments of the NPOESS program made to date, by maintaining almost all of the hardware that has been developed for use on future platforms.

Prior to the February 1, 2010 announcement, the NPOESS program had been behind schedule, over budget, and underperforming. Independent reports and an Administration task force had concluded that the NPOESS program could not be successfully executed with the existing management and budget structure. These challenges had originated in large part because of a combination of management deficiencies that resulted from conflicting perspectives and priorities among the three agencies which managed the program, and technical challenges the program had encountered in instrument and spacecraft bus development; serious lapses in capabilities loomed as a result.

Additionally, there were concerns about continued cost growth and schedule delay. In 2002, the NPOESS program was estimated to cost approximately $6.5 billion (for development and operations through FY2018) and consisted of an initial NASA satellite to test the new sensors (the NPOESS Preparatory Project—NPP—to be launched in early 2006) and six NPOESS platforms in three orbits. The first NPOESS satellite (C–1) was to be launched in early 2009. The program encountered numerous technical and management challenges, which led to restructuring of the NPOESS program in 2006 due to cost over-runs that triggered Congressionally-mandated Nunn-McCurdy recertification. The recertified NPOESS program reduced the scale of the program from six satellites in three orbits (early morning, mid-morning and afternoon orbits) to four satellites in two orbits (early morning and afternoon orbits). The U.S. would rely on the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) MetOp satellites for operational weather observations in the mid-morning orbit. The NPP launch was delayed to 2011, and the launch of the first NPOESS platform (C–1) was expected to be in late 2014. The launch schedule reflects delays of 5 years from the originally planed dates. Due to these delays, the new life-cycle cost estimate through FY 2024 was approximately $12 billion for this reduced capability. The last official baseline life-cycle cost estimate for the NPOESS program in 2009 was approximately $13.9 billion, with the Integrated Program Office forecasting additional costs of $2 billion.

Path Forward

As a result of a review led by an Executive Office of the President (EOP) Task Force, which considered a number of options, including those suggested by an Independent Review Team (IRT), Congressional Committees, and the Government Accountability Office, the Administration concluded that the program would not be able to succeed as structured at that time. On February 1, 2010 the White House announced that NOAA and the Air Force would no longer continue to jointly procure the polar-orbiting satellite system called NPOESS. NOAA believes that this decision is the best one of all the options reviewed that will provide the required critical operational weather and climate observations that are needed.

- The three agencies (DOD, NOAA and NASA) have and will continue to partner to ensure a successful way forward for the respective programs, while utilizing international partnerships to sustain and enhance weather and climate observation from space.
- The major challenge of NPOESS was jointly executing the program between three agencies of different size with divergent objectives and different acquisition procedures.

  The new system will resolve this challenge by splitting the procurements. NOAA and NASA will take primary responsibility for the afternoon orbit, though the Joint Polar Satellite System (JPSS) program, and DOD will take primary responsibility for the early morning orbit through its Defense Weather Satellite System (DWSS). The agencies will continue to partner in those areas

that have been successful in the past, such as a shared ground system. By restructuring the NPOESS program, the NPOESS tri-agency structure that has made management and oversight difficult, contributing to the poor performance of the program, was eliminated. The June 28, 2010 National Space Policy documented that change.

- NOAA and the Air Force have already begun to move into a transition period during which the current joint procurement will end. A detailed plan for this transition period will be available in fall 2010. The agencies will continue a successful relationship that that they have developed for their polar and geostationary satellite programs to date.
- These changes will better ensure continuity of crucial civil climate and weather data in the future. A main focus remains continuity of polar-orbiting satellite data. Decisions on future satellite programs will be made to ensure the best plan for continuity of data.

Question 10. Did the interagency review consider fixing the tri-agency governance model and allow the execution of the NPOESS program to proceed on its current path?

Answer. The review of the NPOESS program, led by the Executive Office of the President, evaluated many options, including modifying the tri-agency governance model. However, it was quickly recognized that the impediments to the NPOESS program's success were far more complex than the management structure issue alone. During the EOP-lead review, the Administration acknowledged that both the military and civil agencies had demonstrated competence in acquiring, launching, and operating satellites to meet their specific mission requirements and the most prudent resolution would be to place the agencies in charge of developing their satellites and sharing data from the respective orbits with each other. The Administration determined that February 1, 2010 decision to restructure the NPOESS program was the most optimum means to meet the Nation's requirements for weather and climate data.

Question 11. How will the NPOESS split and subsequent transitioning affect the expected cost and launch dates for the satellites?

Answer. NOAA is developing transition plans that would launch the first Joint Polar Satellite System satellite (JPSS–1) into the afternoon orbit in 2014; this is approximately the same time the first NPOESS satellite (C–1) was scheduled for launch. The second JPSS satellite (JPSS–2) is scheduled for launch in 2018. NOAA estimates the life cycle cost of its portion of the restructure program, JPSS, is $11.9 billion. This amount includes the $2.9 billion NOAA has already spent on the NPOESS program.

NOAA is unable to report on the DOD launch dates of the restructured NPOESS satellites destined for the morning orbit until DOD has completed its analysis of alternatives. It is not possible to provide a comparison of the life cycle cost of the original NPOESS program versus the restructured NPOESS program until DOD has completed its analysis and determined the cost of fulfilling its portion of the restructured NPOESS program. Both NOAA and DOD are finalizing their plans which will provide a comparison of the expected costs and launch dates for the JPSS and DWSS satellites, respectively.

Question 12. What risks and challenges does NOAA face restructuring NPOESS, and how does NOAA plan to mitigate those risks and challenges, especially to ensure climate and weather data continuity at risk?

Answer. NOAA acknowledges there are still risks associated with the development of the Joint Polar Satellite System (JPSS) program, including the risk of a gap in coverage as well as technological risks associated with instrument development. NOAA and NASA in collaboration with DOD are currently working through the details of restructuring the NPOESS contract and to transfer management control of the instrument and the ground systems contracts from Northrop Grumman to NASA management control. Challenges remain, but NOAA and NASA believe that the over 50-year successful NOAA–NASA partnership that acquired the NOAA Geostationary Operational Environmental Satellites (GOES) and the GOES–R Series programs, and the NOAA Polar-orbiting Operational Environmental Satellites (POES) programs will provide a solid foundation for developing the JPSS program. NOAA and NASA are developing the processes that will dictate how the two agencies will interact in the development of the JPSS program. NOAA and NASA are currently finalizing the JPSS program management office to ensure that the adequate NASA management and engineering expertise is available to address the known technical challenges that remain for instrument development, and that will need to be available to rapidly address technical challenges as soon as they are identified.

NOAA's FY 2011 budget request of $1.1 billion for JPSS provides adequate resources and more adequate contingency funds than past budgets to address known risks and risks that may arise during development. With this funding, NOAA will have sufficient resources to fund, on a reimbursable basis, the National Aeronautics and Space Administration's Goddard Space Flight Center to provide the necessary engineering and management oversight to acquire JPSS within budget and on schedule. As the single agency responsible for overall management and development of the JPSS program, NOAA will have the opportunity to quickly address issues as they arise.

Question 13. What are NOAA's plans for the additional $700 million requested for the JPSS program in Fiscal Year 2011?

Answer. NOAA's FY 2011 budget request for the Joint Polar Satellite System (JPSS) of $1.1 billion will continue the procurement of spacecraft, instruments, launch services, and ground systems equipment necessary to maintain an uninterrupted flow of environmental data to users. In general, the $700 million increase is necessary because NOAA will be solely funding the satellite acquisition whereas in the past the costs of the acquisition were shared 50:50 with DOD. With the FY 2011 funding, NOAA will:

- Continue to support transition costs that will continue transition to JPSS program from the NPOESS Program
- Establish a NASA Program Management office with systems engineering, science expertise, and mission assurance expertise
- Continue to develop the suite of instruments originally planned for the NPOESS mission for use in the afternoon orbit, they are:

  —Visible/Infrared Imager/Radiometer Suite (VIIRS)

  —Cross-track Infrared Sounder (CrIS)

  —Advanced Technology Microwave Sounder (ATMS)

  —Ozone Mapping and Profiler Suite-Nadir (OMPS-Nadir)
- Begin acquisition of the JPSS–1 spacecraft bus for the afternoon orbit for 2014 launch readiness date
- Finalize the acquisition plans and strategy for the JPSS–2 spacecraft bus for a launch readiness date of 2018
- Continue to develop the ground system which will support the ability to receive observations from the NPOESS Preparatory Project (NPP), JPSS program and DoD Defense Weather Satellite System program satellites
- Plan integration of furnished sensors from international partners to JPSS program
  - Satellite-assisted Search and Rescue (SARSAT)
  - Advanced Data Collection System (A–DCS)
- Plan integration of sensors from the NOAA Climate Sensor program that will fly on JPSS program instead of NPOESS program:
  - Total Solar and Spectral Irradiance Sensor (TSIS)
  - The Clouds and the Earth s Radiant Energy System (CERES)/Earth Radiation Budget Sensor (ERBS)
  - OMPS—Limb
- Continue discussions with the Japan Aerospace Exploration Agency (JAXA) to collaborate in its Global Change Observation Mission (GCOM) mission to meet the requirements that the Microwave Imager Sounder (MIS) would have provided through the use of the Advanced Microwave Scanning Radiometer (AMSR) instrument planned for the GCOM mission.

The budget request also provides sufficient contingency to address the risks that remain in the program.

The National Aeronautics and Space Administration will provide the acquisition management, on a reimbursable basis to NOAA.

Full funding of the JPSS budget is required to ensure that JPSS will be ready to support the NPOESS Preparatory Project's expected readiness for launch during FY 2011, as well as deliver VIIRS, CrIS, OMPS, and ATMS instruments in FY 2013 to support a 2014 launch readiness of JPSS–1, the first afternoon orbit satellite.

Question 14. How would NOAA's budget help communities, ecosystems, and industries respond to ocean acidification?

Answer. Ocean acidification is perhaps the greatest emerging threat to the health of our ocean ecosystems. We are only beginning to understand the mechanisms by which increasing ocean acidity impacts marine life. Increased efforts are needed to understand the physical and biological aspects of this phenomenon, as well as the impacts on communities and businesses that rely on the ocean resources that are likely to be impaired. The FY 2011 President's Budget requests $11.6 million for NOAA research on ocean acidification, which includes an increase of $6.1 million over the FY 2010 request.

Funding will be used to implement an integrated ocean acidification initiative with research and long-term monitoring of ocean acidification for assessing climate change impacts on living marine resources and the businesses and communities that depend on their sustainable use, pursuant to the Federal Ocean Acidification Research and Monitoring Act. With this funding, NOAA's FY 2011 efforts will be directed to:

- Assess the effects of ocean acidification on commercial fish species and the greater ecosystems on which they rely;
- Develop and provide sensors to monitor ocean acidification both for fixed platforms and for mobile use by researchers and coastal managers in the field;
- Determine and monitor the status and potential effects of ocean acidification on coral reefs; and
- Expand carbonate analytical capabilities at NOAA's science centers in order to meet the growing demand for quality control on samples being collected both in the field from U.S. waters and from researchers studying the impacts of ocean acidification on critical species through laboratory experiments.

The results of this research will help to inform future strategies to help communities, ecosystems, and industries respond to ocean acidification. The increase will complement, accelerate, and enhance current NOAA ocean acidification activities within the Office of Oceanic and Atmospheric Research, National Ocean Service, and National Marine Fisheries Service.

Question 15. Would NOAA's proposed Climate Service provide a way for the Federal Government to help industries like Washington's shellfish farmers deal with the impacts of climate change and ocean acidification?

Answer. As the Secretary announced on February 8, 2010, the intent in creating a NOAA Climate Service is to provide a sustained, reliable and authoritative source for climate data, information, and decision-support services to help individuals, businesses, and communities make the best decisions possible. Given NOAA's ocean, coastal and marine stewardship authority, these stakeholders, partners, and programs—both within the agency and external—would be principal clients for a NOAA Climate Service.

Climate information and predictions from a NOAA Climate Service would allow NOAA to better meet its ocean and coastal stewardship requirements and support the needs of ocean and coastal communities. Products and services provided by the NOAA Climate Service would include assessing and meeting regional climate prediction needs, identifying climate and health risks, providing reliable information about floods and droughts, supporting a variety of environmental forecasts, modeling and predicting sea level rise, and working with coastal communities and decisionmakers to factor climate change projections into adaptation strategies.

Not all of this work; however, will occur within a NOAA Climate Service. Such is the case with NOAA's work on ocean acidification where the Office of Oceanic and Atmospheric Research, the National Ocean Service, and the National Marine Fisheries Service will continue to make significant contributions. Partnerships across all these parts of the agency, as well as with a variety of external partners, will be a key to success on such issues.

Question 16. The Interagency Ocean Policy Task Force interim report outlines the benefits of marine spatial planning, but also highlights the substantial initial investments needed to establish plans. These plans should rely on sound science and public engagement. Yet there are significant scientific gaps in what we know about ocean ecosystems, and the FY 2011 budget request does not support growth in programs such as Sea Grant or Coastal Zone. How does the Administration implement marine spatial planning without increasing funding for programs that support the effort?

Answer. Although Coastal and Marine Spatial Planning (CMSP) can be pursued in an adaptive management approach with the current state of knowledge about marine ecosystems and their uses, the Administration's CMSP Framework acknowledges the need to fill critical information gaps. NOAA's budget request for FY 2011 provides funding to a variety of NOAA programs to strengthen scientific capacity

and decision-making for CMSP, including Sea Grant and the Office of Ocean and Coastal Resource Management. Those funds are critical to broaden CMSP efforts beyond existing site- or sector-specific planning projects that do not address the important goal of ecosystem-based regional approaches.

Question 17. What are the budget implications for NOAA of implementing marine spatial planning on the national level?

Answer. Coastal and Marine Spatial Planning (CMSP) is one of many critical efforts that NOAA is pursuing in our ocean, coastal and Great Lakes waters. CMSP spans intergovernmental jurisdictions, ocean use sectors, and geographic scales. As such, it requires dedicated resources and focused effort. To this end, the FY 2011 President's Request for NOAA includes targeted funding to begin implementing the national CMSP Framework. These funds would strengthen NOAA's internal capacity to support and conduct CMSP, and would establish a competitive grant program that would include funding opportunities for regional ocean partnerships interested in advancing CMSP.

Question 18. NOAA is requesting $20 million for regional ocean partnership grants. How would these funds be distributed between the existing regional partnerships and what do you see as the priorities for use of these funds?

Answer. The requested $20 million for regional ocean partnership (ROP) grants is intended to support a full and open competition between regions; therefore, NOAA has not prescribed a specific funding amount or percentage for any given region.

The specific criteria and priorities for the competitive regional ocean partnership grants were developed by NOAA through a collaborative consultation process with stakeholders and other interested parties. Following these discussions, NOAA issued a request for proposals through a Federal Funding Opportunity in late summer 2010 with more specific guidance for grant applications. This guidance includes priorities for NOAA funding across three main categories: (1) ROP Priority Action Implementation; (2) Regional Coastal and Marine Spatial Planning; and (3) ROP Development and Governance. The allocation of funds will be based on the funding criteria included in the Federal Funding Opportunity.

Question 19. This year's budget request includes $65 million for the Pacific Coastal Salmon Recovery Fund, a reduction from the 2010 enacted level of $80 million. How would the proposed reduction in funding for the Pacific Coastal Salmon Recovery Fund impact salmon recovery efforts?

Answer. The Pacific Coastal Salmon Recovery Fund (PCSRF) program has been very important in restoring habitat for Pacific salmon and steelhead, and building capacity needed to help state, tribal, and local entities take the actions necessary for salmon recovery. The $65 million President's request for the PCSRF will be used to provide competitive grant funding to states and tribes of the Pacific Coast region (California, Nevada, Oregon, Washington, Idaho, and Alaska) to implement habitat restoration and recovery projects focused on improving the status of salmonid populations and their habitats. The FY 2011 President's request for PCSRF will keep the program on-track to achieve its long-term goal of overall sustainability of Pacific salmon.

Question 20. Elsewhere in your budget, you propose a $15 million cut in funding for "salmon management activities." Specifically what salmon management activities will suffer if this proposed cut is implemented?

Answer. The $15 million decrease from Salmon Management Activities under the Fisheries Research and Management account consists of two activities. The first is a $10 million decrease in Congressionally-directed funding for Columbia River Hatcheries. This funding currently supports hatchery reform projects evaluated by the Hatchery Scientific Reform Group, and these activities are also eligible for funding through the Pacific Coastal Salmon Recovery Fund. The second is a $5.4 million planned decrease for the Pacific Salmon Treaty, which reflects the completion of the FY 2010 activities and is in accord with the May 2008 bilateral Pacific salmon agreement negotiated between the United States and Canada.

Question 21. A major component of the proposed budget for NMFS for FY 2011 is the development of a new National Catch Share Program. It is intended to promote the adoption of catch shares management methods in more fisheries, and to provide support to new and existing catch share-managed fisheries—including funding for scientific data collection—to help assure their success. The NMFS budget request includes $54 million for the new program, however it is unclear how much of this funding will be used for education and promotion of new catch share programs in fisheries versus improved science and data collection for existing catch share-managed fisheries. Will any of the $54 million requested for the new National Catch Share Program be used for stock assessments and data collection in catch share fisheries and, if so, how much?

Answer. While none of the $54 million will be used directly for conducting stock assessments, of the $36.6 million increase, $25.6 million is requested for data collection, including observing and monitoring. In many cases, the resulting data will be incorporated into current and future stock assessments.

National Catch Share Implementation Data Collection Budget Breakout (in thousands)	FY 2011 Request
Support for all Phases	
Information on Participation—Permits and Catch Establish Official Catch History database	1,975
Establish electronic reporting systems for landings and at-sea discards	2,000
Establish share (quota) accounting systems and national lien registry	2,250
Implementation and Operation	
Catch Monitoring and Share Accounting	
Train, deploy and support monitors/observers (both shoreside and at-sea)	5,250
Observing/Monitoring	
Dockside monitors	1,750
At-sea observers/monitors	11,350
Electronic monitoring	100
Monitor submission of share accounting data on landings and discards; perform quality control on data, monitor for missing reports	900
Total for Data Collection	*25,575*

The $54 million also includes $6 million for Cooperative Research to support the transition to sector management in the Northeast. The exact funding level that will be provided for data collection is yet to be determined through a competitive process, but funded activities will include the collection of high resolution, self-reported data on fishing effort, catch, and biological information through electronic logbooks to identify fishing grounds and seasons where bycatch of critical stocks (winter flounder and other flat fishes) is low. Funds will also support industry-based fishery independent fixed gear surveys that will assist in providing data to enhance stock monitoring, support agency science, and set annual catch limits.

Question 22. Roughly $12.7 million of National Catch Share Program's $54 million is slated for the Pacific groundfish trawl IFQ program, and roughly $17 million of the funding is for monitoring catch share-managed fisheries across the country. Greater monitoring and accountability decreases management uncertainty, which reduces the amount of a precautionary buffer that NMFS and the Councils need to build into ACLs, keeping fishermen out on the water longer. How, specifically, will NOAA's National Catch Shares Program funding be applied to the Pacific region to support the transition to a catch share program in the Pacific groundfish trawl fishery?

Answer. NOAA has requested $12.7 million for implementation and operation of the new Pacific Coast groundfish trawl rationalization program. Of this amount, $5 million would support the transition to the catch share program by fully funding at-sea monitoring/observing administration, training, and deployment. The rest of the requested funding ($7.7 million) would support dockside and electronic monitors, the training and deployment of monitors, and other implementation and operational activities. Implementation activities include hiring management and enforcement staff, establishing program specific share accounting data bases and reporting systems, identifying eligible participants, issuing catch shares, computing annual quota for each participant, and adjudicating administrative appeals of the eligibility and catch share decisions. Operational activities include program administration, enforcement, and science evaluation.

Question 23. Will National Catch Shares Program funding be available to assist with the establishment of new catch share-managed fisheries, like the BSAI Pacific cod freezer-longline cooperative we are trying to develop for the Gulf of Alaska?

Answer. Funds will be available to design, analyze and develop new catch share programs. A total of $2.0 million is proposed for the Regional Fishery Management Councils to analyze and develop new catch share programs, including the North Pacific Fishery Management Council's BSAI Pacific cod freezer-longline cooperative.

Question 24. The increase for catch shares is quite large given the position of the Federal budget overall. Why is the Administration investing so heavily in this approach? How does this impact the science on which fisheries management decisions are based?

Answer. In many cases around the country, management systems have not controlled overfishing, or have done so through closures, dramatically shortened seasons or other economically disruptive measures. These management options have undesirable impacts on fishing jobs, safety at sea, and the economic vitality of coastal communities.

Catch share systems provide—in many cases—innovative solutions that keep fishermen fishing while fish resources recover. Within a framework of scientifically established annual catch limits, catch share systems give more direct control of fishing activity back to fishermen, allowing fishermen to plan their fishing seasons and be more selective about when and how they catch their allotment. Because they are allotted a share in a fishery, fishermen gain an economic incentive to catch their allocation at the least cost, when market values are most advantageous, and without going over their allotment because as a fish stock rebuilds, the holder's share increases in value.

Of the 230 major fish stocks and stock complexes currently managed under a fishery management plan, 43 stocks or stock complexes are categorized as overfished and 37 are categorized as subject to overfishing. The four catch share programs that will be implemented with the increase requested in FY 2011 will support the complete implementation and operation of the Northeast Multispecies Groundfish Sectors, the Pacific Groundfish Trawl Rationalization, the Mid-Atlantic Golden Tilefish IFQ and the Gulf of Mexico Grouper & Tilefish. The $36.6 million requested increase for catch shares in FY 2011 is significant, but when designed well, catch shares can be an effective tool for preventing overfishing and reducing the negative biological and economic impacts of the race for fish, resulting in safer, more profitable and sustainable fisheries that benefit all Americans. Under catch shares, the quality and quantity of fishery data improves significantly via new catch accounting, monitoring and compliance systems, as well as improved tracking systems for social and economic outcomes. These tools will improve scientific estimates of overfishing levels and reduce scientific uncertainty in setting total allowable catches. As a result of having more precise scientific data, further increases in allowable biological catches are possible. For these reasons, NOAA encourages the consideration of more catch share programs. That said, catch share programs are not the best strategy for every fishery or sector and NOAA's policy does not in any way mandate the use of this management strategy.

Catch share funding is not requested at the expense of other fisheries research and management programs. The FY 2011 budget also strongly supports NOAA's continued investment to implement the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act with a total request of $135.2 million. There was a $10 million increase for expanded stock assessments in FY 2010, for a total of $52 million. This funding remains unchanged in FY 2011. The National Marine Fisheries Service Operations, Research, and Facilities budget request has increased from $724.2 million in Fiscal Year 2009 to $907.7 million in Fiscal Year 2011; this $184 million increase demonstrates that fisheries research and management has been, and continues to be, a clear priority for NOAA.

Although there is no specific budget increase in the FY 2011 request, NOAA's proposed budget will maintain our efforts to steadily increase the percentage of stocks with adequate assessments, from only 52 percent in FY 2005 to 60 percent in FY 2011; this improvement associated with the FY 2008–2010 increases to Expand Annual Stock Assessments (EASA) funding. In FY 2011, NOAA's National Marine Fisheries Service will be able to bring 139 of the 230 priority stocks to an adequate level of assessment. The particular assessments that will be updated in FY 2011 are being determined through regional processes in consultation with the Fishery Management Councils and other partners. The assessments with the highest priority are those for stocks that have been experiencing overfishing or are on rebuilding plans. With EASA budget increases in FY 2010, NOAA is also initiating new fish abundance surveys that will produce data to support additional assessments over the next several years.

Question 25. Many fishermen in Washington State having been working with the Pacific Fishery Management Council for years to develop the Pacific groundfish catch share program. Can you please reaffirm that NOAA is committed to getting that program implemented in 2011? What is the agency doing to make sure this implementation date is met?

Answer. NOAA is working closely with the Pacific Fishery Management Council to ensure the remaining steps to implement the Pacific Groundfish Trawl Rationalization catch share program are completed thoroughly and on time. NOAA is providing $2.7 million in FY 2010 and additional expert staff resources to make certain the time line is met. The proposed regulations to initiate implementation of Amendment 20 to the Pacific Groundfish Fishery Management Plan, which specifies the management system that will be used to rationalize the trawl fishery, and Amendment 21, which involves determining the proportion of the available catch that will be allocated to the trawl fishery, were published in the Federal Register on June 10, 2010. If the Secretary approves the Council recommendations, NOAA will develop the appropriate rulemaking to implement the program by January 1, 2011.

Question 26. NOAA's budget appears to ignore recreational fishery management at a time when the agency is dealing with a crisis in numerous recreational fisheries. It would eliminate $4.5 million in cooperative research that would benefit recreational fisheries information, such as fishery catch, index of stock abundance from surveys, and biological characteristics of stocks. These cuts come in the face of a complete closure of the red snapper fishery from North Carolina to Florida and closures of gag grouper and amberjack in the Gulf of Mexico. NOAA is charged with managing recreational fisheries, but there is a clear and urgent need to improve recreational catch data collection in order for the agency to be capable of doing so. What does NOAA intend to do about the lack of data it has on important recreational fisheries, such as South Atlantic red snapper?

Answer. Improving the quality of recreational fishing data is a clear priority for NOAA. The President's Budget Request for FY 2011 includes a total of $9 million for continued support of the Marine Recreational Information Program's (MRIP) ongoing development and implementation of improved recreational fishery surveys of catch and effort. This includes the development of a National Saltwater Angler Registry through implementation of an on-line Federal registration system and support for ongoing registration efforts by states whose anglers are exempted from the Federal registration. The MRIP has been conducting pilot studies to test the use of registry data in both mail and telephone surveys, and plans to implement registry-based surveys of fishing effort in all South Atlantic states in 2011. The MRIP is also conducting pilot studies in 2010 to test the utilization of electronic logbook reporting methods for charter boats and headboats, as well as improved sampling methods for shoreside surveys of angler catches. MRIP plans to start phased implementation of such survey improvements in 2011 and this should help to enhance the quality and timeliness of marine recreational fisheries catch statistics for red snapper.

During FY 2010, funds are being used to establish a critical fishery-independent data collection program for South Atlantic red snapper. This program fills the sizable data gap resulting from the loss of fishery-dependent data due to the closure of the directed South Atlantic red snapper fishery. The FY 2010 program involves the participation of the fishing industry and also establishes the groundwork for the effective and continued monitoring of the red snapper stock—these are requirements for determining how the red snapper stock is responding to the closure. Specific FY 2010 activities include:

- Fishery-independent sampling in the South Atlantic that improves the precision and coverage of sampling, by increasing sample size and spatial coverage of reef fish habitats (particularly for biological data), and for implementing fishing gear testing and comparisons.
- Implementation of video survey methodologies that address sampling concerns (*e.g.,* selectivity of current Marine Resources Monitoring, Assessment, and Prediction program survey gear).
- Implementation of the goals of South Atlantic Fishery Management Council and NOAA Fisheries' Fishery Independent Monitoring Program Workshop—November 2009. These goals include: enabling evaluation of response(s) of fish populations to management actions; providing useful spatial and temporal indices of abundance, length frequencies, and age distributions for as many species as possible within the snapper-grouper complex; providing data that can be utilized in ecosystem approaches to fisheries management; and continuing to improve gear configurations.

- Secure fishing industry participation (including via contracts) in the design and implementation of fishery-independent data collection activities in the South Atlantic, by relying on their: vessels, knowledge of red snapper locations and habitats, and expertise in fishing gear methodologies.

The FY 2011 Budget also funds NOAA's new high-tech vessel, Pisces, to map reef fish habitats in the South Atlantic and provide survey data on managed stocks..

Question 27. Does NOAA have a plan for dealing with numerous recreational fisheries being closed because of a lack of stock assessments and a lack of accurate data on recreational catch in many important fisheries?

Answer. NOAA does not anticipate numerous recreational fisheries being closed because of a lack of stock assessments and a lack of data on recreational catch. The decision to close a fishery is never made lightly. NOAA examines the best available data provided through a variety of sources. For the recreational fishery, catch statistics are provided by the current Federal and state recreational fishery survey programs in each region. If statistical estimates of landings produced by the regional surveys have exceeded, or are projected to reach or exceed specified harvest levels for a particular fish stock, a closure—specified through public notification in the *Federal Register*—is necessary to mitigate the magnitude of any recreational overage and its impact on the established mortality objective for that stock for the year.

NOAA will support recreational fishing data collection and management through the $9 million request for the Marine Recreational Information Program (MRIP) included in the President's budget. NOAA recognizes that successful implementation and effective monitoring of annual catch limits and accountability measures will require significant improvements in the quality, timeliness, and accessibility of marine recreational fishery catch and effort statistics. MRIP is identifying recreational fishery survey enhancements that support the new requirements of the Magnuson-Stevens Fishery Conservation and Management Act of 2006, as well as the estimated implementation costs for those enhancements. While there are practical constraints that limit the range of possible improvements, we continue to look for ways in which we can improve our processes. This project will provide NOAA with a better understanding of what improvements are possible and what resources will be needed to implement them.

Question 28. Do you believe that NOAA has the level of funding in its 2011 budget request necessary to meet its statutory requirements to manage recreational fisheries?

Answer. NOAA recognizes that successful implementation and effective monitoring of annual catch limits and accountability measures will require significant improvements in the quality, timeliness, and accessibility of marine recreational fishery catch and effort statistics. The President's Budget Request for FY 2011 includes a total of $9 million for continued support of the Marine Recreational Information Program's (MRIP) ongoing development and implementation of improved recreational fishery surveys of catch and effort. The MRIP Operations Team is identifying recreational fishery survey enhancements that support the new requirements in the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, as well as the estimated implementation costs for those enhancements. While there are practical limits to the degree to which we can improve the timeliness of the collection, processing, and reporting of recreational fishery survey data and statistics, we continue to look for ways in which we can improve these processes.

Question 29. How can NOAA improve its management of recreational fisheries and avoid such large fisheries closures of the type we've seen in the South Atlantic and the Gulf of Mexico in the future?

Answer. NOAA recognizes that recreational saltwater fishing is vitally important to our coastal areas as both a source of recreation and significant income and employment for many communities. The agency will continue to actively work with the regional fishery management councils and our constituents to explore ways to better manage recreational catch quotas. The decision to close a fishery is never made lightly. NOAA examines the best available data provided through a variety of sources. For the recreational fishery, catch statistics are provided by the current Federal and state recreational fishery survey programs in each region. If statistical estimates of landings produced by the regional surveys have exceeded, or are projected to reach or exceed specified harvest levels for a particular fish stock, a closure—specified through public notification in the *Federal Register*—is necessary to mitigate the magnitude of any recreational overage and its impact on the established mortality objective for that stock for the year.

In order to improve management of recreational fisheries, NOAA is implementing the Marine Recreational Information Program (MRIP) to ensure that the quality

and timeliness of information delivered on marine recreational fishery catch and effort are sufficient to support appropriate management decisions. This past January, NOAA implemented the National Saltwater Angler Registry as a step toward generating better estimates of saltwater anglers' catch and effort. Better data allows for more informed decision-making, which in turn will help NOAA preserve and enhance our country's strong tradition of recreational saltwater fishing.

Utilizing MRIP, NOAA is developing and testing improved survey designs and plans to start phased implementation of those enhancements in FY 2011. Additionally, through MRIP we are identifying recreational fishery survey enhancements that support the new requirements of the Magnuson-Stevens Fishery Conservation and Management Act of 2006, as well as the estimated implementation costs for those enhancements. While there are practical constraints that limit the range of possible improvements, we continue to look for ways in which our processes can be improved. This project will provide NOAA with a better understanding of what improvements are possible and what resources may be needed for their implementation.

Finally, NOAA is managing the needs of the recreational fisheries as a priority as announced in September 2009 as part of the Recreational Fishing Engagement Initiative. Since then, on March 23, 2010 the Assistant Administrator for the National Marine Fisheries Service, Eric Schwaab, announced the appointment of Russell Dunn as the NOAA Fisheries National Policy Advisor for Recreational Fisheries. Also announced was the appointment of 22 members of the recreational fishing community from around the Nation to a Recreational Fisheries Working Group to provide expertise on saltwater recreational fishing to NOAA's Marine Fisheries Advisory Committee. In addition, on April 16 and 17, NOAA held a National Recreational Fishing Summit developed in collaboration with the recreational fishing community. This was a stakeholder driven discussion to identify issues of concern and possible solutions together.

Question 30. Dr. Lubchenco, I'm told NMFS is preparing to implement changes to the existing Northeast Skate Complex FMP, including a vast reduction of the daily trip limit from 10,000 lbs. to 1,900 lbs., based on stock assessment data from 2006. However, more recent stock survey data from 2008 may indicate that such a drastic reduction in fishing effort is unnecessary. Will this more recent scientific data be taken into account in setting catch limits for fishing year 2010?

Answer. On June 16, 2010, NMFS published an Interim Final Rule to implement Amendment 3 to the Northeast Skate Complex Fishery Management Plan (FMP). This final rule was effective on July 16, 2010, and included new management measures to establish an annual catch limit and accountability measures consistent with the 2007 reauthorization of the Magnuson-Stevens Act. Based on the most recent scientific information on the status of the skate complex, including survey data from 2008, a reduction in overall skate catch (landings and discards) is necessary to ensure that the annual catch limit is not exceeded. To prevent the skate fishery from exceeding the allowable landings, a possession limit of 5,000 pounds per fishing trip was implemented for the skate wing fishery. An accountability measure to further reduce this possession limit to 500 pounds per trip once 80 percent of the total allowable landings limit is reached was also implemented in this rule. Although the New England Fishery Management Council initially proposed a possession limit of 1,900 pounds per trip for the skate wing fishery, this limit was not implemented, and the 5,000 pounds per trip possession limit was implemented instead, providing some level of relief to the fishing industry.

Question 31. Does the management process even allow for this to be done and, if not, should it?

Answer. The management process does provide ways to respond to new scientific information, both through various Council actions, and through emergency and interim rulemaking authority in the Magnuson-Stevens Fishery Conservation and Management Act.

Question 32. Dr. Lubchenco, Atlantic pollock is one of several stocks in the Northeast Multispecies Fishery that is transitioning to a form of catch share management in 2010. It is my understanding that NMFS may reevaluate current pollock stock assessment data to determine whether the stock can support higher harvest levels than are now planned for fishing year 2010. I also understand that, due to the process involved in order to update harvest levels in such a manner, any such update would not be published until well after the fishing year for pollock has begun. Is there any means by which you can expedite this process so that any updates in harvest levels are announced closer to the beginning of the fishing year?

Answer. The Secretary has committed to implementing science-based changes in groundfish harvest limits as quickly as possible. The results of the updated assess-

ment were released on July 14, 2010, and concluded that overfishing is not occurring, the stock is not overfished, and that the stock is fully rebuilt. Based on this new science advice, NOAA published a Secretarial emergency action in the Federal Register that implemented substantially higher annual catch limits for pollock as of July 15, 2010, less than 3 months into the 2010 fishing year.

Question 33. Dr. Lubchenco, it's my understanding that spiny dogfish populations in New England are at record highs, and that Council's Scientific and Statistical Committee believes spiny dogfish stocks may now be rebuilt. In the past, the spiny dogfish fishery has served as an alternative commercial fishery resource for New England fishermen that helped mitigate the negative economic impact of closures and other necessary management measures in other commercial fisheries. But I'm told that, until the most recent data on stocks is reviewed and the fishery management plan is updated accordingly, the constraints of the rebuilding plan for the species continue to apply. What can NOAA do to ensure that there is a review of the most recent data on spiny dogfish stocks and the management plan is updated accordingly?

Answer. NOAA, in consultation with its colleagues at the Canadian Department of Fisheries and Oceans, established revised biological reference points for spiny dogfish in May 2010. Based on this revised biomass reference point and recent trawl data, NOAA incorporated the updated biological reference points for spiny dogfish into the specification of the commercial quota in June 2010. This peer-reviewed work resulted in the determination that the stock is rebuilt, satisfying the management plan requirements for an increase in the commercial quota from 12 million pounds to 15 million pounds.

Question 34. Washington State has recently seen the emergence of the Puget Sound Partnership—an innovative, collaborative, science-based effort to manage the Puget Sound environment based on an ecosystem-based management approach. Will regional efforts like the Puget Sound Partnership be able to benefit from NOAA's proposed budget?

Answer. Yes, regional efforts such as the Puget Sound Partnership will continue to benefit from NOAA's proposed budget. NOAA's proposed budget will result in many monitoring and evaluation, project prioritization, and implementation efforts that facilitate fulfillment of the Puget Sound Partnership's 2020 Action Agenda.

NOAA's proposed budget enables the agency to support regional efforts like the Puget Sound Partnership with scientific and management expertise related to salmon and Orca whale recovery, stormwater management, and habitat protection and restoration. The Pacific Coast Salmon Recovery Fund (PCSRF) provides $65 million to support regional salmon recovery activities. The Puget Sound Partnership, working with the State Salmon Recovery Funding board, allocates PCSRF funds toward priority recovery and restoration projects across the region.

NOAA is an active member of the Puget Sound Federal Caucus, an interagency team that coordinates Federal agency actions and investments to support the Puget Sound Partnership in its mission to restore the Sound by 2020. NOAA's proposed budget continues the agency's support of the Partnership's agenda directly through salmon recovery plan implementation and habitat restoration activities, and collaboratively through the Federal caucus. The proposed budget also supports NOAA's participation on the Partnership's Ecosystem Coordination Board, a 27-member team focused on habitat protection, storm water management and salmon recovery.

For example, the NOAA Restoration Center, which houses the Community-based Restoration Program, has prioritized the Puget Sound as a focus area and is working closely with Puget Sound Partnership. Collaborations with Puget Sound Partnership would be strengthened by the additional funds to implement larger-scale habitat restoration targeted at threatened and endangered species in the FY 2011 budget request. Funding in the FY 2011 budget would address habitat as a limiting factor in key watersheds in Puget Sound.

Question 35. Would the Puget Sound Partnership and the West Coast Governors' Agreement be able to access support and funding through NOAA's proposed funding for Community Based Restoration and Regional Ocean Partnership Grants?

Answer. Yes, both the Puget Sound Partnership and the West Coast Governor's Agreement could access funding through the Community-based Restoration Program to implement restoration activities. Funding for projects specifically designed to eliminate the habitat limiting factor for endangered species in key watersheds is being actively pursued by the Partnership under the NOAA Community-based Restoration Program. The West Coast Governor's Agreement can access the funds through the states as well as through collaborations with Restoration Center partners, such as the Nature Conservancy and Ecotrust.

Both the West Coast Governors' Agreement on Ocean Health and the Puget Sound Partnership would be eligible to apply for funding under the new Regional Ocean Partnership grants. The goal of this new grant program is to provide support for existing and emerging regional ocean partnerships. The President's FY 2011 request includes $20 million to establish a competitive grants program to advance effective ocean management through regional ocean governance. This grant program would support priorities identified by the existing regional ocean partnerships (including the West Coast Governors' Agreement on Ocean Health), the development and implementation of regional priorities in other regions, and aid the regional partnerships in addressing coastal and marine spatial planning. Puget Sound Partnership would be competitive for funding to the extent their proposed activities have been identified as priorities by the West Coast Governors' Agreement on Ocean Health.

Question 36. Do you anticipate that the demand for this type of funding and support will far exceed supply?

Answer. We anticipate the demand could exceed supply. However, continued support for NOAA's budget request and the requests of other Federal agencies in the will allow us to continue to make progress in supporting regional ocean partnerships.

Question 37. NOAA's budget request includes $949 million for research and development. What role does NOAA play in supporting research and development to strengthen American competitiveness, and how does NOAA's budget request support this role?

Answer. NOAA's mission is to understand and predict changes in Earth's environment and conserve and manage coastal and marine resources to meet our Nation's economic, social, and environmental needs. NOAA operates under a broad array of mandates, which convey operational responsibility to protect and preserve ocean, coastal and Great Lakes resources, and to provide critical and accurate weather, climate, and ecosystem forecasts that support national safety, commerce, and competitiveness. Science and research are a high priority of this Administration and this is reflected in NOAA's FY 2011 Budget Request.

NOAA Research and development (R&D) investments, both internal and through external partnerships and competitive research programs, support the agency's operational missions in areas such as improving weather forecasts and warnings, strengthening understanding of ecosystems to support fisheries management, and enhancing the reliability and scale of climate predictions. NOAA's atmospheric and ocean, coastal and Great Lakes research and applied science is at the forefront of discovery and leads to new investments in science and technology research, innovation, and global competitiveness. This includes:

- *Physical and Chemical Oceanography*—NOAA scientists are credited with being at the forefront of the discovery and understanding of ocean acidification. NOAA's physical science capabilities in the realm span global observation networks, modeling and data analysis, and predictions and projections. Beyond leading the globe in understanding the phenomena of ocean acidification, NOAA's leadership is directly leading to new ocean chemistry technology research and development.
- *Climate Observations, Monitoring and Modeling*—NOAA operates what is generally considered to be among the world's premier global climate model. But possibly even more significant, NOAA is a leader among Federal agencies in physical science work in U.S. and global climate observing, monitoring, and analysis. At the cutting edge of climate modeling, NOAA's work is driving global investment in and development of new approaches to climate modeling and geographical and temporal modeling scales.
- *Meteorology*—A prime example of NOAA's work in advancing technologies for weather forecasting is the reduction of the lead times for tornado warnings. In 20 years, the average lead time in tornado warnings have improved from 3 minutes to 15 minutes, a credit to the NOAA-developed NEXRAD (NEXt generation weather RADar) system, in partnership with Federal Aviation Administration (FAA) and Air Force, and the AWIPS (Advanced Weather Interactive Processing System). At the cutting edge of research and development to improve warning times even further, NOAA and its partners are conducting valuable research on multi-function phased array radar (MPAR). MPAR has the potential to replace seven single-function conventional radar networks that currently serve aviation, defense, homeland security, and weather forecasting needs. NOAA also is a leader in numerical weather modeling and research. Since the 1980s, efforts

here have lead to nearly a doubling of the accuracy of the day two forecasts, and more than doubling the accuracy of hurricane track forecasts.

- *Atmospheric Studies*—NOAA conducts numerous basic and applied research on the upper and lower atmosphere. NOAA's research program embodies a "one atmosphere" perspective that addresses both air quality and climate change issues. NOAA utilizes state-of-the-art airborne-, ship- and ground-based instrument packages, and it applies these packages through regional assessments conducted throughout the U.S. Two examples of atmospheric studies that are increasingly important are NOAA's work in black carbon research, which has implications for health, climate change, and solar radiation, and mercury deposition, with implications for human and ecological health. NOAA's atmospheric studies are also at the leading edge of observation and study of the chemical and physical processes of the atmosphere, detecting the effects of pollution on those processes and monitoring and forecasting the phenomena affecting the Sun-Earth environment.
- *Space Science*—NOAA's Space Weather Prediction Center (SWPC) is the Nation's official source of space weather alerts, watches and warnings. SWPC provides real-time monitoring and forecasting of solar and geophysical events which impact satellites, power grids, communications, navigation, and many other technological systems. SWPC is also the primary warning center for the International Space Environment Service and works with many national and international partners with whom data, products, and services are shared. SWPC's research and development is fostering innovation through development and evaluation of new models and products and transition to operations.
- *Hydrology*—NOAA's river flood forecasting technology and applied services is recognized nationally and internationally. NOAA conducts pivotal research and applied science in hydrology and water resources, which leads to new investments in engineering and science research and global competitiveness. For example, soil moisture forecasts will support improvements in agricultural yield for farmers, conserve water resources by reducing irrigation requirements and improving resource management, and likely spawn an industry of agricultural support based on NOAA's products. Water quality forecasts, will help fisheries management and power plant operation, leading to increase fisheries catch and improved power plant maintenance scheduling, thus enhancing power generation productivity. Improved streamflow modeling leads to improved river flood forecasts and water resource management, including water supply, hydropower generation, and flood control. Finally, NOAA's efforts to couple river, estuary, and ocean models will lead to improved forecasts for the water transportation industry in the Nation's ports, rivers, and coasts, along with and improved water supply management in coastal communities.
- *Geodesy*—NOAA's National Geodetic Survey (NGS) is responsible for defining, managing, and providing public access to the National Spatial Reference System, which provides the foundation for transportation and communication; mapping, charting, and surveying; and a multitude of leading edge scientific and engineering innovations and applications to meet our Nation's economic, social, and environmental needs. NGS conducts research and development in remote sensing technologies and geophysics, including geodynamics and geodesy; the goal of this research is to improve the accuracy of collection, distribution, and use of all geospatial data.

NOAA's FY 2011 request includes $81.5 million in increases above the FY 2010 request and $949 million in total investments for R&D in climate, weather, and ecosystems science. Some of NOAA's most significant investments (FY 2011) in R&D to increase American competitiveness are:

- An increase of $10 million to support Climate Assessment Services that will provide understanding of the Nation's vulnerability to climate change and increase its adaptive capacity to reduce that vulnerability at national and regional scales;
- An increase of $9.5 million for marine ecosystems sensors that will allow NOAA to better detect, identify, characterize, and quantify marine microbes, toxins, and contaminants that pose a risk to human health;
- An increase of $6 million for Multi-Function Phased Array Radar to allow NOAA to continue its development, in partnership with the Federal Aviation Administration, of radar technology to improve weather forecasts (follow on to NEXRAD); and

- A total of $175.6 million for Research and Development Equipment to support NOAA's Office of Marine and Aviation Operations (OMAO), the Office of Oceanic and Atmospheric Research (OAR), and the National Environmental Satellite, Data, and Information Service (NESDIS). Breakdown is as follows:
  - OAR—$77.1 million on High performance computing time and equipment for research (including exploration equipment for OER);
  - NESDIS—$9.5 million for DSCOVR;
  - OMAO—$89 million for OMAO for ship and aircraft operations to support research.

Question 38. Would you support strengthening NOAA's role in America COMPETES? If yes, why?

Answer. The original America COMPETES Act recognizes the unique role NOAA research plays in developing innovative technologies. In addition, the America COMPETES Act is "intended to increase the Nation's investment in science and engineering research, and Science, Technology, Engineering and Math (STEM) education" with the express purpose of improving America's competitiveness in the global community.[1] I fully support continuing NOAA's authority under the Act to contribute to U.S. competitiveness through K–12 and STEM education; oceanic and atmospheric research and development; and participation in interagency efforts to promote innovation and economic competitiveness.

A significant proportion of NOAA research and applied science is cutting edge and leads to new investment in science and engineering research, innovation, and global competitiveness in areas such as: physical and chemical oceanography; climate observations, monitoring, and modeling; meteorology; and atmospheric studies. NOAA's contribution to increasing U.S. science competitiveness in support of the goals of America COMPETES would be strengthened through continued authority for interagency collaboration; recognition of and authority for NOAA research, development, and transition-to-operations, including high risk, high reward research; strengthened partnerships authority in NOAA mission areas of atmospheric and ocean, coastal, and Great Lakes research and development; and continued authorization for NOAA STEM education activities.

NOAA appreciates the support of the Senate Committee on Commerce, Science, and Transportation with respect to NOAA's role in and contribution to America COMPETES. We look forward to continuing to work with Committee Members and staff to strengthen U.S. competitiveness at home and abroad in the areas of science and engineering research and STEM education.

Question 39. Can you address how a single NOAA climate service, rather than the current distributed structure, will integrate NOAA's climate capabilities and make information and services more accessible to NOAA partners?

Answer. Many and diverse sectors of society are faced with the need to better understand and anticipate the impacts of climate variability and change, including for decisionmaking, protection of life and property, and international competitiveness. Critical, climate information-dependent sectors include energy, agriculture, transportation, human health, and water resources. These sectors already are recognizing the need for reliable and authoritative climate information to inform their decisionmaking, investments, and options for mitigation or adaptation. To date, individuals, communities, governments and industry have largely relied on what we know about the past climate to make important decisions about the future. In order to be more prepared, successful and competitive in the face of a changing climate, America needs to better anticipate future climate conditions. With this information, we can envision an America that is more secure as we assess our risks and vulnerabilities and incorporate climate change considerations more routinely into our management, economic, business and social decisions.

The Nation needs an objective, authoritative, timely and consistent source of climate information, based on the best available science, to support this decision-making at multiple levels—national, regional, state and local. NOAA is well positioned to help address this need, as we are already contributing strongly to the development and delivery of climate science, tools, products and information. Building from a solid foundation of partnerships with other Federal agencies, academia, state and local governments, and the private sector, NOAA can further contribute and more effectively deliver urgently-needed services by integrating and expanding its unique Earth observation and monitoring assets, world-class research and modeling capabilities, and broad operational data and information services at the regional level.

[1] U.S. Congressional Research Service. America COMPETES Act and the FY2010 Budget (R40519; Jun. 11, 2009), by Deborah D. Stine. Accessed: March 25, 2010.

Numerous external studies, by NOAA's Science Advisory Board, the National Academy of Sciences and others, have reiterated the need for easy-to-find, reliable and understandable information and products about climate variability and change. Under NOAA's current distributed organizational structure for climate services, the rapidly-increasing user demand for climate services is outpacing NOAA's ability to most effectively deliver the products and information being requested. A centralized NOAA Climate Service would increase the agency's ability to anticipate, understand and provide the information Americans need to meet the challenge of being competitive and resilient by incorporating relevant climate knowledge in decision-making today. Creating one line office to focus on this challenge would enable NOAA to strategically and tactically guide its climate research, monitoring and assessment work in a coordinated fashion with the full complement of partners, government and non-government alike, that have been and will continue to be a cornerstone of success. A NOAA Climate Service office would also create a visible and easy to find, single point of entry for people to access NOAA's climate science and service assets, and enable improved information sharing and more productive partnerships with Federal agencies, local governments, private industry and other users and stakeholders.

Question 40. How will NOAA engage local communities, States, tribes, research institutions, businesses and others to make sure that the Climate Service meets their needs?

Answer. NOAA has a long history of building sustained partnerships and interacting with partners at all levels of government (international, national, state, tribal, local), the private sector, non-governmental organizations, other Federal agencies, and the public. NOAA's Climate Service will benefit from and draw upon NOAA's existing expertise, infrastructure, and capabilities in climate science; its extensive experience in service delivery; and its relationships with other Federal, state, and local partners.

NOAA's existing networks for engagement include interagency and other partnerships that comprise the National Integrated Drought Information System (NIDIS), National Weather Service Forecast Offices and River Forecast Centers, National Data Centers, Regional Integrated Science and Assessment projects at universities, Regional Climate Centers, State Climatologists, Sea Grant, the Coastal Services Center, international climate research institutes, NOAA Cooperative Institutes, and extension agents. NOAA's proposed Climate Service also expects to leverage other existing on-the-ground capabilities such as the National Estuarine Research Reserve System (NERRS) sites, U.S. Department of Agriculture extension networks, and the Department of the Interior. Working with its partners, NOAA's Climate Service would support ongoing and deliberate dialogue with users to understand and to meet their evolving needs. NOAA, with these partners, already has extensive regional climate capabilities. Coordinating and enhancing these regional science, service and delivery capabilities would be one of the most important outcomes of establishing a Climate Service at NOAA.

One early priority for engagement will be to delineate a better coordinated, priority-driven regional approach for improved regional climate service development and delivery, based on sustained user engagement and collaboration. NOAA envisions a regional climate services program with the following objectives: State, Local and Tribal Engagement, Education & Service Delivery; Regional Climate Science; and Regional Climate Products and Services.

NOAA is in the process of hiring six regional climate services directors. These new positions will be co-located with the six National Weather Service regional headquarters offices and will be responsible for coordinating NOAA's climate activities and engagement with climate service partners and users within each region to enhance NOAA's abilities to work with and provide climate information and services to local constituents and stakeholders.

Question 41. The NOAA budget proposes $464.9 million for NOAA's research office, including $11.6 million to assess the effects of ocean acidification, $10 million for climate assessments, and $20.9 million for the Carbon Tracker Observing and Analysis System. How will these funds prepare NOAA to address the challenge of lead U.S. agency providing vital information on climate-related impacts?

Answer. NOAA believes all agencies must consider and engage in the development and delivery of climate services in support of adaptation and mitigation decisions that relate to their mission areas. Just as the Nation's climate research efforts require and benefit from sustained interagency and other partnerships through the U.S. Global Change Research Program, so too will the delivery of climate information and services. NOAA has much to contribute to addressing the Nation's need for improved climate science and services. NOAA already works closely with many

Federal, regional, academic and other partners on climate research, data collection and dissemination and climate service provision.

The FY 2011 budget request increases for NOAA's climate activities will significantly enhance NOAA's climate science and service capabilities and therein contribute to the effective implementation of a new NOAA Climate Service. Specifically, the FY 2011 budget includes climate activity increases totaling $130 million, which includes $47 million that would support the following activities in the NOAA Climate Service:

- $10 million for Assessment Services to establish a new and sustained capability within NOAA to provide climate assessments to decision-makers at national and regional scales. It will also provide the capacity to engage stakeholders and decisionmakers throughout the process in order to better determine priority issues, risks, and vulnerabilities that need to be addressed;
- $1.5 million for NOAA's Climate Portal to establish one-stop public access to all of NOAA's climate data, information, and services online;
- $15.8 million to support critical climate observing infrastructure;
- $6.98 million for Earth System Modeling: Urgent Climate Issues to improve model resolutions and address critical areas of model uncertainty, including: sea-level rise, Arctic, terrestrial carbon cycle and biogeochemical feedbacks, and decadal predictions/abrupt change;
- $11 million to expand the development of climate quality data records from satellite observations;
- $2 million to enhance data center operations to provide users with consistent and reliable access to the Nation's environmental data and information via the Comprehensive Large Array-Data Stewardship System.

In addition, the FY 2011 budget includes increases of $83 million for complementary climate investments and infrastructure, including:

- $49.4 million to continue the acquisition of critical climate sensors as recommended by the National Research Council 2007 Decadal Survey;
- $30 million for the U.S. contribution to the Jason-3 partnership program to ensure continuity of measuring sea surface height, a critical climate data record that has been maintained for over 20 years;
- $2.2 million to provide resources to help communities prepare for climate hazards, such as increased flooding and storm surge impacts due to sea-level rise;
- $2 million to support the Gulf of Mexico Coastal and Marine Elevation Pilot request in NOS to model climate impacts in this region.

Question 42. Over the last 2 years, NOAA has been appropriated $9 million to acquire and install a coastal Doppler radar in Washington state. Is the plan still on track to have the radar up and operational sometime in 2012?

Answer. We have updated our delivery schedule and now anticipate the radar will be operational about one year earlier than anticipated, in September 2011.

Question 43. While the new radar certainly has to be compatible with NOAA's existing network, are you taking steps to make sure the technical specifications for this radar fit the unique conditions present on Washington's outer coast?

Answer. The radar we install to cover Washington's outer coast and ocean area must meet our stringent technical specifications for performance, capability and reliability. It must also be compatible with our existing Doppler radar network and supporting systems. The National Research Council's 2005 report "Flash Flooding Forecasting over Complex Terrain" offers recommendations for improving coverage of low-level precipitation and wind, particularly over complex terrain and mountainous areas like the geography along Washington's outer coast. We will use this opportunity to validate the suggested modified scan strategies to ensure the best possible radar coverage and depictions for the Pacific Northwest.

Question 44. During the COSCO Busan oil spill in San Francisco in late 2007, responders relied on NOAA's ecological sensitivity maps to identify areas that needed protection from the spreading oil. NOAA's maps for the outer coast of Washington, though, are twenty-three years old and severely outdated. By relying on outdated maps, aren't we risking our ability to respond effectively to a spill on the Washington coast? If Congress funds NOAA's Office of Response and Restoration at levels below the President's request of $19.5 million, isn't it a safe assumption that the ecological sensitivity map backlog will grow? How much will it cost to update all of the maps that need to be updated?

Answer. Environmental Sensitivity Index (ESI) maps provide information that helps reduce the environmental impacts from oil and chemical spills. Spill responders use NOAA's ESI maps as one tool to identify priority areas to protect from spreading oil, develop cleanup strategies to minimize impacts to the environment and coastal communities. Development of ESI maps has most often been accomplished by using a variety of funding sources, both Federal and state. At present, 21 of 50 ESI Atlases are greater than 10 years old (including the Great Lakes). The estimated cost to update the ESI Atlases that are 10 or more years old is approximately $11.0 million. As in past years, updates will likely be accomplished over time with a mix of Federal and partner funds. The President's FY 2011 request for the Office of Response and Restoration is $19.5 million, which includes funding to update at least one ESI atlas.

Question 45. As NOAA moves forward with the development of a Climate Service and developing marine spatial plans, how will the National Estuarine Research Reserve System, Sea Grant, the Coastal Zone Management Program, national marine sanctuaries, and fishery management councils fit into these new initiatives?

Answer. National Marine Sanctuaries, National Estuarine Research Reserves and state coastal zone management programs are key recipients of climate services information and tools. The states are one of NOAA's key management partners and NOAA plans to engage state partners and fishery management councils as it develops priorities for the new climate service. The National Estuarine Research Reserve System (NERRS) and the National Marine Sanctuary System have mandates for stewardship, applied research, and education, and will therefore serve as both users and providers of information for the any Climate Service. NOAA Sea Grant and its university-based partners in 32 states would also support the Climate Service by conducting climate-related research, extension, and outreach projects.

The NERRS, Sea Grant, state coastal programs, National Marine Sanctuaries and regional fishery management councils will be key partners in coastal and marine spatial planning efforts. They will not only serve as providers of spatially explicit ecosystem information that will be crucial for both the regional assessment and long term evaluation components of any effective coastal and marine spatial plan but they will also be able to utilize information generated as a result of these planning processes to inform their programmatic goals and objectives. In many cases, states have been leading state or regional efforts in coastal and marine spatial planning and NOAA wants to build on these efforts and further leverage their efforts with our capacity and expertise.

These programs also have the strong local connections to coastal communities that will be critical to engaging the public and stakeholders in these initiatives.

Question 46. The Sea Grant Program is a national asset. One of Sea Grant's primary strengths is the ability to quickly deploy and focus a national network of university-based scientists and technical experts. For example, on the West Coast, ocean acidification is a growing threat to shellfish and other ocean resources. While NOAA's FY 2011 budget initiative for ocean acidification research, the Sea Grant programs in Washington have already taken first steps to support critically needed research on this threat. With an array of challenging scientific questions before us, how would you recommend we build on and enhance the capacity of state Sea Grant programs to quickly and economically act to meet national concerns through local action?

Answer. The President's FY 2011 budget requests $62.5 million for the National Sea Grant College Program. Sea Grant is NOAA's primary university-based program in support of coastal resource use and conservation. Sea Grant's research and outreach programs promote better understanding, conservation, and use of America's coastal resources by addressing local to global concerns.

The FY 2011 request for Sea Grant includes an increase of $2 million to support regional research, training, and technology transfer to enhance the resiliency of coastal communities to both persistent natural hazards and extreme events (*e.g.,* climate-induced sea-level rise, extreme coastal storms).

The FY2011 request for Sea Grant also includes an increase of $2.7 million for marine aquaculture. This increase will advance sustainable, domestic aquaculture through an enhanced aquaculture extension effort coupled with a competitive research initiative that addresses high priority issues for aquaculture.

NOAA will use its integrated research, training, and technical assistance capabilities, and its presence in coastal communities, to play a major role in helping local citizens, decision-makers, and industries plan for hazardous events and optimize the ability of their communities to respond and rebuild to such events.

Question 47. On January 15, 2010, several of my Washington colleagues joined me in sending a letter outlining the environmental reviews we believe NOAA must com-

plete as the MOC–P process moves forward. In that letter, we stated that to come into compliance with Executive Order 11988 (on floodplains), we believe that NOAA is required to conduct a full Environmental Impact Statement and an Endangered Species Act section 7 consultation if the agency ultimately decides to move forward with locating MOC–P at Newport. NOAA's practicable alternatives process announced on January 29, doesn't give any details on future environmental reviews. Does this mean that NOAA believes its existing Environmental Assessment is enough?

Answer. NOAA published a comprehensive environmental assessment on June 10, 2009. The environmental assessment identified threatened or endangered species for all four offers, and concluded that the impacts of the proposed action could be effectively mitigated for each site. That assessment specifically included consideration of the impacts to the green sturgeon and its habitat in and near Yaquina Bay. Because NOAA concluded, after taking into account the proposed mitigation measures, that the Marine Operations Center—Pacific (MOC–P) lease award would not significantly affect the quality of the human environment, NOAA determined that an environmental impact statement was not required for the proposed action.

Question 48. Will NOAA conduct an Environmental Impact Statement?

Answer. NOAA concluded through an environmental assessment and after taking into account the proposed mitigation measures that the MOC–P lease award would not significantly affect the quality of the human environment. Therefore, NOAA determined that an environmental impact statement was not required for the proposed action. NOAA completed a practicable alternative analysis conducted under Executive Order 11988 (*Floodplain Management*) and in response to the Government Accountability Office's decision in response to the MOC–P lease protest (Final Determination issued on June 2, 2010; *Final Determination: Practicable Alternative Analysis, NOAA's Marine Operations Center-Pacific Lease Award to Port of Newport, Newport, Oregon*). In that analysis, NOAA determined that no substantial changes to the proposed action need to be made or significant new circumstances or information relevant to environmental issues had been identified. Therefore, NOAA determined that no further action relative to the environmental assessment and finding of no significant impact was required.

Question 49. Will NOAA conduct a biological opinion for either green sturgeon or Oregon coast coho salmon, both of which include the proposed Newport site as critical habitat?

Answer. Because the U.S. Army Corps of Engineers is required to issue permits for the Port of Newport to proceed with construction at the site, the parties were already required to follow the section 7 Endangered Species Act (ESA) consultation process (as would any of the other sites if selected). NOAA's National Marine Fisheries Service is working with the Port of Newport to ensure the section 7 ESA process is complied with in connection with the MOC–P lease award, and will, as necessary, evaluate the effects of the proposed action on listed species and their designated critical habitat prior to the issuance by the U.S. Army Corps of Engineers of any required permits.

Question 50. If the relocation of the Marine Operations Center-Pacific to Newport, Oregon proceeds in FY 2011 as planned, what expenditures do you anticipate related to that move, and from what accounts within NOAA's budget will those costs be paid?

Answer. NOAA anticipates expenditures for relocation of employees, including the commissioned officers and the other government staff, and the cost of the new lease. Costs for the lease and move of commissioned officers will be paid for from the Operations, Research, and Facilities (ORF) account for Marine Operations. Depending on the final move costs, the other relocation costs will be paid for from the NOAA ORF account.

Question 51. Do you anticipate ANY increased expenditures or costs related to a MOC–P move to Newport, Oregon (either direct or indirect) in FY2011 that will be incurred to accounts outside of the Office of Marine and Aviation Operations (OMAO)? If so, what accounts/programs, for how much, and for what?

Answer. At this point, we do not envision any increased expenditures or costs related to a MOC–P move to Newport outside of the Office of Marine and Aviation Operations (OMAO). For OMAO, the current MOC–P employees will need to decide if they are going to relocate to the new site. Once this is known, NOAA will be able to determine the costs and timing for what resources are needed to accomplish the move.

Question 52. I'm particularly interested in a small program called "Mussel Watch," which analyzes mussel tissues to monitor water quality and chemical contaminants. The 25-year-old program has collected data on over 120 contaminants

along Washington's shorelines, and has been instrumental in demonstrating the Puget Sound's toxic problems—a long-term data set that I'm sure you can appreciate as a scientist. Although the program is small, it is instrumental in monitoring water quality in Washington. What are the proposed funding levels for Mussel Watch program under the FY 2011 budget?

Answer. The FY 2011 President's Request includes $300,000 for Mussel Watch. The funds are requested as part of the "National Centers for Coastal Ocean Science" budget line within NOAA's National Ocean Service, and the program is implemented by the Center for Coastal Monitoring and Assessment.

Question 53. Will NOAA continue support for this successful and important program in future years?

Answer. NOAA will continue to support the Mussel Watch program, and fully recognizes the importance of continuity of operations.

Question 54. Will you commit to working with me to maintain appropriate funding levels to ensure the continuation and growth of this valuable program and its irreplaceable long-term data sets?

Answer. NOAA appreciates your support for this program and we look forward to continuing to work with you.

Question 55. The Recovery Plan for Puget Sound Southern Resident Orcas released by NOAA earlier last year says the cost to delist southern resident orcas will be *at least* $50 million over 28 years. What is the amount of funding included in the FY 2011 NOAA budget devoted specifically for efforts called for under the Puget Sound Southern Resident Orca Recovery Plan? Does this funding level put us on track to delist the species within 28 years as the recovery plan states?

Answer. Yes, the FY 2011 budget request of $1 million for the North Pacific Southern Resident Orca population will allow us to take important steps toward delisting this species. Based on the life history of killer whales and the nature of the threats to their survival, progress toward recovery will be a long-term effort and could take 28 years or more. NOAA strives to identify the highest priority and most cost effective research and recovery actions to fund with available resources, to ensure the contribution to the recovery of the Southern Residents and movement toward our goal of delisting.

Question 56. The Orca Recovery Plan states that recovery efforts over the first 5 years will cost $15 million. Under this budget, are we failing to make the initial up-front gains called for by the Southern Resident Orca Recovery Plan?

Answer. While some of the $15 million is attributed to actions for which NOAA is the lead responsible party, many of the actions include other responsible parties as well. Recovery of the Southern Resident Orcas will require contributions from a variety of government agencies and stakeholder groups as identified in the Recovery Plan. With specific funding for killer whales that was available in 2003–2007, the agency made gains in establishing a recovery program including designating critical habitat, completing the Recovery Plan, and implementing recovery actions. Now the agency is using available resources to implement actions in the Recovery Plan. NOAA has developed many valuable partnerships to leverage available funding from a number of sources to maximize our resources for the benefit of the whales. For example, NOAA has made significant progress working with the Washington Department of Fish and Wildlife on oil spill response planning and reducing vessel impacts through an increased enforcement presence on the water and education efforts. In July 2009, NOAA proposed regulations to minimize the impacts of vessel traffic and noise on the endangered orcas and is currently considering public comments submitted on the proposed rule. In coordination with Washington Department of Fish and Wildlife, the U.S. Coast Guard, and the Department of Fisheries and Oceans Canada, NOAA has developed proposed vessel regulations to protect the whales. In addition, there is an active research program including NOAA, universities, and private research organizations working to help fill in data gaps and guide recovery.

Question 57. The National Geodetic Survey Report: Socio-Economic Benefits Study: Scoping the Value of CORS and GRAV–D, indicates a net present value of benefits for GRAV–D over 15 years of $4.8B (not counting private activities). This for a program cost, if annual funding can be maintained over 10 years, is only $40M. If successful, this represents a tremendous benefit for a low cost. If there are program shortfalls in any or all subsequent years, would this result in certain areas of the country being left out, or with a substandard product?

Answer. The Gravity for the Redefinition of the American Vertical Datum (GRAV–D) project is an initiative to update the Nation's vertical datum, which is expected to be completed in 2022. Any shortfalls in funding would not result in a substandard product or areas of the country being left out, but would delay comple-

tion of GRAV–D (the implementation of a new national vertical datum). According to the 2009 socioeconomic study (available at *http://www.ngs.noaa.gov/PUBS_LIB/Socio-EconomicBenefitsofCORSandGRAV-D.pdf*), refining and modernizing the National Spatial Reference System by measuring elevation through GRAV–D has the potential to provide an additional $522 million in annual economic benefits to the U.S. economy.

Question 58. Certain regions of the country have been identified as "Trouble Spots in the Gravity Field." GRAV–D is to be completed one region at a time, but with the exception of Alaska and the Gulf Coast, the other "Trouble Spots" are far down the list of areas to be done. Does a "Trouble Spot" require more resources than a "non-trouble spot"?

Answer. "Trouble spots in the gravity field" could refer to areas of the country, such as Alaska, that have a severe lack of gravity data, or it might refer to areas of subsidence or mountainous regions where gravity data are incorrect or inconsistent. If there is a need for increased observations/data collection within a "trouble spot" in order to effectively complete data collection for a region, a trouble spot could require more resources than other areas. "Trouble spots," however, do not necessarily correlate with areas of most urgent and pressing need (see the response to question 59 for how these areas were prioritized).

Question 59. How was the order of areas to be done decided?

Answer. Portions of Alaska that are at high risk from the impacts of climate change, and where virtually no geodetic control or gravity data exist, were given the highest priority. Priority was also given to at-risk coastal areas, island regions, and other areas of the country which have an urgent and pressing need for better protection against inundation from storms, flooding, and/or sea level rise. In general, and as outlined in the GRAV-D plan (available at *http://www.ngs.noaa.gov/GRAV-D/pubs/GRAV-D_v2007_12_19.pdf*), the coastal areas of the U.S. will be covered first with later expansion to inland regions.

Question 60. Will a state that has secured additional funding for gravity observations, either locally secured or through an earmark, going to be done earlier than those without additional sources of funding?

Answer. NOAA will follow the GRAV–D plan as outlined. If states identify resources, NOAA will take this into consideration.

Question 61. There are areas of the country at high risk for flooding, earthquake, tsunami, and other hazards for which precise elevations are critical for hazard mitigation, disaster preparedness evaluation and planning, and for post event evaluations. Should these regions be considered for early GRAV–D completion and/or additional observations data gathering?

Answer. These factors were considered in the development of GRAV–D plan priorities.

Question 62. The gathering of additional gravity data for all states, equally, would require a tremendous amount of on-the-ground skilled labor. Surveying and resulted industries have been hard hit by the economic downturn. Could the gathering of additional gravity data have been a good opportunity for job creation & growth?

Answer. The collection of gravity data itself is not an intensive job creation opportunity. GRAV-D is best accomplished by small teams working on airborne platforms covering large areas at a time. However, once complete, GRAV–D is expected to provide an additional $522 million in annual benefits to the U.S. economy.

Question 63. CORS are the continuously operating reference stations (*i.e.,* GPS) owned and operated by state, local, Federal, and private entities that are coordinated by NGS to form the active control network of the National Spatial Reference System (NSRS). The National Geodetic Survey Report: Socio-Economic Benefits Study: Scoping the Value of CORS and GRAV–D, indicates a net present value of benefits over 15 years of $18.5B at current growth rates (not counting private activities). The CORS are established and operated by Federal, state, local and private entities; less than 20 percent are Federal. For such a high potential benefit, should NOAA consider more resources for CORS intake?

Answer. NOAA recognizes the importance of the Continually Operating Reference Stations Network, but must balance many priorities for limited resources during the annual budget development process.

Question 64. For such a high potential benefit, should NOAA consider more resources for NGS to assist potential CORS providers in CORS establishment?

Answer. The Continually Operating Reference Stations (CORS) program benefits from the voluntary contributions of over 200 partner organizations. These organizations include foreign, Federal, state, and local government agencies, as well as academic and commercial institutions. The non-NOAA partners sponsor and/or operate

over 90 percent of the CORS network stations. NOAA looks forward to working with our regional, state and local partners to continue this effort and to maximize the benefits of CORS locally and throughout the Nation. This includes installation of CORS as part of National Height Modernization Program grants.

Question 65. Height Modernization is an NGS program that assists states in establishing new or updated vertical control and references to tie critical infrastructure to the National Spatial Reference System. A line item for Height Modernization has been included for many of the past 10 years. This year it has $2.5M. As states scramble for these funds, many states resort to earmarks to proceed with their respective programs outside of the Height Modernization program. Considering the poor state of geodetic references, what would be the benefits of increased resources for such programs as Height Modernization?

Answer. In 1998, Congress directed the National Geodetic Survey (NGS) to conduct a National Height Modernization Study. Up until the time of the study, there were many indications that considerable efficiencies and cost savings could be achieved through the utilization of GPS technology when applied to surveying and, in particular, the measurement of heights. The results of this study indicated in some cases a 90 percent cost savings over conventional surveying methods. The Gravity for the Redefinition of the American Vertical Datum (GRAV–D) initiative will accelerate height modernization efforts; however, it is critical that current height modernization efforts continue to build on the extensive work done and the partnerships already created. Until 2022, when we anticipate GRAV–D will be fully implemented and a new vertical datum established, physical infrastructure (survey marks in the ground, as frequently funded by height modernization) remains the best way to realize accurate heights in the current vertical datum (NAVD 88).

Question 66. Wouldn't Height Modernization have been a good opportunity for job creation & growth?

Answer. Current and future height modernization activities provide opportunity for job creation and economic growth for local communities. The installation and update of geodetic control through height modernization is a resource intensive effort no longer possible solely within the scope of the National Geodetic Survey (NGS) mission. Local surveying and engineering communities are needed to develop this geospatial infrastructure to ensure the integrity of their local surveying activities and geospatial data products. NGS also relies on university partners to provide education and capacity building within the community so that the quality of the control infrastructure and data retain the accuracy needed for all applications. Development of software to measure, compute, and use survey data in mapping and charting activities, hydrologic modeling, and Geographic Information System applications are needed as new users of this data come on the scene. As NGS transitions to a new vertical reference system through GRAV–D, software and models will need to be developed to ensure that users are able to seamlessly convert their data products.

Question 67. This is not the first time the Inspector General has reviewed NOAA's fisheries enforcement operations. A similar review in 1998 also found a need for greater direction from NOAA leadership and changes in the ratio of criminal investigators to uniformed enforcement officers. Yet the percentage of criminal investigators appears to have risen from 75 percent in 1998 to 90 percent today. Why were these earlier recommendations ignored?

Answer. The 1998 Office of Inspector General (OIG) Report did not recommend changes in the ratio of criminal investigators to uniformed enforcement officers. The report discusses a "Role and Deployment Study" conducted by the NOAA Office of Law Enforcement (OLE). The 1998 OIG report questions that study's value by suggesting that predetermined constraints prevented the study from considering all available options for staffing. The report cites the fact that the list of self imposed constraints set by the Chief of Enforcement (Chief) included a requirement to achieve a 1:1 ratio of special agents to fishery patrol officers and that the deployment portion of the study only evaluated 58 of the 164 full-time-equivalent positions.

NOAA's response at the time was that the study limitations were intentional since it was intended to review specific unresolved issues within NMFS enforcement operations. However, NMFS continued to consider and follow-up on the potential of increasing visibility through the use of agreements with other enforcement organizations such as state enforcement organizations.

After concluding a 1999 pilot study on the use of the cooperative enforcement program through a partnership with the State of South Carolina, the agency determined that it would be effective to pursue an expansion of the cooperative enforcement program. Funding was appropriated in 2001 to support an expansion of the cooperative enforcement program approach through agreements now known as Joint

Enforcement Agreements. That program has been funded every year since 2001 and now includes partnerships with every U.S. coastal state and territory, except North Carolina. Over the past decade, the Office of Law Enforcement (OLE) has operated with the understanding that the state agencies would supplement the patrol and inspection aspect of its mission through the cooperative enforcement program. Therefore, the OLE continued to hire special agents to focus on conducting investigative work.

While the 1998 OIG report did not address the use of criminal investigators, this issue is very clearly identified as subject for review in the 2010 report. As part of the NOAA response to the 2010 report, NOAA is conducting a workforce analysis to determine the proper mix of personnel within OLE as recommended by the OIG. The plan formulating this analysis is contained within appendix 9 of our March 18 response to the OIG. On February 5, NOAA placed a freeze on the hiring of criminal investigators, which will remain in place until the workforce analysis is concluded.

The OLE currently has 145 special agents and 18 enforcement officers. Though most of the sworn personnel within the agency are criminal investigators, the intent of the agency was not to create a "criminal orientation," but to assure the recruitment and retention of a well-rounded and highly qualified skill set. This was done because of the extensive variety of legislative mandates of the OLE and the vast geographic area covered. The premise of using special agents to conduct enforcement within the OLE has been the primary approach of the agency almost since its inception in 1970. At that time, this approach was identified as the most effective way for the OLE to meet its diverse, complex, and expansive enforcement mission requirements.

Question 68. Dr. Lubchenco, your February 3 announcement regarding steps NOAA will take to address deficiencies identified in Mr. Zinser's report includes immediately directing resources ". . .to improve communications on enforcement issues . . . including through actions that enhance understanding of fisheries regulations and transparency of enforcement actions." Can you be more specific about the kinds of actions you think will help to accomplish this goal?

Answer. On February 3, I directed NOAA's National Marine Fisheries Service (NMFS) to work in consultation with the NOAA Office of Communications to target resources to improve communications on enforcement issues, particularly in the Northeast. The Office of Communications and External Affairs, in consultation with the Office of Law Enforcement and the Office of General Counsel for Enforcement and Litigation, developed a detailed Communications Plan to improve outreach with fishermen. The Plan is included as Appendix 2 of NOAA's March 18, 2010 official response to the Office of Inspector General's January 21, 2010 report on NOAA Fisheries Enforcement Programs and Operations. The response and appendices can be found on NOAA's website at the following addresses: *http://www.noaanews.noaa.gov/stories2010/PDFs/Response_IGReport.pdf* and *http://www.noaanews.noaa.gov/stories2010/PDFs/IGReport_Appendices1–15.pdf.*

The Communications Plan aims to increase NOAA's transparency and rapport with fishermen; to increase the frequency and improve the quality of interactions among fishermen, NOAA enforcement officers, and attorney-advisors; to increase public knowledge and understanding of fisheries regulations; and to promote the biological and financial benefits of sustainable fishing. The Communications Plan specifies a number of tools and strategies, including fishermen forums, a web-portal and repository, and compliance guides. As noted in the Communications Plan, a pilot fisherman's forum was held April 26, 2010. My staff has committed to assess implementation and success of the plan periodically, and to provide results of that assessment to me promptly.

Question 69. You also plan to hold a summit on law enforcement practices no later than June 30—will the regulated community be invited to participate?

Answer. Summit participants included members of commercial and recreational fishery sectors as well as dealers, processors, and other constituents.

Question 70. One of the main findings of the IG Report is that OLE lacks sufficient management and oversight by NOAA senior leadership and headquarters. Do you agree with this finding and, if so, what do you intend to do to fix this problem?

Answer. I have directed Lois Schiffer, NOAA General Counsel, and Eric Schwaab, Assistant Administrator for the National Marine Fisheries Service, to take a number of steps to assure that these concerns are resolved. There are three key components they will address: strong leadership, procedural changes, and changes in the culture of NOAA's program. I have transferred administration of NOAA's Civil Monetary Penalties Fund (also known as the Asset Forfeiture Fund) to the NOAA Comptroller, and the General Counsel's Office has issued a Memorandum requiring higher levels of management review concerning charging, decisions and settlements. In

addition to these steps, we are working to begin establishing enforcement priorities, develop a NOAA General Counsel Office of Enforcement and Litigation Internal Operating Manual, and revise and update the Office for Law Enforcement National Enforcement Operations Manual. NOAA's March 18, 2010 official response to the Office of Inspector General's January 21, 2010 report on NOAA Fisheries Enforcement Programs and Operations addresses these plans and the details are included within the appendices. The response and appendices can be found on NOAA's website at the following addresses: *http://www.noaanews.noaa.gov/stories2010/PDFs/Response_IGReport.pdf* and *http://www.noaanews.noaa.gov/stories2010/PDFs/IGReport_Appendices1–15.pdf*.

Question 71. Last month you ordered that NMFS take a number of immediate actions in response to some of the IG's recommendations. Which of the actions have been completed at this time?

Answer. As outlined in my testimony, I ordered two immediate actions, both of which were completed on February 5. First, I instituted a freeze on the hiring of criminal investigators until an internal workforce analysis is done to consider the appropriate mix of criminal investigators and regulatory inspectors in the enforcement program. Second, the agency officially shifted oversight of the Civil Monetary Penalties Fund (also known as the Asset Forfeiture Fund) from NOAA's National Marine Fisheries Service to the NOAA's Comptroller.

We have also made progress in addressing some of the short- and long-term actions identified in my testimony. The Office of Communications and External Affairs, in consultation with the Office of Law Enforcement and the Office of General Counsel for Enforcement and Litigation, developed a detailed Communications Plan to improve outreach with fishermen. NOAA also held an Enforcement Summit in Washington, D.C. on August 3, 2010. The goals of the Summit and additional outreach surrounding the Summit were to develop forward looking ideas in areas of communication, priority setting and program implementation, to help us achieve an enforcement program that ensures fair and effective protection of the Nation's natural resources in NOAA's areas of responsibility. NOAA posted materials from the Summit online and solicited feedback on those materials.

NOAA's plans for addressing each of the actions identified in my March 3rd testimony are outlined more extensively within NOAA's March 18, 2010 official response to the Office of Inspector General's January 21, 2010 report on NOAA Fisheries Enforcement Programs and Operations and the 15 appendices to the report. These documents provide specific details regarding the plans and the project time frames for each action to be completed. The response and appendices can be found on NOAA's website at the following addresses: *http://www.noaanews.noaa.gov/stories2010/PDFs/Response_IGReport.pdf* and *http://www.noaanews.noaa.gov/stories2010/PDFs/IGReport_Appendices1–15.pdf*.

Question 72. The IG report states that internal controls over the NMFS Assets Forfeiture Fund are lacking. What have you done to ensure proper oversight and use of these funds?

Answer. Immediate action was taken to shift oversight of the Civil Monetary Penalties Fund (also known as the Asset Forfeiture Fund) from NOAA's National Marine Fisheries Service to NOAA's Comptroller. The Comptroller instituted a requirement that all proposed expenditures from this Fund of $1,000 or more must be preapproved by him. Further, the NOAA General Counsel for Enforcement and Litigation submitted existing contracts to the Comptroller for guidance on whether additional expenditures from the Fund under those contracts required Comptroller approval. The list of contracts is Appendix 1c and the Comptroller's response is Appendix 1d of NOAA's March 18, 2010 official response to the Office of Inspector General's (OIG) January 21, 2010 report on NOAA Fisheries Enforcement Programs and Operations. In addition, the OIG contracted with an external entity, KPMG, to conduct a forensic audit of the Fund's expenditures. This audit has been completed and a new OIG report on the findings was issued July 1, 2010. In response to the report and the recommendations presented, I instructed the Chief Financial Officer to oversee the development of Corrective Action Plans to address each of the recommendations and ensure the Civil Monetary Penalties Fund is well managed and has rigorous internal controls. On July 29, 2010, I submitted the Corrective Action Plans to the Inspector General. The plans continue the improvement of oversight and monitoring of the fund began earlier this year. It includes 31 specific corrective actions covering 13 elements that NOAA is taking to improve the management, accountability, and transparency of the fund. Most of the corrective actions will be completed between this fall and the end of the year.

These Action Plans will ensure that the Civil Monetary Penalties Fund is well managed and has rigorous internal controls. NOAA will continue to provide the In-

spector General with regular reports on our progress toward implementation of the Corrective Action Plans. More information can be found here: *http://www.noaanews.noaa.gov/stories2010/PDFs/affmemo.pdf.*

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. JOHN KERRY TO DR. JANE LUBCHENCO

Question 1. Dr. Lubchenco, I want to applaud the commitment to science and ocean conservation that you have shown during the first year of your tenure. The New England groundfish fishery—which has been in crisis and dire economic straits for the past two decades—has benefited from over $35 million in Federal investment from NOAA as it moves toward catch share management. The FY2011 NOAA budget calls for $54 million in funding for catch shares nationwide, and I hope that will include a third year of robust funding for New England fisheries. Can you help me better understand your strategy for moving to catch share management in New England and how this money helps do that?

Answer. Currently 14 stocks in the Northeast Multispecies Fishery Management Plan are overfished and/or are subject to overfishing. The Magnuson-Stevens Fishery Conservation and Management Act requires us to end overfishing this year and rebuild these fish stocks, including setting specific annual catch limits and measures to ensure accountability.

The Northeast Multispecies Fishery Management Plan contains provisions that allow permit holders who have been allocated an exclusive share of the total allowable catch to voluntarily form groups or "sectors." This is a form of catch share management and was modeled after the two existing New England groundfish sectors that date back to 2004 and 2007. Fishery management via sectors offers a number of potential advantages to fishermen over the current management system, which is based on a complex set of regulations that dictate when, where and how often fishermen can fish. The use of sectors offers fishermen the opportunity to pool risks, capacity, and resources to: increase efficiency by increasing flexibility regarding when and where to fish; manage fishing operations to meet both the social and economic objectives of the sector; concentrate on increasing the quality and value of fish caught without concern for lost fishing time; avoid having to return to port or discard fish because a trip limit is reached for one species; and transfer (share, trade or consolidate) catch privileges among sector members to reduce fishing costs.

In addition, the use of sectors offers fishing communities a means to address concerns that reduction and consolidation of groundfish operations threaten the viability of their current groundfish industry by retaining shares of the total allowable catch in defined ports/geographic areas. Data from the first quarter of the 2010 fishing year shows that sectors have been able to keep catch rates well below the quota, even for some of the weaker stocks. Sector vessels seem to be taking advantage of their increased flexibility, avoiding the race to fish, and timing fishing trips for greater efficiency and higher economic returns. Preliminary economic data from May 1, 2010 to July 31, 2010 shows that the sector vessel revenue is up 15 percent above this time last year even under lower catch limits.

The FY 2011 NOAA budget request includes an additional $4.4 million for the implementation and operation of the Northeast multispecies sectors. This funding builds on FY 2010 funding to provide the required 30 percent at-sea observer coverage requirement for Northeast sectors (total is $7.4 million). This brings the grand total for New England sector management in FY 2011 to $23 million, building on the $18.6 million in FY 2010. Other key implementation activities include the development of systems to better monitor days-at-sea, document catches, and track permit transfers ($5.4 million), enhance cooperative research ($6 million), law enforcement ($3.2 million), and social science and economics research to evaluate the impact of the sectors ($1 million).

Question 2. NOAA requested technical adjustments to move $6 million from Cooperative Research to the National Catch Share Program to consolidate resources for the operations of the National Catch Share Program. Cooperative research is critical for assuring that NOAA has access to additional, outside high-value resources and building trust with our fishermen. Dr. Lubchenco, as a scientist yourself, can you help clarify how your budget priorities further scientific management of our marine fisheries?

Answer. The FY 2011 budget supports a suite of activities that further fisheries science and management. This budget retains previous investments in the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act (MSRA), supports catch shares where appropriate, and provides additional investments in fisheries habitat, ecosystem science, and data collection. This budget request con-

tinues NOAA's commitment to fisheries science and management by retaining and building on previous funding increases in the National Marine Fisheries Service (NMFS) Operations, Research, and Facilities (ORF) budget of $907.7 million in FY 2011, an increase of $184 million since FY 2009.

The NMFS ORF budget includes sustained investments to implement the MSRA. This funding includes support for the National Catch Share Program, Regional Fishery Management Councils to determine Annual Catch Limits, observer coverage, enforcement, recreational and commercial fishery data collection, and stock assessments. In FY 2011 NMFS is projecting to expand the percentage of FSSI (Fish Stock Sustainability Index) stocks with adequate stock assessments to 60 percent as a result of sustained funding for that activity. Funds for the National Catch Share Program will support the management of existing catch share programs, cooperative research specific to catch shares, and the implementation and development of new catch shares nationwide. Much of the $54 million request in FY 2011 is to enhance the implementation of catch shares nationwide and will be used to improve scientific data and management of our Nation's fisheries. Of the $36.6 million increase, $25.6 million is requested for data collection, including observing and monitoring. Under catch shares, the quality and quantity of fishery data improves significantly via new catch accounting, monitoring and compliance systems, as well as improved tracking systems for social and economic outcomes. These systems will improve scientific estimates of overfishing levels and reduce scientific uncertainty in setting total allowable catches. As a result of having more precise scientific data, further increases in allowable biological catches are possible.

Additional investments are required to foster fish recruitment and survival as well as a broader understanding of the ecosystem within which fisheries reside. This budget includes $23.8 million for the Community-based Restoration Program to focus on larger-scale projects aimed at threatened and endangered species. These funds will restore coastal and estuarine habitat and remove barriers to fish passage that will benefit numerous species by providing increased nursery, shelter, and foraging habitat. Additional benefits include the provision of storm protection from flooding and storm surge and recreational opportunities. Integrated Ecosystem Assessments (IEA) are a tool to assess social, economic, and natural science data and predict the outcome of management choices. In FY 2011 NOAA is requesting $7.5 million for IEAs. The resulting ecosystem models will provide a broader understanding of ecosystem linkages, provide forecasts of ecosystem conditions which affect fisheries, and allow decisionmakers to more readily adapt to changing conditions such as climate change.

The foundation of fisheries science and management is data collection. In additional to the data collection elements of the National Catch Share Program, NOAA continues to invest in the recapitalization and maintenance of its fleet of fisheries survey vessels. The FY 2011 Budget includes $23.4 million to reduce deferred maintenance to ensure ships meet mission requirements and performance targets. It also includes funding for FSV6, which will replace David Starr Jordan to conduct surveys for fish, marine mammals and turtles off the U.S. West Coast and in the eastern tropical Pacific Ocean.

Question 3. Can you please explain your plan to further promote cooperative research and how the money in the national catch shares fund will be used to improve scientific data and management of our Nation's fisheries?

Answer. The FY 2011 Budget includes a total of $13.1 million for cooperative research. The $6 million in the Catch Shares line item dedicated to cooperative research will be focused on enhanced stock monitoring and conservation engineering (including technology transfer) to support the transition to sectors and annual catch limits in the Northeast. Funding priority will be given to:

- Fisheries currently managed under a catch share program or fisheries which are transitioning into catch share management;
- Fisheries with interaction with fisheries under catch share management or in transition to catch share management; and
- Fisheries with significant data gaps for annual catch limits.

Much of the $54 million request in FY 2011 to enhance the implementation of catch shares nationwide will be used to improve scientific data and management of our Nation's fisheries. While none of the $54 million will be used directly for conducting stock assessments, of the $36.6 million increase, $25.6 million is requested for data collection, including observing and monitoring. In many cases, the resulting data will be incorporated into current and future stock assessments.

Under catch shares, the quality and quantity of fishery data improves significantly via new catch accounting, monitoring and compliance systems, as well as im-

proved tracking systems for social and economic outcomes. These tools will improve scientific estimates of overfishing levels and reduce scientific uncertainty in setting total allowable catches. As a result of having more precise scientific data, further increases in allowable biological catches are possible. For these reasons, NOAA encourages the consideration of more catch share programs. That said, catch share programs are not the best strategy for every fishery or sector and NOAA's policy does not in any way mandate the use of this management strategy.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARK BEGICH TO DR. JANE LUBCHENCO

Question 1. Does the NPOESS restructuring give NOAA the opportunity to obtain needed climate and weather measurements from both small and mid-sized spacecraft, instead of large platforms, as well as to use the innovative commercial approaches NOAA has been talking about the past 2 years to obtain future measurement data?

Answer. Yes. The NPOESS restructuring provides NOAA the flexibility to pursue spacecraft buses that address mission requirements for reliability and continuity. NOAA has been studying options that will feed into Joint Polar Satellite System concepts to support climate continuity. These options also include commercial partnerships.

Question 2. Please describe how NOAA and NASA will share responsibility / authority / decision-making on JPSS, and indicate how soon you will move forward with a spacecraft procurement?

Answer. NOAA maintains overall responsibility for developing, funding, and implementing the Joint Polar Satellite System (JPSS) program. NOAA will provide strategic guidance to the National Aeronautics and Space Administration (NASA) regarding system requirements, budget and planning, constellation architecture, and launch dates. NOAA will lead JPSS interactions and negotiations with DOD as they develop their plan for meeting the observational requirements in the early morning orbit. NOAA will lead the discussions with international partners such as EUMETSAT, JAXA, and Centre National d'Études Spatiales (French Space Agency) on potential JPSS related activities.

NASA's Goddard Space Flight Center will procure the JPSS on behalf of NOAA on a reimbursable basis. NASA will manage the acquisition phase of the JPSS program in accordance with NASA Policy Directive 1000.5, which provides the overall policy framework of NASA's disciplined, comprehensive strategic acquisition process. NASA will use the governance model defined in the NASA Procedural Requirements 7120.5, which establishes the requirements by which NASA will formulate and implement space flight programs and projects. Modifications to these requirements due to the unique nature of the JPSS program will be documented in a Management Control Plan jointly established between NASA and NOAA, providing a stable set of processes and procedures for the JPSS program.

In June 2010, NOAA announced its decision to procure an NPP-like spacecraft bus for JPSS–1. No decision regarding JPSS–2 has been made. DOD plans to utilize the NPOESS prime contract with Northrop Grumman Aerospace Systems to procure the spacecraft to support their Defense Weather Satellite System.

Most importantly, NOAA is working closely with NASA and DOD to minimize the likelihood of a gap in polar satellite coverage, particularly in the afternoon orbit, which is crucial for monitoring climate change and its many impacts. During the transition phase, it is critical to preserve the President's request for FY 2010 and FY 2011 funds to ensure there is no disruption to the program.

Question 3. Ocean Acidification is a growing concern to Alaska's Commercial Fishing Industry. Acidification has been shown to be greatest in the high latitudes. Will the FY 2011 Budget enhance Ocean Acidification research and monitoring in Alaska waters?

Answer. The FY 2011 President's Budget requests $11.6 million for research on ocean acidification, including an increase of $6.1 million. NOAA requests this additional funding to implement an integrated ocean acidification initiative with research and long-term monitoring of ocean acidification for assessing climate change impacts on living marine resources. With this funding, FY 2011 efforts will be directed to:

- Assess the effects of ocean acidification on commercial fish species and the greater ecosystems on which they rely;
- Develop and provide sensors to monitor ocean acidification both for fixed platforms and for mobile use by researchers and coastal managers in the field;

- Determine and monitor the status and potential effects of ocean acidification on coral reefs; and
- Expand carbonate analytical capabilities at NOAA's science centers in order to meet the growing demand for quality control on samples being collected both in the field from U.S. waters and from researchers studying the impacts of ocean acidification on critical species through laboratory experiments.

The increase will complement, accelerate, and enhance current NOAA ocean acidification activities within the Office of Oceanic and Atmospheric Research, the National Ocean Service, and the National Marine Fisheries Service (NMFS). In FY 2010, $680,000 of NOAA's appropriation for ocean acidification monitoring and response research supported activities in Alaska. The requested $6.1 million increase will support both the funding of research competed through a national, peer review process open to all scientific researchers and research conducted internally thought NOAA's regional fisheries science centers. In the case of the latter, proposals for those activities will undergo a rigorous internal scientific review process.

Question 4. When will Congress be briefed on the pending NRC OA report?

Answer. The National Research Council (NRC) of the National Academy of Sciences released the study Ocean Acidification: A National Strategy to Meet the Challenges of a Changing in April 2010. NOAA understands that the National Academies Ocean Studies Board Committee on the Development of an Integrated Science Strategy for Ocean Acidification Monitoring, Research, and Impacts Assessment held a series of briefings for Congress on the summary of the full report in April of 2010. NOAA integrated NRC findings, as appropriate, into the NOAA Ocean Acidification Research Implementation Plan, which was completed in April 2010.

Question 5. NOAA proposes a substantive consolidation of its Climate Research and Services programs into a single organization. However, NOAA's FY 2011 budget submission does not consolidate funding for the new NOAA Climate Service.Would NOAA look favorably on a Congress effort to consolidate NOAA's NCS budget into a separate budget account in FY 2011?

Question 6. Is there sufficient budget detail for Congress to consolidate this funding into a new Line Office account?

Answer (5 and 6): The Administration is working on a reprogramming package request that will be submitted to Congress as soon as possible. The package will include details on the laboratories, centers, and divisions that would be transferred from other line offices to form the new NOAA Climate Service, and details on the annual operating budgets for these programs and the number of full-time NOAA employees to be transferred to the Climate Service. NOAA looks forward to working with Congress to establish the NOAA Climate Service in the most efficient, effective, and streamlined manner possible to ensure all Americans have the climate information, products and services they need to make the best decisions for their families, communities and businesses. NOAA will continue to consult with all relevant and appropriate external partners, Congress, and the Administration as it develops and submits this package and works toward implementation.

Question 7. The FY 2011 NOAA budget appears to contain an increased emphasis in the Arctic. Can you be more specific about NOAA's proposed investments for Arctic research and monitoring in FY 2011?

Answer. The FY 2011 President's Budget requests $16.5 million to support major NOAA Arctic-focused research and conservation, including a $4.3 million increase to support enhanced Alaskan and Arctic Observations. This amount does not represent all of NOAA's efforts in the Arctic region. Strengthening Arctic science and stewardship is one of NOAA's top priorities. The FY 2011 Budget Request will help advance NOAA's efforts in Arctic research and conservation to improve our understanding of changing climate and environmental conditions and will inform policy options and management responses regarding the unique challenges in the Arctic region.

The requested FY 2011 funding will also continue support for multi-beam survey operations to define the U.S. Extended Continental Shelf and support efforts to understand rapid climate change in the Arctic Ocean through the Russian-American Long-term Census of the Arctic Program; conservation and management of whales in the Arctic; and investigation of the more-rapid-than-expected melting of Arctic sea ice and ice sheets.

NOAA's funding for the U.S. Climate Reference Network (USCRN) and the U.S. National Ice Center, which supports safe ship navigation in polar regions also contributes to NOAA's efforts in the Arctic.

Specifically, within the NOAA Office of Oceanic and Atmospheric Research, the FY 2011 request will support:

- Enhanced Alaskan and Arctic observations—new sensors will be installed to provide new data relevant to Greenland ice sheet melting, improve forecasts of sea ice in the area offshore of Alaska; and improve understanding of global ocean circulation and warming of the Arctic Ocean.
- Modeling/analysis and data management—data collected through the above activities will be analyzed to improve understanding of Arctic climate processes and models will be developed or improved to reflect the new understanding.
- Expansion of climate forcing measurements at Arctic Observatories.
- Expansion of black carbon measurements in the Arctic.
- Interagency efforts to define the U.S. Extended Continental Shelf using the USCG icebreaker *Healy*.
- The Russian-American Long-term Census of the Arctic (RUSALCA) Program addressing the causes and consequences of rapid climate change in the Pacific Region of the Arctic Ocean (Arctic Observing Network Pilot programs).
- Arctic Atmospheric-Climate Observatory Development in Tiksi, Russia And Eureka, Canada.
- In situ observations of sea ice variability in the Arctic Ocean.
- Continuation of approximately 200 different observations of atmospheric parameters and climate forcing agents from the Barrow, Alaska, Atmospheric Baseline Observatory.
- Cooperative Institute support in Alaska.
- Atmospheric Observatories and Field Campaigns.
- Stratospheric Ozone Depletion Observations.
- Continuous aerosol and black carbon measurements at four Arctic locations.

Within the National Marine Fisheries Service, the FY 2011 President's budget request specifically supports:

- *Mammals: Alaska Eskimo Whaling Commission*—This program provides a grant to the Alaska Eskimo Whaling Commission which represents whaling communities and coordinates with agencies responsible for the management of subsistence whaling. The Commission works cooperatively with the International Whaling Commission and NOAA to undertake research and educational activities related to bowhead whales and protect and enhance the Eskimo culture, traditions, and activities associated with bowhead whales and subsistence bowhead whaling.
- *Mammals: Beluga Whale Committee*—This cooperative agreement provides research essential to the conservation and informed management of beluga whales, and involves Native subsistence hunters in the management of this resource. These funds support aerial surveys of beluga whales in the Chukchi Sea/Kotzebue areas; contaminant and stock identification studies; and satellite tag studies of whale migration.
- *Mammals: Bowhead Whale Spatial Studies*—This program provides grants to Alaska Native Marine Mammal Co-management organizations to support continued data collection to describe the population structure within the Bering-Chukchi-Beaufort Sea stock of bowhead whales.
- *Other Activities Supporting Fisheries: Climate Regimes and Ecosystem Productivity*—NOAA's North Pacific Climate Regimes and Ecosystem Productivity (NPCREP) project focuses on the impacts of changing climate conditions on the growth, survival, and recruitment of Alaska's finfish and shellfish populations, primarily in the Bering Sea. This project conducts retrospective, monitoring, process and modeling studies to advance the understanding of climate impacts on regional fisheries. NOAA will also assess how changes in the distribution of seasonal sea ice are affecting the distributions of economically important fish and shellfish and ice-dependent marine mammals.

Within the National Environmental Satellite, Data, and Information Service, the FY 2011 Budget specifically supports:

- The National Ice Center provides global sea ice analyses, forecasts, outlooks and ship routing recommendations within the marginal sea ice zone of all Arctic and Antarctic seas.
- USCRN climate observations are used in coordination with other measurements such as soil moisture/temperature and permafrost conditions (thaw—CO_2/GHGs) for a range of climate research activities in the Arctic region to better define and monitor climate trends and changes.

Question 8. The OIG Report workforce analysis indicates Alaska has 12 of only 15 uniformed officers employed by NOAA. Why does Alaska have 80 percent of all uniformed officers employed by NOAA Fisheries Enforcement?

Answer. The current number of enforcement officers within the Office of Law Enforcement is 18. There are 12 in the Alaska Division, 2 in the Southeast Division, 2 in the Southwest Division and 2 in the Pacific Islands Division. The primary reason that there are more enforcement officers in Alaska is because they were originally hired for the purpose of providing enforcement services in support of the individual fishing quota (IFQ) program in Alaska. The structure of the regulations associated with the IFQ program requires the existence of a patrol and inspections program that is best staffed through the enforcement officer position. The IFQ program created the need for personnel to respond more frequently and routinely to check vessel offloads and their associated records. This program was initiated in the early 1990s. To assure a dockside patrol presence that will have a meaningful deterrent value, there must be a strong expectation that arriving vessels may be inspected. The IFQ program is conducive to the use of enforcement officers because the designation of specific ports where off loads may occur and advance notice of arrival requirements are a key part of the IFQ programs. In other areas without such requirements, the quantity of officers needed to assure coverage for the numerous ports and coastal areas where many of the other fisheries will off load has been somewhat impractical.

The agency did not expand the use of the IFQ programs into other fisheries and nationally because of a moratorium on their use as well as other reasons beyond the scope of enforcement related issues. However, in recent years the use of such programs has been expanded, though now known more commonly as "catch share" programs; such programs have now generated the functional need for the staffing of additional enforcement officers. The expanded use of enforcement officers is one of the key areas that NOAA will be evaluating as a strong potential for use as part of the workforce analysis to be conducted in response to the January 2010 report of the Department of Commerce's Office of Inspector General.

Question 9. The FY 2011 NOAA budget requests $6.8M to support a Marine Spatial Planning and another $20M to support Regional Partnerships related to Ocean Policy Taskforce principals and goals. How might this newly requested funding to support Ocean Policy Taskforce initiatives assist Alaska in moving forward on OCS development?

Answer. The funds will contribute to building a more comprehensive understanding of ocean ecosystems and their uses in the Exclusive Economic Zone in Alaska and elsewhere—critical information required for making leasing decisions. Coastal and marine spatial planning funding will also support a transparent and collaborative public planning process that may result in a more streamlined path for permitting many ocean uses, including OCS development in Alaska.

Question 10. NOAA's National Geodetic Survey (NOAA) has concluded Alaska lacks basic geodetic and spatial references. Shoreline on maps have horizontal errors greater than a mile and most mountains have vertical errors of 300'. As you move into Alaska's waters, we know more about the bathymetry off the coast of Somalia than Alaska. Spatial Planning for Alaska starts with getting basic charting and mapping fixed. Please describe where these backbone investments fit into NOAA's FY 2011 funding priorities.

Answer. In NOAA's estimation, much of Alaska does indeed lack the basic geodetic and geospatial frameworks that are available to the rest of the Nation and are critical for safe navigation, coastal and marine spatial planning, climate change assessments and many other management activities. NOAA has been working intensively over the past 15 years to improve Alaska's geospatial framework through such activities as the surveying and charting of Alaskan waters, improving the foundational geodetic and tidal datum reference systems, and updating tidal current predictions. Demand for NOAA's navigation products and services is rising as human activity in the Arctic increases, especially now that climate change is impacting communities and economic decisions, and interest in the Arctic and areas north of the Aleutians is increasing. As a result, NOAA is currently reviewing Arctic priorities and developing a strategic plan for action in the Arctic in all its area responsibilities. However, NOAA's Navigation Services (Office of Coast Survey, National Geodetic Survey, Center for Operational Oceanographic Products and Services) have already been working closely together to effectively coordinate their activities to help establish or upgrade the fundamental geospatial information required to implement the strategic plan.

As part of NOAA's review of Arctic priorities, the NOAA Office of Coast Survey is updating its Arctic hydrographic survey priority areas with input from constitu-

ents such as Arctic communities, regional governments, local pilots and commercial maritime interests, and the U.S. Coast Guard, Navy, and Army Corps of Engineers. The NOAA survey vessel *Fairweather* is nearing completion of FY 2010 survey projects in the Bering Strait and Port Clarence approaches, and will continue surveying the same region in FY 2011, in order to address key areas of interest to the U.S. Navy and commercial navigation. One FY 2010 NOAA contract hydrographic survey project in the Kuskokwim River, including the port of Bethel, AK, is also nearing completion; another FY 2010 contract survey in the Krenitzin Islands, which are adjacent to Unimak Pass as part of the Aleutian Islands chain, is complete.

Also in FY 2010 and FY 2011, NOAA's National Geodetic Survey (NGS) is focusing on GRAVD gravity data collection flights in Alaska. So far in 2010, NOAA has added over 30 Continuously Operating Reference Stations (CORS) to improve the infrastructure for precise positioning in Alaska (map of CORS in Alaska: *www.ngs.noaa.gov/CORS/GoogleMap/Alaska.html*). These 30 CORS are owned and operated by the Plate Boundary Observatory as funded by the National Science Foundation. They were selected for inclusion in the CORS network because of their homogeneous distribution and expected reliability in the harsh Alaskan environment. NOAA's nationwide CORS network consists of over 1,400 stations that continuously collect radio signals broadcast from Global Positioning System satellites to allow users to determine precise positional coordinates relative to the National Spatial Reference System. NGS has been very effective in the past at establishing successful partnerships to collect gravity data.

The Center for Operational Oceanographic Products and Services (CO–OPS) continues to address large gaps or update very old data in Alaska's tide and current information. CO–OPS operates 26 long-term National Water Level Observation Network (NWLON) Stations, 10 of which have been established in the last 5 years (in Alaska). The NWLON provides basic tidal datums (including local mean sea level) for vertical control for hydrographic and shoreline surveys, marine boundaries, and other applications. The NWLON also provides real time data for safe navigation, emergency response to oil and other hazardous spills, and tsunami and storm surge warnings. CO–OPS has been testing new technology in FY 2010 to explore new ways of acquiring long-term observations in these remote areas and is completing a two-year test in Barrow, AK. CO–OPS has also been conducting tidal current surveys in Alaskan waters to update tidal current predictions. Tidal current surveys for the Dutch Harbor and North Inian Pass regions will be conducted this year.

Question 11. NOAA's response to MMS's Leasing Proposal (Sept 21, 2009 Outer Continental Shelf Oil and Gas Leasing Program for 2010–2015) recommends, ". . . that no leasing should occur in the Arctic Sea under this proposed plan until additional information is gathered and additional research is conducted and evaluated regarding oil spills . . ." I hope you can appreciate the Catch 22 Alaska finds itself in, NOAA is a leader in oil spill research, NOAA recommends no leasing in the Arctic until oil spill research is conducted, and NOAA is not supporting the basic science they state is a precondition for responsible exploration in Alaska's OCS. If Congress increases funding to support oil spill research in the FY 2011 appropriations process, is NOAA the appropriate agency to place the increase?

Answer. NOAA has experience in working collaboratively across the Federal Government and academia to prioritize and coordinate oil spill response and restoration research and development that meets the needs of diverse decisionmakers, including emergency responders, natural resource trustees, and coastal planners. As a science agency, NOAA has tremendous experience in conducting focused, transparent, and objective research and is well qualified to provide leadership in oil spill research. NOAA currently plays a critical role by providing scientific expertise and decisions in oil spill preparedness, response, assessment and restoration.

Question 12. The FY 2011 NOAA budget proposes $3M for ESA Section 7 Consultations. NOAA has proposed to designate 3,000 sq miles as Cook Inlet beluga whale Critical Habitat in an area that directly overlaps Alaska's highest population center. This is going to create a significant burden and cost to the agency to perform these Consultations. Should we expect that some of this new funding will make its way to the Alaska, where these Consultations are conducted?

Answer. NOAA has identified Alaska as a key area requiring additional resources for Endangered Species Act Section 7 consultations. An increased need for interagency consultation and authorizations is evidenced by proposed regional energy exploration and development, anticipated increases in vessel traffic in the Arctic, national defense-related activities, and coastal economic development within the Cook Inlet. NOAA recognizes the need to provide timely and accurate technical assistance to Federal partners to assess the effects of planned economic development to ensure

such development is compatible with species conservation and recovery of protected resources, including Cook Inlet beluga whales, pursuant to the agency's responsibilities under the Endangered Species Act.

Question 13. In a June 10, 2009 letter sent to NOAA from the Alaska Congressional Delegation we requested the agency undertake a programmatic and budget review of Alaska Native Organizations (ANOs) that receive co-management support under MMPA Section 119. Additionally, the delegation requested the agency, working with the ANOs, developing a new process for allocating limited funding. Does the FY 2011 NOAA budget take this into account?

Answer. Yes, the FY 2011 budget request includes a total of $1.7 million for Alaska Native co-management agreements. In the summer of 2009, representatives from NOAA's National Marine Fisheries Service (NMFS), the U.S. Fish and Wildlife Service (FWS), and the Alaska Native community, met with congressional staff to discuss the future support for Alaska Native Organizations (ANO) activities under the Marine Mammal Protection Act (MMPA) section 119. Subsequently, members of the Alaska Congressional delegation wrote a letter to Under Secretary Jane Lubchenco in June 2009, requesting that NMFS develop, in collaboration with FWS and ANOs, a new system based upon accepted Federal granting procedures, to allocate limited funds for MMPA section 119. In August 2009, Dr. Lubchenco agreed that such a new system was necessary and noted that the NMFS Alaska Region would take the lead for NMFS activities in the endeavor. Regional staff continue to work to further develop the funding process and priorities for this funding and will contact eligible ANOs on procedures to apply for these funds when the process and priorities are agreed upon. NMFS anticipates that the funding system established will serve as a model for a merit- and performance-base funding system that will guide the allocation of the FY 2011 funds.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. OLYMPIA J. SNOWE TO DR. JANE LUBCHENCO

Question 1. The Administration's FY 2011 budget for NOAA is the highest ever for the agency, coming in at $5.55 billion—a 17 percent increase over the enacted level. But upon closer examination, what we have is really a massive increase in funding for one line office—NOAA's Satellite service—and a flat budget for the remaining line offices. The National Marine Fisheries Service and the National Ocean Service actually combine to show a funding decrease of more than $40 million in this request. How will this budget request fund the President's proposal to develop a National Ocean Policy, when it is effectively flat-funding ocean programs? How are we to interpret the loss of funding to the Nation's preeminent ocean organization in the context of the administration's declaration that oceans are an interagency priority?

Answer. The 17 percent increase of the FY 2011 budget request over the FY 2010 enacted level addresses NOAA's budget priorities which are established after careful consideration of the key issues facing the Nation that fall under NOAA's purview. Oceans and support of the President's proposal to develop a National Ocean Policy are top priorities for NOAA and this is reflected in the contribution of all of our line offices, including satellites, to understanding the role of oceans, coasts, and atmosphere through science, service, and stewardship.

NOAA's National Ocean Service FY 2011 budget request provides key investments to promote sustainable, safe use of coastal and ocean areas and to support the economies of these regions. The FY 2011 budget request includes an increase of $20 million to support regional ocean partnership grants and an additional $10 million to support the acquisition and protection of coastal and estuarine lands. A further $9.5 million is provided for the development of marine sensors for detecting ocean changes, along with $6.8 million for coastal and marine spatial planning efforts.

NOAA's National Marine Fisheries Service FY 2011 budget request supports NOAA and the Administration's efforts to conserve, protect, and manage living marine resources. FY 2011 programs seek to transform fisheries management and restore ocean ecosystems to a healthy state while recognizing the importance of coastal jobs. NOAA proposes an additional $36.6 million to implement and expand catch share programs, $20 million extra to address listed and threatened species through the Species Recovery Grant Program and Community Based Restoration projects, and an increase of $15 million is requested for the Pacific Coastal Salmon Recovery Fund.

Question 2. Satellite programs, particularly the polar-orbiting environmental satellites, have been a drain on NOAA's resources almost since the inception of the NPOESS program in 2006. Now, 5 years later, NPOESS has experienced 87 percent

cost growth—a total of $8 billion—and is already 5 years behind schedule. Yet I understand that in order to bail ourselves out of the mess that has been created will require potentially hundreds of millions of dollars in termination and transfer costs over fiscal years 2010 and 2011, and that this cost is to be equally divided between DOD and NOAA. That amount of money represents very different things to those two agencies—DOD's budget for FY11 is $708.2 billion, more than 128 times greater than NOAA's. How will you ensure that DOD negotiators take your needs into consideration when settling on termination costs with the current contractor?

Answer. The Department of Defense (DOD), National Aeronautics and Space Administration (NASA) and NOAA have formed a transition team to implement the February 1, 2010 decision to restructure the NPOESS program in a smooth and cost effective manner. The first order of business in the transition has been to make plans to use the existing NPOESS investments, most of which will be important to the future DOD and NOAA programs. In June 2010, NOAA announced that it will use an NPP-clone spacecraft for the JPSS–1 satellite which will fly in the afternoon orbit. A decision on the spacecraft bus for JPSS–2 is expected to occur later in 2010.

On August 13, 2010, DOD announced that it will restructure the existing NPOESS contract to meet its needs to develop the Defense Weather Satellite System (DWSS). During the transition period since the February 1 announcement, NOAA and NASA have been identifying the portions of the NPOESS program, such as instruments and ground systems, that it requires for the JPSS program and have provided these needs to DOD. DOD will represent NOAA and NASA in its negotiations with the NPOESS prime contractor. DOD is working toward transfer of the required hardware and available data from NPOESS to JPSS, with a goal of completion by December 31, 2010, and will be negotiating the terms under which the contractor will support development of the DOD DWSS. NOAA, NASA, and DOD will continue to collaborate at senior levels during the negotiations.

Question 2a. NOAA's share of this money will have to come out of current programs in FY 2010. How will you determine what programs will take funding cuts to account for this unfunded cost? Is there funding built into the FY 2011 budget for termination and transfers?

Answer. NOAA notified the Committees on Appropriations of its intent to reprogram $73.8 million of unobligated funds from its NPOESS appropriation ($382.2 million) to fund Joint Polar Satellite System (JPSS) transition activities in FY 2010, and on May 18, 2010 this reprogramming was approved. No other NOAA programs experienced a funding cut as a result of the JPSS decision.

The Limitation of Funds clause on the Northrop Grumman contract requires NPOESS to obligate termination liability on contract each Fiscal Year. Funds to support termination liability are available in FY 2010 to support these activities, if needed. It is possible some termination and settlement costs can carry into FY 2011 and FY 2012. The termination costs are currently under review by the Department of Defense (DOD), and NOAA will be responsible for one-half of these costs.

Negotiations regarding restructuring the NPOESS contract are being led by DOD on behalf of the government. Termination and settlement costs are highly dependent on the path forward, as well as the government's ability to maintain strict control on its negotiating position. NOAA and NASA have identified the portions of the NPOESS program, such as instruments and ground systems, that it requires for the JPSS program and have provided these needs to DOD. DOD will represent NOAA and NASA in its negotiations with the NPOESS prime contractor. DOD is working toward transfer of the required hardware and available data from NPOESS to JPSS, with a goal of completion by December 31, 2010. Until the negotiations are finalized, NOAA will retain funds in the JPSS budget to cover any remaining settlement costs.

Question 2b. I understand that there have been some delays in full sign-off on this strategy from DOD. Do NOAA and DOD leadership see eye-to-eye on the termination of this program?

Answer. NOAA and NASA, and DOD have been collaborating and implementing the decision to restructure the NPOESS program in an expeditious manner. On August 13, 2010, DOD announced that it will restructure the existing NPOESS contract to meet its needs to develop the Defense Weather Satellite System (DWSS). During the transition period since the February 1, 2010 announcement, NOAA and NASA have been identifying the portions of the NPOESS program, such as instruments and ground systems, that it requires for the JPSS program and have provided these needs to DOD. DOD will represent NOAA and NASA in its negotiations with the NPOESS prime contractor.

Question 3. I know that you are aware of the urgent need to repair the dysfunctional relationship between fishermen, regulators, and scientists in the northeast re-

gion. A 2009 Inspector General report pointed to serious communication issues that existed in this region, and Mr. Zinser's 2010 report stated that "moderate" progress had been made in this regard, but I continue to hear from many fishermen that the relationship is no better. Part of this is attributable to new Magnuson requirements that force regulators to adhere more closely to fisheries science—science that is still drastically underfunded and, by scientists' own estimation, insufficient for the task at hand. What is your assessment of progress in this area? Do you feel the relationship between fishermen and regulators has improved since you were last before this committee? What programs have led to that improvement, and what additional steps will you take to continue to repair this relationship?

Answer. Repairing trust between the agency and the regulated community is a huge challenge but I believe we are making progress. Better communication is the first step at building trust and we are working to better explain our science and strengthen our engagement with constituents on the local, regional and national scale. Two summits, one on recreational fishing (April 16 and 17, 2010) and one on enforcement (August 3, 2010), exemplify our commitment to work with fishermen, the environmental community, and the public to discuss ways we can address some of the concerns that have been expressed. Eric Schwaab, the Assistant Administrator for Fisheries, and I have personally participated in numerous meetings to directly engage our constituents all around the country and we look forward to continuing that dialogue.

Below are additional steps NOAA has taken to address recommendation #1 in the February 2009 report developed by the Department of Commerce's Office of the Inspector General. This specific recommendation (to enhance the participation of the northeast groundfish industry in the fisheries management process) to the Northeast Fisheries Science Center had four parts.

Recommendation #1(a) was for NMFS to enhance the participation of the northeast groundfish industry in the fisheries management process by incorporating data from scientifically rigorous industry-based surveys (such as the industry-based surveys in the sea scallop and monkfish industries). To address this recommendation, the Northeast Fisheries Science Center worked with industry to ensure that data collected by industry vessels in the Northeast Area Monitoring and Assessment Program (NEAMAP) Nearshore Trawl Survey and the Maine-New Hampshire Groundfish Trawl survey were scientifically rigorous and used in fishery management. NEAMAP and Maine-NH surveys are now being conducted twice per year and complement the Northeast Fisheries Science Center's bottom trawl surveys to include coastal waters too shallow for the NOAA's fishery survey vessel, *Henry B. Bigelow,* to sample.

To further address recommendation #1(a), the Northeast Fisheries Science Center completed work on an electronic logbook system developed through its Northeast Cooperative Research Program and deployed this tool for field testing. Data gathered by this system can greatly enhance scientific and research applications as well as our ability to support the complex monitoring requirements for implementing annual catch limits, accountability measures, limited access programs, and special access programs.

Recommendation #1(b) was for NMFS to enhance the participation of the northeast groundfish industry in the fisheries management process by doing more targeted cooperative research with the groundfish industry. To address this recommendation, the Northeast Fisheries Science Center's Northeast Cooperative Research Program worked with the industry and the Gulf of Maine Research Institute to identify research priorities to support strategic planning efforts for 2010–2014. More than 70 scientists and fishermen attended workshops held between February 12, 2009, and March 6, 2009, in Galloway, NJ, Narragansett, RI, Portland, ME, and at the Maine Fishermen's Forum in Rockport, ME. Stakeholder comments were summarized and discussed within the Cooperative Research Coordinating Committee (senior staff from the Northeast Fisheries Science Center, Northeast Regional Office, New England Fishery Management Council, Mid-Atlantic Fishery Management Council, and the Atlantic States Marine Fisheries Commission). The strategic plan was completed and presented to the Northeast Regional Coordinating Committee in March 2009.

To further address recommendation #1(b), the Northeast Fisheries Science Center developed an operational field testing-technology transfer program with the Southern New England groundfish fleet that will expand use of successfully tested selective haddock trawl designs that have reduced flounder bycatch.

Recommendation #1(c) was for NMFS to enhance the participation of the northeast groundfish industry in the fisheries management process by improving communication and education efforts with the groundfish industry, including making the

Northeast Fisheries Science Center website more user-friendly and easier to navigate.

To address this recommendation, the Northeast Fisheries Science Center supports and participates in the Marine Research Education Program (MREP), offered through the Gulf of Maine Research Institute. This is an effective communication forum between fishermen, scientists, and managers. Both the Northeast Fisheries Science Center and the NMFS Northeast Regional Office provide instructors for all Marine Research Education Program sessions. The Northeast Fisheries Science Center Deputy Science and Research Director conducts the section "The Role of Science in Management" at each session. Instructors from the Northeast Fisheries Science Center played a pivotal role in the development and implementation of the second-tier workshop in this series "MREP 200—From F/V to R/V: Surveys, Data Collection, and the Stock Assessment Process" in 2009. The first session of MREP 200 was held in Woods Hole in February 3–4, 2010. A session of MREP 100 was held this winter in Rhode Island and a spring session was held in Maine.

To improve web-based information transfer, the Northeast Fisheries Science Center moved to hire a webmaster to work with center staff to better coordinate and present information on the Northeast Fisheries Science Center website on a continuing basis and has undertaken a redesign of the Northeast Fisheries Science Center public information portal that incorporates use of more types of digital media as well as some social media tools. Beta launch of the new portal is expected midsummer 2010 with deployment in fall 2010.

To further address recommendation #1(c), during April 2009 the Northeast Fisheries Science Center and the NMFS Northeast Regional Office developed a two-year external communications strategic plan for stakeholders, media, and the public. Many aspects of this plan have been implemented, most notably a substantial effort for sector implementation in the Northeast groundfish fishery, increased participation in regional fishery and community trade shows and events, as well as increasing support for high school and undergraduate education.

Recommendation #1(d) was for NMFS to enhance the participation of the northeast groundfish industry in the fisheries management process by highlighting creative efforts of groundfish industry members working toward sustainable, profitable local fisheries. To address this recommendation, NMFS initiated a guest editorial column from the acting NMFS Assistant Administrator in the community newspaper of Gloucester, Massachusetts. The column ran biweekly from March 2009 until December 2009 and many of the columns featured local fishery and seafood leaders. The new NMFS Assistant Administrator, Eric Schwaab, was named in February 2010. The column will no longer be given exclusively to the Gloucester Daily Times, However, Mr. Schwaab will continue a monthly column that appears in the largest U.S. commercial fishing trade paper in circulation, *National Fisherman*. In addition, Mr. Schwaab plans to start a monthly Q & A piece for the magazine *Sport Fishing*.

To further address recommendation #1(d), the Northeast Fisheries Science Center and the NMFS Northeast Regional Office are working to develop profile sections for newsletters and websites that can feature people and projects that demonstrate NOAA's work with partners and in communities. The 2009 issues of the newsletter *Changing Tides* included features on cooperative work to restore marshes, experimental fisheries to test gear rigged to reduce bycatch of cod and dogfish, grants to middle and high schools for marine education projects, and the cooperative research survey for monkfish.

Question 4. NOAA's announcement that it would create a NOAA Climate Service as a new line office came after the President had released his budget request for FY 2011. Please provide more clarity on funding for this critical office. In a briefing to Congressional staff, you specified that no additional funding would be required to establish this office, yet you also announced creation of six new Regional Climate Service Director Positions, and you are currently in the process of hiring those individuals. How will you find resources to cover the costs affiliated with this new personnel and these new offices? Which programs will lose funding to these new offices? What other costs will be incurred in the startup in FY 2010 and 2011?

Answer. As directed by the 2010 Consolidated Appropriations Act, the National Academy of Public Administration (NAPA) is conducting a study to explore organizational options for a NOAA Climate Service. NOAA is working closely with NAPA; and our ongoing dialogue and the results of this study will inform our final reprogramming package. NOAA and the Department of Commerce are working to finalize a reprogramming package for the climate service, and will need the approval of the Administration before the package is submitted to Congress. This package will include details on the laboratories, centers, and divisions that are proposed for transfer from other line offices to form the new NOAA Climate Service, and will in-

clude details on the annual operating budgets for these programs and the number of full-time NOAA employees to be transferred to the Climate Service. If approved, the reorganization laid out in the reprogramming proposal will establish the baseline budget for the NOAA Climate Service.

NOAA will continue to consult with all relevant and appropriate external partners, Congress, and the Administration as it develops this package and works toward implementation. NOAA looks forward to continuing to work with Congress to establish the NOAA Climate Service in the most efficient, effective, and streamlined manner possible to ensure all Americans have the climate information, products, and services they need to make the best decisions for their families, communities, and businesses.

While the details of the proposal are still under review, we envision the building blocks of the new NOAA Climate Service will be drawn from three existing NOAA line offices:

- From NOAA's Office of Oceanic and Atmospheric Research: the Geophysical Fluid Dynamics Laboratory; the Climate Program Office; and from the Earth System Research Laboratory—Office of the Director, the Chemical Sciences Division, the Global Monitoring Division, and the Physical Sciences Division.
- From NOAA's National Environmental Satellite, Data and Information Service: the three data centers—the National Climatic Data Center, the National Oceanographic Data Center, and the National Geophysical Data Center, as well as the Comprehensive Large Array-data Stewardship System Program Office.
- From NOAA's National Weather Service: the Climate Service will assume management of the relevant climate observing networks, including the Tropical Atmosphere Ocean array, the Historical Climate Network, and the modernization of the hourly precipitation gauges.

NOAA will also hire six new regional climate services director positions in FY 2010. It is expected that these positions will not be filled until later in the Fiscal Year, incurring minimal costs in FY 2010. These positions are being created with funding that became available as a result of the scheduled completion in FY 2010 of several ongoing projects. No programs will lose funding due to the establishment of these positions. In FY 2011, NOAA requested approximately $132 million in additional funding for a total of $435 million to support climate related activities in NOAA, including these positions.

Question 5. As our climate science program becomes increasingly advanced, the data certainly becomes more pertinent to our local communities and states. The fact is that our changing climate affects our water infrastructure, our transportation infrastructure, and our agriculture industries. Last year the University of Maine's report "Maine's Climate Future," indicated that the water temperature off of Boothbay Harbor has increased by 2 degrees Fahrenheit since 1970. As the Gulf of Maine drives $1 billion in annual economic activity, any change can have significant effects. Although the report certainly raises the case for significant steps forward on mitigation, there are also useful adaptation proposals such as increased monitoring of lobster populations, as well as a reassessment of current flood insurance programs. How do you envision a National Climate Service and reformed Global Change Research Program working with Universities like the University of Maine to build on this local research to provide the most pertinent data to specific industries, such as Maine Lobstermen and Fishermen?

Answer. NOAA has a strong record of working closely with partners in Federal and state governments, academia and the private sector on climate research, data collection and dissemination and climate service provision. If approved, a NOAA Climate Service would be a comprehensive and integrated office responsible for NOAA's climate science, data, information and services. It would provide a one-stop shop within NOAA for users of climate information across the Nation in much the same way NOAA's National Weather Service has been providing weather information and services for 140 years.

NOAA, with its partners, already has extensive regional climate capabilities. Coordinating and enhancing these regional science, service and delivery capabilities would be one of the most important outcomes of establishing a Climate Service at NOAA. NOAA's longstanding partnership with Regional Climate Centers (located at major research institutions), State Climatologists, and the university-based NOAA-sponsored Regional Integrated Sciences and Assessments (RISA) program and Sectoral Applications Research Program (SARP) have significantly enhanced the provision of vital climate information to the Nation. NOAA recognizes the importance of these collaborations and plans for the NOAA Climate Service to strengthen and build upon our commitment to these critical partnerships.

Any NOAA Climate Service organization must engage with a diversity of users at all levels to fully understand the needs and provide salient and usable information, tools, and expertise. Our vision is that a NOAA Climate Service would work with our to help support the following core climate services: ongoing, deliberate dialogue with users to understand evolving needs; climate tools and other products at scales relevant to support user decision-making; user outreach and capacity building; and public understanding.

Early priorities for a NOAA Climate Service would include:

- developing a sustained capacity to provide regional and sectoral climate vulnerability and risk assessments, and more effectively meet the requirements of the Global Change Research Act, which requires a national assessment every 4 years;
- Delineating a better coordinated, priority-driven regional approach for improved regional climate service development and delivery, based on sustained user engagement and collaboration; and
- improving alignment of climate observing and modeling assets with strategic national and regional needs.

Examples of existing partnerships with Maine follow:

Specifically, the NOAA Northeast Regional Climate Center has been collaborating with and supporting University of Maine colleagues to:

- support the Maine State Climate Office within the Maine Climate Change Institute;
- include a number of Maine locations in a decision support tool for scheduling fungicide applications (to protect against late-blight) in potatoes (work which recently began and builds on work initiated in New York); and
- work with the Maine Medical Center, which is affiliated with the University of Maine, to focus on climate relationships to tick populations with application to Lyme disease.[2]

In addition, NOAA's SARP is supporting a project with partners in Maine and Oregon called Climate Variability and Coastal Community Resilience: Testing a National Model of State-based Outreach. Working with public and private coastal development decisionmakers, this project will help several specific at-risk communities along the Oregon and Maine coasts to improve their resilience to climate variability and change.

Question 5a. Do you envision providing funding for State Universities to do specific work, or will you only be providing funding to regional offices at NOAA to conduct the work?

Answer. Our vision is that a NOAA Climate Service would maintain the agency's vigorous competitive climate research grants program targeting the broader academic community to address key research gaps in climate observations and monitoring; Earth system science; modeling, analysis, predictions and projections; and climate and societal impacts. NOAA's competitive climate research grants program is a key component of its climate research portfolio, complementing our in-house research capabilities. The RISA program also represents a strong university-based partnership that will continue to address key regional applied research priorities.

Question 5b. The Administration's budget included an increase of $77 million for the climate services as well as an additional $10 million for regional and national climate change assessments. How much do you believe is necessary on an annual basis to provide our communities the information that they require for accurate climate change planning in local infrastructure decisions?

Answer. The FY 2011 President's Budget includes increases to NOAA's climate science programs totaling $132 million, which includes $47 million that would support the following activities in the NOAA Climate Service:

- $10 million for Assessment Services to establish a new sustained capability within NOAA to provide climate assessments process that will be more responsive to decisionmakers' needs at national and regional scales. It will also provide the capacity to engage stakeholders and decisionmakers throughout the process in order to better determine priority issues, risks, and vulnerabilities that need to be addressed.

[2] The results of this collaboration were published in: Rand, P.W., M.S. Holman, C. Lubelczyk, E.H. Lacombe, A.T. DeGaetano and R.P. Smith, 2004: Thermal accumulation and the early development of Ixodes scapularis, J. of Vector Ecology, 29(1), 164–176.

- $1.5 million for NOAA's Climate Portal to establish one-stop public access to all of NOAA's climate data, information, and services online;
- $15.8 million to support critical climate observing infrastructure;
- $6.98 million for Earth System Modeling: Urgent Climate Issues to will improve model resolutions and address critical areas of model uncertainty, including: sea-level rise, Arctic, terrestrial carbon cycle and biogeochemical feedbacks, and decadal predictions/abrupt change;
- $11 million to expand the development of climate quality data records from satellite observations;
- $2 million to enhance data center operations to provide users with consistent and reliable access to the Nation's environmental data and information via the Comprehensive Large Array-Data Stewardship System.

In addition, the FY 2011 budget includes $83 million for complementary climate investments and infrastructure including:

- $49.4 million to continue the acquisition of critical climate sensors as recommended by the National Research Council 2007 Decadal Survey;
- $30 million for the U.S. contribution to the Jason–3 partnership program to ensure continuity of measuring sea surface height, a critical climate data record that has been maintained for over 20 years;
- $2.2 million to provide resources to help communities prepare for climate hazards, such as increased flooding and storm surge impacts due to sea-level rise;
- $1 million to support the Gulf of Mexico Coastal and Marine Elevation Pilot request in the National Ocean Service to model climate impacts in this region.

The investments described above, represent a systematic attempt to expand NOAA's capacity to provide information to support decisionmaking on a variety of issues (including infrastructure planning) and at a variety of scales from local to national. Although most decisions tend to have a local footprint (*i.e.,* are made by an individual business or community) often local decisionmakers face challenges common to those of a broader community of stakeholders who collectively form a regional or even national footprint of decisionmaking. Given that many local infrastructure decisions, however unique, share a need for similar information (*e.g.,* expected changes in frost free days, precipitation and runoff, persistence of drought, potential for coastal inundation due to sea-level rise, etc.). NOAA intends to focus resources on expanding capacity to develop and provide information of high value to the broadest segment of decisionmakers possible. For example NOAA's FY 2011 Budget Request for:

- Assessment Services activities include funding for a series of regional and sector-focused workshops designed to: (1) help document the vulnerability of state and local governments, businesses and ecosystems in the face of climate variability and change, and (2) to provide a opportunities for local and regional decisionmakers to directly articulate and thus contribute to NOAA's understanding of needs decisionmakers face. This understanding of vulnerability and information needs is part of the processes to help guide the research, modeling and analysis investments which will contribute to a next National Assessment report designed to help inform decisionmaking.
- The NOAA Climate Portal is designed to provide easy access to and use of NOAA climate data products and information services from across the agency. NOAA's programs in climate science and services are already producing datasets, analytical products and decision-support tools being used by businesses and state and local agencies to respond to the challenges of changing climate conditions today. For example, in the case of civil infrastructure, construction, water and energy, government and private sector customers are using NOAA climate data to: (1) design and construct buildings to withstand hurricane-force winds and coastal flooding hazards; (2) design and build roads above potential flood levels using historic precipitation data and trend analyses; (3) design appropriate heating, cooling and refrigeration systems and inform energy usage decisions by using temperature averages and frequency distributions such as heating and cooling degree days; (4) incorporating ice thickness considerations due to freezing rain for structural design considerations; and (5) inform water conservation and distribution decisions in the context of changing rainfall patterns and dam/lake levels. The NOAA Climate Portal is being designed to make it easier for users at the national, state and local level to find, understand and use these existing products, and the new products and services that will

be made possible by the investments in observations and earth system modeling contained in the President's budget.

- Climate observing (including enhancements to the Nation's space-based observing system) contributes to a better understanding of how climate is evolving at local to national scales—observations collected hundreds of miles away from a local community thus benefit that community.
- Enhancements to Earth System Modeling provide NOAA greater capacity to provide more useful and accurate projections of how climate may evolve in the future, on time scales ranging from months to decades or longer.
- Enhanced data center operations make all this data more readily available, allowing local decisionmakers to leverage the significant national investment to address their needs.

Question 6. As you well know from your past research, the threat of increased water temperatures will contribute to the degradation of our ocean resources and habitats. Ocean acidification alone may contribute to the deterioration of the strength of the shells of lobsters, clams, mussels, barnacles, sea urchins, corals, and some plankton. As a report, "Impacts of ocean acidification on marine fauna and ecosystem processes" stated, this can affect an animal's physical functioning and reproduction, causing it to stop eating, grow more slowly, and eventually die. As you may know, Senator Bingaman has legislation that would permanently authorize the Land and Water Conservation Fund, which receives funding from oil and gas leasing in Federal waters. Do you believe that a portion of the revenue raised from oil and gas leasing should also be provided to investments in our ocean ecosystems? Would you support a portion of the revenue being dedicated to an Ocean Trust fund, to be dedicated to improving our ocean resources and controlled by the Secretary of Commerce?

Answer. As NOAA Administrator, one of my main priorities is for NOAA to be a leader in understanding the processes by which marine ecosystems provide services crucial for human survival on Earth, quantifying the values of those services, and helping to educate decisionmakers about the linkages. Our oceans and coasts demonstrate the important connection of human and economic health to the resilience of natural ecosystems. At the broadest level, NOAA seeks to advance more holistic approaches to understand and balance human use, sustainability, and preservation of ecosystem resources and functioning. Funding for NOAA's science and services is critical to improving management and protection of these ocean and coastal resources. The Administration supports investing in ocean ecosystems using discretionary appropriations. This approach provides the greatest amount of flexibility to respond to competing priorities, while ensuring adequate oversight and accountability.

Question 7. In a 2009 Inspector General report on NOAA's Northeast Fishery Science Center, a number of recommendations were made to improve communications among fisheries managers, scientists, and industry members. The recently released I.G. report on NOAA's law enforcement practices referenced the 2009 report, stating: "NOAA has not yet acted . . . to fully satisfy the intent of our recommendations to enhance . . . the participation of the northeast industry in the fisheries management process." How will you address the issues still outstanding from the 2009 report?

Answer. NOAA has taken steps to address many of the issues outlined in the 2009 Inspector General's report. Specifically, and as outlined in the response to question 3, above, NOAA's Northeast Fishery Science Center has taken many actions to enhance the participation of the northeast groundfish industry in the fisheries management process by improving communication and education efforts with the groundfish industry. We will continue to build upon the work that has been completed thus far, to further improve communications among fisheries managers, scientists, and industry members to enhance the participation of each group in the fisheries management process.

Question 8. The 2009 American Recovery and Reinvestment Act (ARRA) provided NOAA with a significant infusion of funds for large-scale habitat restoration projects. NOAA received more than 800 proposals from organizations across the country with funding requests totaling more than $3 billion. This overwhelming response demonstrates that the need and capacity to carry out restoration of our coasts and oceans far surpasses the $22–27 million in NOAA's annual budget for coastal habitat restoration projects or the $167 million made available by Congress in ARRA funding. The FY 2011 budget asks for a small increase in habitat restoration, with the following justification, ". . . In order to effectively implement recovery efforts for listed species, improving habitat condition and ecosystem function

through larger-scale habitat restoration in targeted areas, are required. With this increase NOAA will implement larger-scale ecological restoration to increase habitat to support such recovery of threatened and endangered species." Projects like the Penobscot River Project are essential to restoring the endangered Atlantic salmon and ten other sea-run fish. NOAA's investment to date in this project has been critical. How will this project and others of national scale benefit from increased funding? And what examples from around the country can you give of projects that reach restoration scale?

Answer. The increased funding for habitat restoration in the FY 2011 budget will allow NOAA to implement larger-scale ecological restoration projects to help recover threatened and endangered species. Project scale is based on multiple factors, including size and complexity of the project, ecosystem and watershed benefits, and cost. Often times a series of barriers (dams, dikes, etc.), not just one barrier, must be removed to benefit fish. Under these scenarios, it is more efficient for the public and beneficial for the resource to undertake actions such as feasibility studies, modeling, permitting, and removals in concert throughout a watershed. Projects around the country will compete for these additional funds and priority will be given to large-scale ecologically significant projects that increase habitat for threatened and endangered species.

In addition to the Penobscot River project, NOAA is implementing large-scale projects in several locations. An abbreviated list of those actions follows:

- *Salt ponds in San Francisco Bay.* More than $16 million of American Recovery and Reinvestment Act (ARRA) funds were awarded to two projects to restore more than 3,100 acres of wetlands along the shores of San Francisco Bay. The salt pond projects cumulatively represent the largest salt marsh restoration project on the West Coast to date. Specifically, there are multiple ponds being converted to wetlands, and each pond has its own set of challenges such as, but not limited to, invasive species eradication, construction windows, and permit limitations. Projects also require the removal of levees, contouring/excavating stream channels, regrading interior areas, and supporting re-vegetation. In addition to supporting the recovery of threatened and endangered species such as steelhead trout and the California clapper rail, this work will provide significant habitat for migratory birds and marine mammals, and improve the productivity of the Bay's ecosystem. These projects will also maintain or improve existing levels of flood protection, and provide public access and recreational opportunities in a large urban area. The salt ponds provide important refuge for salmon to grow larger before they move to the ocean. Nearly 10,000 additional acres of wetlands are available for habitat restoration, so increased funding could contribute to the recovery of local salmon populations.
- *Rogue River, Oregon*. $5 million of ARRA funds were awarded to remove Gold Ray dam—the last barrier on the Rogue River—to open 333 miles of the river to threatened salmon, Chinook, steelhead, and Southern Oregon/Northern California Coast Coho salmon. Gold Ray Dam is a 38-foot high, 360-foot long defunct hydropower dam located in Jackson County, Oregon. Its removal represents one of the largest dam removals undertaken in the United States to date. Removal of the Gold Ray Dam restores full migratory fish passage on the Rogue River, the second largest producer of salmon in Oregon outside of the Columbia Basin and one of the few remaining salmon strongholds in the Pacific Northwest. As a nationally designated Wild and Scenic River, the Rogue River provides exceptional recreational opportunities for anglers, whitewater rafters, and outdoor enthusiasts. After removal of the Gold Ray Dam, the main stem Rogue River will flow unimpeded to the Pacific Ocean. This will be one of the longest free-flowing, boatable reaches of river in the West. This should attract whitewater enthusiasts and anglers from across the country, increasing the tourism economy of the region. NOAA has been involved in a sustained effort on the Rogue River, and previously funded the removal of the Gold Hill and Savage Rapids dams. This example is similar to the Penobscot in that NOAA pursued a sustained effort to open the river to threatened salmon.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. DAVID VITTER TO DR. JANE LUBCHENCO

Question 1. Administrator Lubchenco, can you site all Federal programs where scientific data, not models, but actual data surrounding gains or losses in shorelines, inland biomass, glacier location & flow, and other phenomena related to climate change, is currently being measured, monitored, verified and validated?

Answer. The best summary of climate observing programs and data is provided in the "State of the Climate Report," which is prepared by NOAA and is published annually in the *Bulletin of the American Meteorological Society*. This report describes climate-related observations that are collected and quality controlled by government agencies and academic and research institutions around the world. Scientific data sets described in the report include measurements of global surface temperatures, land surface properties, changes in the oceans, sea ice changes, and changes in the Greenland and Antarctic ice sheets. Source citations are provided for each set of observations, which are not dependent on models. The 2009 version of the report was released in July 2010 and is currently available (*http://www.ncdc.noaa.gov/bams-state-of-the-climate/2009.php*).

In addition to contributing data to the "State of the Climate Report" and other international publications, NOAA also makes a diverse array of climate-related observational datasets directly available to scientists, decision-makers, and other interested parties:

- NOAA's National Ocean Service (NOS) is responsible for mapping the mean high water line on nautical charts; this line is the legal shoreline for the United States. Mean high water lines are digitally available from nearly 7,000 historic NOS shoreline manuscripts and over 235 contemporary shoreline-mapping projects. These historical shorelines are often analyzed (by NOAA and other entities) to determine coastal erosion or accretion rates, as well as assess net loss or gain of coastal lands (surface area).
- NOAA's Center for Operational Oceanographic Products and Services provides long-term tide gauge data and relative sea-level trends around the United States.
- NOAA's National Geodetic Survey develops and maintains the national Continuously Operating Reference Station (CORS) Network, which is used to measure crustal motion that is essential for determining the land motion component of local sea-level rise. CORS data are also used to measure changes in precipitable water vapor in the atmosphere, observations that are used both to improve weather forecasts and to detect historical patterns that enhance our understanding of climate change.
- Through its Digital Coast website (*http://www.csc.noaa.gov/digitalcoast*), NOAA's Coastal Services Center (CSC) provides high-resolution coastal bathymetric and topographic data collected by NOAA and other entities (*e.g.,* other Federal and state agencies) using Light Detection and Ranging and other remote-sensing technologies. CSC also manages the Coastal Change Analysis Program, which provides a nationally standardized database of land cover information (*e.g.*, inventories of coastal intertidal areas, wetlands, and adjacent uplands) for the coastal regions of the United States.
- Observations of Arctic and Antarctic sea-ice change are available through the National Snow and Ice Data Center (NSIDC), which is co-funded by NOAA, the National Aeronautics and Space Administration, and the National Science Foundation. NSIDC also contains the World Data Center for Glaciology, which provides observational data and analyses of glaciers and snow cover.
- The Arctic Report Card is issued annually and is a timely source for clear, reliable and concise environmental information on the state of the Arctic, relative to historical time series records. Material presented in the Report Card is prepared by an international team of scientists and is peer-reviewed by topical experts of the Climate Experts Group of the Arctic Council. The Conservation of Arctic Flora and Fauna Circumpolar Biodiversity Monitoring Program provides collaborative support through the delivery and editing of the biological elements of the Report Card.

Question 2. Administrator Lubchenco, a 2007 National Academies Report entitled, "A Geospatial Framework for the Coastal Zone" commented that "Numerous agencies have identified the lack of a consistently defined national shoreline as a major barrier to informed decisionmaking in the coastal zone. While a consistent shoreline is certainly desirable, many different definitions of the shoreline remain embedded in local, state, and Federal laws . . ." With the fact our Nation lacks a definition for what may be termed a "National Shoreline," how credible are reports and studies which cite losses in shoreline? Did these studies take into account the numerous local, state and Federal laws that have different definitions of what constitutes a shoreline?

Answer. The 2004 National Academies report cited above included a recommendation for adopting the National Oceanic and Atmospheric Administration's National

Geodetic Survey (NGS) definition of "national shoreline." Specifically, the recommendation states, "To achieve national consistency, all parties should define their shorelines in terms of a tidal datum, allowing vertical shifts to be calculated between and among the various shoreline definitions, while at the same time permitting different agencies and users to maintain their existing legal shoreline definitions. In situations where legislation or usage does not preclude it, the Committee recommends that the internationally recognized shoreline established by NOAA's National Geodetic Survey be adopted."

The shoreline NOAA produces is recommended by the study to be the National Shoreline used by different agencies and users. NOAA's NGS uses its national shoreline to support NOAA Nautical Charts and other products and services, and NOAA has the geodesy and surveying capability to fulfill the role in defining and maintaining a nationally consistent definition of "national shoreline." NGS data are crucial to the management of coastal resources, and are a fundamental foundational layer required for Coastal and Marine Spatial Planning.

As recommended in the National Academies report, the Federal Geographic Data Committee's (FGDC) Marine and Coastal Spatial Data Subcommittee, which NOAA chairs, is working to implement NOAA's National Geodetic Survey working definition as the standard across agency partners. NOAA's methods, 200 years of shoreline data holdings, and mandates under the Coast and Geodetic Survey Act of 1947 and Hydrographic Services Improvement Act of 1998 to acquire shoreline data and promulgate standards, clearly give NOAA's NGS the lead role in defining a National Shoreline.

There are several reports and studies that cite losses in shoreline but NOAA cannot speak to the credibility of these reports without knowing their methods.

Question 3. Details of NOAA's proposed climate service are slowly becoming known. What steps are you taking as NOAA Administrator to make sure geospatial measurements, services and data, and other activities necessary for this climate service program will be performed by the private sector, especially by small businesses in Louisiana?

Answer. NOAA relies upon the private sector for many aspects of its geospatial measurements and services and data, including contracts for hydrographic surveying and shoreline mapping, water level station maintenance, and geodetic services. NOAA's ocean and coastal mapping contracting policy was submitted to Congress in December 2009 and published in the January 14, 2010 *Federal Register* Notice. This updated policy resulted from a requirement of the Ocean and Coastal Mapping Integration Act of 2009 (P.L. 111–11, 33 U.S.C. 3501 *et seq*.) and describes a strategy for expanding contracting with non-governmental entities in order to take advantage of private-sector mapping capabilities. NOAA recognizes that qualified commercial sources can provide competent, professional and cost-effective mapping services and by doing so they supplement NOAA's in-house expertise and operational capacity. As geospatial requirements evolve for the proposed climate service, NOAA will follow this policy and utilize its geospatial services contracts as appropriate and to the extent funding is available.

Question 4. Administrator Lubchenco, reports have come out with examples detailing NOAA's spending millions using stimulus (ARRA) money to increase NOAA's in-house mapping, surveying and charting capabilities. This buildup lessens NOAA's reliance on the private sector, especially small businesses in Louisiana. Why is this the case, when NOAA, an agency within the Department of Commerce, is actively duplicating and competing with the private sector? Shouldn't NOAA be increasing its contracting out to help stimulate the economy, especially small businesses in Louisiana?

Answer. The $40 million that NOAA received for hydrographic services from American Recovery and Reinvestment Act funds did not increase NOAA's in-house mapping, surveying and charting capabilities. Over $39 million of the funds were obligated to contracts by September 2009 for a variety of hydrographic services, including $31.5 million for survey contracts and $2.0 million for contract shoreline compilation. The remaining funds were used to contract for services to support water level data processing, chart compilation, acceleration of the VDatum program and data archiving.

NOAA also received $8.9 million for vessel maintenance and repair to improve reliability of NOAA ships and launches in order to accomplish scheduled science days at sea and maintain hydrographic expertise. NOAA used the funds for private sector contracts to accelerate the NOAA survey vessel *Rainier*'s planned major repair period, reduce deferred maintenance on the NOAA hydrographic fleet, and replace NOAA Hydrographic Survey Launches that are beyond their service life in order to ensure safety and reliability.

Question 5. The NOAA Budget provides a $36.6 million increase for catch share management programs and an additional 46 FTEs to assist regional councils in implementing catch share programs for commercial fisheries. However, NOAA's budget at the same time eliminates 13 FTEs and requests a $4.5 million reduction in cooperative research that would benefit recreational fisheries information, such as fishery catch, index of stock abundance from surveys, and biological characteristics of stocks. (NOAA 2011 Budget, pg. 209) NOAA's budget appears to ignore recreational fishery management at a time when the Agency is dealing with a crisis situation in numerous recreational fisheries, with the complete closure of the red snapper fishery from North Carolina to Florida, and closures of gag grouper and amberjack in the Gulf of Mexico. NOAA is charged with managing recreational fisheries, but it appears there is a complete management failure in numerous fisheries. There is an urgent need to improve recreational catch data collection and generally improve NOAA's management of Federal recreational fisheries. What does NOAA intend to do about the lack of data it has on important recreational fisheries, such as South Atlantic red snapper?

Answer. Improving the quality of recreational fishing data is a priority for NOAA. The President's Budget Request for FY 2011 includes a total of $9 million for continued support of the Marine Recreational Information Program's (MRIP) ongoing development and implementation of improved recreational fishery surveys of catch and effort. This includes the development of a National Saltwater Angler Registry through implementation of an on-line Federal registration system and support for ongoing registration efforts by states whose anglers are exempted from the Federal registration. The MRIP has been conducting pilot studies to test the use of registry data in both mail and telephone surveys, and plans to implement registry-based surveys of fishing effort in all states of the South Atlantic in 2011. The MRIP is also conducting pilot studies in 2010 to test the utilization of electronic logbook reporting methods for charter boats and headboats, as well as improved sampling methods for shoreside surveys of angler catches. MRIP plans to start phased implementation of such survey improvements in 2011 and this should help to enhance the quality and timeliness of marine recreational fisheries catch statistics for red snapper.

During FY 2010, funds are being used to establish a critical fishery-independent data collection program for South Atlantic red snapper. This program fills the data gap resulting from the loss of fishery-dependent data due to the closure of the directed South Atlantic red snapper fishery. The FY 2010 program involves the participation of the fishing industry, and also establishes the groundwork for the effective and continued monitoring of the red snapper stock—these are requirements for determining how the red snapper stock is responding to the closure. Specific FY 2010 activities include:

- Fishery-independent sampling in the South Atlantic that improves the precision and coverage of sampling, by increasing sample size and spatial coverage of reef fish habitats (particularly for biological data), and for implementing fishing gear testing and comparisons.
- Implementation of video survey methodologies that address sampling concerns (*e.g.,* selectivity of current Marine Resources Monitoring, Assessment, and Prediction program survey gear).
- Implementation of the goals of South Atlantic Fishery Management Council and NOAA Fisheries' Fishery Independent Monitoring Program Workshop – November 2009. These goals include: enabling evaluation of response(s) of fish populations to management actions; providing useful spatial and temporal indices of abundance, length frequencies, and age distributions for as many species as possible within the snapper-grouper complex; providing data that can be utilized in ecosystem approaches to fisheries management; and continuing to improve gear configurations.
- Secure fishing industry participation (including via contracts) in the design and implementation of fishery-independent data collection activities in the South Atlantic, by relying on their vessels, knowledge of red snapper locations, and habitats and expertise in fishing gear methodologies.

The FY 2011 Budget also funds NOAA's new high-tech vessel, *Pisces,* to map reef fish habitats in the South Atlantic and provide survey data on managed stocks.

Question 5a. Does NOAA have a plan for dealing with numerous recreational fisheries being closed because of a lack of stock assessments and a lack of accurate data on recreational catch in many important fisheries?

Answer. NOAA does not anticipate numerous recreational fisheries being closed due to lack of stock assessments and a lack of data on recreational catch. The decision to close a fishery is never made lightly. NOAA examines the best available data

provided through a variety of sources. For the recreational fishery, catch statistics are provided by the current Federal and state recreational fishery survey programs in each region. If statistical estimates of landings produced by the regional surveys have exceeded, or are projected to reach or exceed specified harvest levels for a particular fish stock, a closure—specified through public notification in the Federal Register—is necessary to mitigate the magnitude of any recreational overage and its impact on the established mortality objective for that stock for the year.

The Marine Recreational Information Program is identifying recreational fishery survey enhancements that support the new requirements in the Magnuson-Stevens Fishery Conservation and Management Act of 2006, as well as the estimated implementation costs for those enhancements. While there are practical constraints that limit the range of possible improvements, we continue to look for ways in which we can improve our processes.

Question 5b. Do you believe that NOAA has the level of funding in its 2011 Budget request to meet its legal requirements to manage recreational fisheries?

Answer. NOAA recognizes that successful implementation and effective monitoring of annual catch limits and accountability measures will require significant improvements in the quality, timeliness, and accessibility of marine recreational fishery catch and effort statistics. The President's Budget Request for FY 2011 includes a total of $9 million for continued support of the Marine Recreational Information Program's (MRIP) ongoing development and implementation of improved recreational fishery surveys of catch and effort. MRIP Operations Team is identifying recreational fishery survey enhancements that support the new requirements in the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, as well as the estimated implementation costs for those enhancements. While there are practical limits to the degree to which we can improve the timeliness of the collection, processing, and reporting of recreational fishery survey data and statistics, we continue to look for ways in which we can improve these processes.

Question 5c. How can NOAA improve its management of recreational fisheries and avoid such large fisheries closures in the future?

Answer. NOAA recognizes that recreational saltwater fishing is vitally important to our coastal areas as both a source of recreation and significant income and employment for many communities. The agency will continue to actively work with the regional fishery management council process and our constituents to explore ways to better manage recreational catch quotas. The decision to close a fishery is never made lightly. NOAA examines the best available data provided through a variety of sources. For the recreational fishery, catch statistics are provided by the current Federal and state recreational fishery survey programs in each region. If statistical estimates of landings produced by the regional surveys have exceeded, or are projected to reach or exceed specified harvest levels for a particular fish stock, a closure—specified through public notification in the *Federal Register*—is necessary to mitigate the magnitude of any recreational overage and its impact on the established mortality objective for that stock for the year.

Assuring the agency is managing the needs of the recreational fisheries is a priority as announced in September 2009, as part of the Recreational Fishing Engagement Initiative. Since then, on March 23, 2010 the Assistant Administrator for the National Marine Fisheries Service, Eric Schwaab, announced the appointment of Russell Dunn as the NOAA Fisheries National Policy Advisor for Recreational Fisheries. Also announced was the appointment of 22 members of the recreational fishing community from around the Nation to a Recreational Fisheries Working Group to provide expertise on saltwater recreational fishing to NOAA's Marine Fisheries Advisory Committee. In addition, on April 16 and 17, NOAA held a National Recreational Fishing Summit developed in collaboration with the recreational fishing community. This was a stakeholder driven discussion to identify issues of concern and possible solutions together.

NOAA recognizes that successful implementation and effective monitoring of annual catch limits and accountability measures will require significant improvements in the quality, timeliness, and accessibility of marine recreational fishery catch and effort statistics. Through the Marine Recreational Information Program, NOAA is identifying recreational fishery survey enhancements that support the new requirements in the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, as well as the estimated implementation costs for those enhancements.

Question 6. The 2006 reauthorization of the Magnuson-Stevens Act put in place important conservation and management mandates intended to improve overall catch data which would allow NOAA to end overfishing and effectively manage sus-

tainable, abundant fisheries. The law now requires annual catch limits, accountability measures to anticipate and correct overfishing, and hard deadlines of 2010 and 2011 to end all overfishing. The problem is that NOAA has failed to manage recreational fishing and has no accurate data on recreational catch. Without data NOAA will be forced to shut down recreational fisheries. Wide spread closures of recreational fisheries is not management by NOAA, rather it is proof that the Agency has failed to meet its legal requirement and Federal mission to manage these fishery resources. Faced with the hard deadline in the Magnuson-Stevens Act to end all overfishing by 2010 and 2011, what is NOAA going to do to manage recreational fisheries that have either been mismanaged by the Agency or have retained historically poor data?

Answer. NOAA will continue to actively work with the Regional Fishery Management Council process and our constituents to explore ways to better manage recreational catch quotas. Fish stock assessments conducted by NOAA use the most recent data from fishery catch and fishery-independent surveys, as well as a long time series of comparable data. The most recent data allows us to evaluate the current status of the stock and the long time series data provide indicators about trends and potential stock productivity. Both recent and long-term data are important to determine appropriate catch levels that will meet our goal to rebuild and maintain stocks and fisheries at sustainable levels.

NOAA recognizes that successful implementation and effective monitoring of annual catch limits and accountability measures will require significant improvements in the quality, timeliness, and accessibility of marine recreational fishery catch and effort statistics. NOAA is revising how it uses the data collected to produce more accurate bimonthly statistical estimates of total catch. As a result, improved catch statistics will be available for the Atlantic and Gulf coasts as soon as 2011. NOAA is working to meet this challenge through the continued funding ($9 million in FY 2011) for the Marine Recreational Information Program's (MRIP's) ongoing development and implementation of improved recreational fishery surveys of catch and effort. MRIP is identifying recreational fishery survey enhancements that support the new requirements in the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, as well as the estimated implementation costs for those enhancements. In FY 2011, MRIP will specifically be assessing what can be done to provide more frequent and accurate updates to statistical estimates of total catch during the fishing seasons. More frequent updates would allow for more timely assessments by fishery managers of any needed changes in fishing regulations that could prevent unwanted overages. This would also help to prevent the recreational fishing sector from exceeding stock-specific ACLs and triggering potentially drastic accountability measures, such as subsequent season closures. While there are practical limits to the degree to which we can improve the timeliness of the collection, processing, and reporting of recreational fishery survey data and statistics, NOAA will continue to look for ways in which we can improve these processes.

Question 6a. How will NOAA implement Annual Catch Limits for recreational fisheries that do not have real-time catch data?

Answer. Some recreational fisheries have highly variable annual catches and lack reliable in-season or annual data on which to base accountability measures and annual catch limits. If there are insufficient data upon which to compare catch to annual catch limit, either in-season or on an annual basis, NOAA will work with the Regional Fishery Management Council to implement the necessary data collection system to support accountability measures and annual catch limits.

Question 6b. Anticipating wide spread closures of fisheries in the recreational sector, does NOAA plan to adjust some of its funding priorities to more effectively manage these fisheries?

Answer. NOAA does not anticipate wide spread closures of fisheries in the recreational sector. The FY 2011 President's budget includes $9 million for the Marine Recreational Information Program (MRIP). The MRIP provides a national framework for developing, testing and implementing the components of an improved marine recreational fishery data collection program. NOAA has been building the needed funding incrementally, starting with a $3.5 million increase in FY 2008 and following with additional increases of $2.7 million in FY 2009 and $2.8 million in FY 2010.

The funding obtained in 2008 and 2009 for MRIP has been supporting an incremental redesign of NOAA's recreational fisheries surveys. The MRIP is also investing in expert evaluations of possible sampling and estimation improvements, well-designed pilot studies to test those improvements, and phased implementation of the new survey designs.

Question 7. The 2006 reauthorization of the Magnuson-Stevens Act requires NOAA to implement a program to improve the quality and accuracy of information generated by the Marine Recreational Statistics Survey by January 1, 2009. (16 U.S.C. 1881(g)(3)), (MSA § 401(g)(3)) To date, NOAA has not implemented this improved program for acquiring better data in recreational fisheries, which will improve management and prevent wide spread fisheries closures. Did NOAA provide an adequate funding level for this program that is now over a year late in being implemented? What amount of funding would NOAA need to effectively implement this program?

Answer. The Marine Recreational Information Program (MRIP), which is included in the FY 2011 President's budget at the level of $9 million, was established in October of 2008 to develop improved survey designs that could be utilized to provide more accurate total catch and effort statistics for marine recreational fishing. MRIP provides a national framework for developing, testing and implementing the components of an improved marine recreational fishery data collection program. NOAA's National Marine Fisheries Service has been building the needed funding incrementally, starting with a $3.5 million increase in FY 2008 and following with additional increases of $2.7 million in FY 2009 and $2.8 million in FY 2010. MRIP funding increases in FY 2008 and 2009 supported the incremental redesign of NOAA's recreational fisheries surveys. NOAA is also investing in expert evaluations of possible sampling and estimation improvements, well-designed pilot studies to test those improvements, and phased implementation of the new survey designs.

NOAA recognizes that successful implementation and effective monitoring of annual catch limits and accountability measures will require significant improvements in the quality, timeliness, and accessibility of marine recreational fishery catch and effort statistics. In order to prevent the recreational fishing sector from exceeding stock-specific annual catch limits and triggering potentially drastic accountability measures, such as subsequent season closures, it will be important to provide more frequent and accurate updates to statistical estimates of total catch during the fishing seasons. This would allow for more timely assessments of any needed changes in fishing regulations that could prevent unwanted overages. NOAA is working to meet this challenge through the continued funding ($9 million in FY 2011) for MRIP's ongoing development and implementation of improved recreational fishery surveys of catch and effort. MRIP is identifying recreational fishery survey enhancements that support the new requirements in the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006, as well as the estimated implementation costs for those enhancements. While there are practical limits to the degree to which we can improve the timeliness of the collection, processing, and reporting of recreational fishery survey data and statistics, we continue to look for ways in which we can improve these processes. Our recently named National Recreational Fishing Advisor, Russ Dunn, will be tracking our progress on MRIP to ensure we improve our recreational fishing statistics as part of our broader efforts to strengthen our relationship with the recreational fishing community.

Question 7a. Should another agency manage recreational fisheries, such as the Department of Interior, which actively promotes public access and fishing in our national parks? Should coastal states, which receive the most direct economic impact of recreational fisheries, manage these resources and activities?

Answer. Another agency should not manage recreational fisheries. Coastal state authorities already manage recreational fisheries in their waters, typically out to three miles offshore. NOAA manages coastal fisheries from three to 200 miles offshore pursuant to the Magnuson-Stevens Fishery Conservation and Management Act, and should remain the agency responsible for managing these fisheries. Many recreational fish stocks occur in both state and Federal waters and are harvested by both commercial and recreational sectors. Fish stocks must be consistently managed throughout their range and the Regional Fishery Management Council (Council) process is the appropriate body to develop fishery management plans. The Councils already develop fishery management measures cooperatively with state authorities for recreational fisheries in the offshore area that is seaward from state waters out to 200 nautical miles. Each Council's voting members include a representative of each state fishery agency in the Council area and several representatives of both commercial and recreational sectors nominated by state Governors. It would be inefficient to have two separate processes, conducted by two separate agencies, for managing commercial and recreational fisheries.

Question 8. The $36 million in additional money allocated toward catch shares is not broken out into specific use, nor is the amount already allocated for catch share implementation. Please provide detailed information how these funds will be used. Please be very specific when describing what are the purposes of the scientific and

research programs and how much money will be allocated to these verses other aspects.

Answer. NOAA has requested an increase of $36.6 million, for a total of $54 million, in FY 2011 to enhance the implementation of catch shares nationwide. The requested increase supports analysis and evaluation of fisheries for catch share programs, development of fishery management plans and regulations, observing and monitoring at sea and on shore, and enforcement activities. Of the $36.6 million increase:

- $10.6 million will support activities and capabilities common to many catch share programs that are more efficient to implement at a regional or national level, rather than managing each specific catch share program individually. Examples of such activities includes overall program management, improvements in fishery dependent data collection systems to support future catch share programs, quality control on historic catch data to support individual or group allocations, fishery data management, social and economic data collection or analysis, adjudication of administrative appeals by program participants, and cost recovery. Funding requested under this line item would also support electronic reporting, quota accounting, and a lien registry. Some regions have implemented catch share programs, and therefore have a base of expertise and capability to add programs. Other regions need capacity building to begin development of, and will eventually implement and operate, catch share programs.
- $2.0 million will support analysis and development of new catch share programs that are requested through the Regional Fishery Management Council (Council) process. Catch share programs typically take several years of analysis, stakeholder participation, and Council deliberation before being adopted. Catch Share Plans are more complicated than many fishery management plan amendments, and thus carry increased costs for analysis of alternatives and their impacts. Special stakeholder committees and workgroups, requiring funds for staff support and meetings, are often established to advise the Council on appropriate alternatives.
- $24 million will support implementation and operation of four new catch share programs: Gulf of Mexico grouper ($6.6 million), Mid-Atlantic tilefish ($0.5 million), Northeast groundfish ($4.4 million), and Pacific groundfish ($12.7 million). Following Regional Council adoption and Secretarial approval of a catch share program, an implementation period of one to two years is common. Key implementation activities include hiring management and enforcement staff, establishing program specific share accounting data bases and reporting systems, identifying eligible participants, issuing catch shares, computing annual quota for each participant, and adjudicating administrative appeals of the eligibility and catch share decisions. These activities need to be completed before fishermen begin fishing under the catch share program. The operational costs include program administration, monitoring, enforcement, and science evaluation. Some or all of the incremental operational costs for the catch share programs that meet the definition of a Limited Access Privilege Program under the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2006 (MSRA) can be recovered once the catch share program is operational. Agency cost recovery is capped at a maximum of 3 percent of the ex-vessel value of the fishery.

Question 9. Based on previous testimony during a hearing in the House of Representatives of Deputy Under Secretary for Oceans and Atmosphere, Ms. Mary Glackin, there will be a $4 million net reduction in cooperative research (and according to the budget, along with a loss of 13 full-time staff). Given that most stock assessments are already riddled with problems like insufficient data with which to make a knowledgeable conclusion regarding stock status, why would NOAA further reduce the ability for our Nation's scientists and fishermen to work together in assessing stock health? Is funding for stock assessments going to catch share implementation? Or ocean fish farming (aquaculture) administration?

Answer. None of the $54 million in the National Catch Share Program will be used for aquaculture administration or directly for conducting stock assessments. However, of the $36.6 million increase, $25.6 million is requested for data collection, including reporting and accounting systems and observing and monitoring. In many cases, the resulting data will be incorporated into current and future stock assessments. The $13.1 million FY 2011 funding proposed for cooperative research is closer to historical levels and above the FY 2009 enacted level. At the same time NOAA has sustained FY 2010 budget increases for stock assessment, data collection and other fishery research.

Question 10. NOAA has repeatedly stated that catch shares are not a panacea, and that no one is required to adopt them, but then aggressively promotes their adoption through funding such programs with millions of dollars, running multiple catch share workshops at regional fishery management council meetings, instituting a catch share task force, drafting a policy statement on the issue, and pressing various regional fishery management councils to create new plans to implement them. Who in particular at NOAA is pushing for adoption and implementation of catch shares?

Answer. The draft NOAA policy states that NOAA is not recommending catch shares be used in all fisheries. There is no mandate to adopt catch shares. Moreover, the draft NOAA policy repeatedly stresses that Regional Fishery Management Councils (Council) and stakeholders need to evaluate the range of fishery management programs available and choose the one that best fits their goals and objectives.

Councils were already choosing to adopt catch shares for their fisheries well before NOAA's draft policy was conceived. Six of the eight Councils have already implemented fifteen catch share programs around the country. The first was in 1990, and nine additional programs have been introduced in just the last 6 years. The FY 2011 budget request reflects choices the Councils have already made to implement catch shares in many of their key fisheries. The New England, Mid Atlantic, Gulf of Mexico and Pacific Councils have been working on new catch share programs in their respective areas for several years, and now they require operational support for implementation in FY 2011. The balance of the request is focused on supporting the design and common infrastructure for additional fisheries that have been identified by the Councils as possible candidates for adoption of catch shares. We have established an effective and productive relationship between the Councils, our science centers, and our regional offices to plan and conduct the science and management necessary to carry out the Councils fishery management programs.

Question 11. Who at NOAA decided to group scientific and research programs and shift them under catch share programs? Are these scientific and research programs independent and intended to accurately assess stock levels, or are they to be studied only in conjunction with the end goal of implementing a catch share program?

Answer. When formulating the budget request for the National Catch Share Program NOAA shifted $17.4 million in funds that were utilized for catch share programs into this new budget line. These funds support the management of existing catch share programs, cooperative research specific to catch shares, and the transition of the NE Multispecies fishery to sector management. Much of the $54 million request in FY 2011 to enhance the implementation of catch shares nationwide will be used to improve scientific data and management of our Nation's fisheries. Of the $36.6 million increase, $25.6 million is requested for data collection, including observing and monitoring. While the data collected will be used to manage the catch share program, in many cases the resulting data will be incorporated into current and future stock assessments which will benefit fisheries managed by catch share programs and traditional management approaches.

Question 12. NOAA has requested an additional $2,352,000 and 1 FTE to support the joint NOAA/USDA Alternative Feeds Initiative. Is there any acknowledgment by NOAA that soy products in feed yield an even greater amount of waste from the farmed fish, and that allowing large amounts of soy into the marine environment could prove to be dangerous in terms of hormone fluctuation and disruption?

Answer. Concerns that "soy products in feed yield an even greater amount of waste from the farmed fish" are unfounded. Waste from any farmed animal comes from undigested feed. Many studies comparing the digestibility of soy nutrients to fish meal nutrients generally show that both sources are well digested—typically with values in the 90 percent or better range. This is especially true of the higher protein soy products that are more suited for diets for carnivorous fish.

Concerns that feeding soy to fish will result in dangerous hormone fluctuation and disruption are also unfounded. The majority of studies do not support the idea that feeding farmed fish increased levels of soy will change hormone fluctuations or disrupt hormones, and soy meals used in animal diets have to meet U.S. Food and Drug Administration standards to ensure they are safe for the animal and for people consuming products from the animal. As with any new diet formulation, diets that rely on increased amounts of soy need to be evaluated for a range of factors, including how such diets may affect fish nutrition and health, health benefits to consumers, and any environmental impact that may result from their use. The Alternative Feeds Initiative is looking at precisely these questions. The increase funding in FY 2011 will allow NOAA to take on a greater leadership role in developing alternative feeds, and NOAA is pleased to have the broad support of both environmental organizations and the aquaculture industry in this effort.

Question 13. How much money is being devoted to "filling the [four] gaps in knowledge" on offshore aquaculture identified in the GAO report, namely: (1) alternative fish feeds, (2) best management practices to minimize environmental impacts, (3) data on how escaped aquaculture fish might impact wild fisheries, and (4) strategies to breed and raise fish while effectively managing disease? Please be specific about how monies are being used to address them.

Answer. NOAA has requested an increase of $5.1 million for its marine aquaculture program in FY 2011, for a total of $12.7 million. NOAA National Marine Fisheries Service (NMFS) and National Sea Grant College Program will use the increase to jointly respond to each of the four research area gaps identified in the 2008 Government Accountability Office (GAO) Report. It is important to note that while the GAO study was initiated to focus on offshore aquaculture, the priorities identified by stakeholders in the study (feeds, best management practices, escapes, disease) transcend all types of marine aquaculture. Similarly, NOAA's research investments focus on all types of marine aquaculture—not just offshore.

Nearly half of the requested increase, $2.4 million, will be used by NMFS to support GAO's first recommendation to develop aquaculture feeds that require less fish meal and fish oil. The remaining $2.7 million will be used by NOAA's Sea Grant program to develop and transfer technologies and practices to support sustainable aquaculture consistent with GAO's remaining recommendations. NOAA will use this increase to support the Sea Grant Extension network and an extramural competitive grants program for aquaculture called the National Marine Aquaculture Initiative. The increase for Sea Grant will bring the Office of Oceanic and Atmospheric Research's aquaculture funding up to $4.3 million. About one third of these funds will be used for transfer of aquaculture technology and best management practices through extension; the remaining two thirds will support research to address GAO's recommendations. As research grant funds will be awarded on a competitive basis, it is not possible to predict how much funding will go toward addressing each specific recommendation in FY 2011.

NOAA is already addressing GAO's recommendations with current resources. NOAA scientists continue to work on increasing scientific knowledge concerning the agency's environmental, stewardship, and regulatory responsibilities in the field of aquaculture.

Question 14. How much money is being devoted to exploring alternatives to offshore aquaculture, such as land-based recirculating aquaculture systems or aquaponics? Given NMFS's mission of stewardship and protection, why is an unsustainable form of aquaculture still being promoted by NOAA? How does NOAA plan to prevent harm to the marine environment, wild stocks, and fishermen?

Answer. The FY 2011 Budget request includes an increase of $2.7 million for aquaculture efforts within the Office of Oceanic and Atmospheric Research, for a total of $4.3 million. About one third of these funds will be used for transfer of aquaculture technology and best management practices through Sea Grant extension; the remaining two thirds will support research under the National Marine Aquaculture Initiative (NMAI) competitive grants program. NMAI funding is competed biennially (*e.g.*, using FY 2010 and 2011 funds) based on priority areas that are established for each funding cycle. Projects for the marine version of aquaponics and for land-based recirculating systems will be eligible to compete for FY 2010 and 2011 funding. As funding is awarded on a competitive basis, we cannot predict how much funding will go toward these specific areas.

As aquaponics involves cultivating *freshwater plant* species, and NOAA's aquaculture efforts focus on marine species, aquaponic research has not been a priority for NOAA. However, one of the NMAI's three research priority areas for FY 2010 is "smart design" approaches to aquaculture, which includes exploring integrated multi-trophic aquaculture and ways to design aquaculture production in an ecosystem management context. Multi-trophic aquaculture involves growing *marine plants* (*i.e.,* algae) and/or shellfish in conjunction with finfish. Funding for other forms of cultivation of marine plants and research on land-based recirculating systems are also eligible for funding under NMAI.

A second priority area for NMAI in FY 2010 and 2011 is to conduct research on the social and economic issues associated with current and new marine aquaculture. Such research will help NOAA to understand socio-economic considerations of fishermen and others in coastal communities. NOAA's goal for this line of research is not only to minimize potential negative socio-economic impacts, but also to allow fishing communities that are interested in pursuing sustainable marine aquaculture to receive the training and support they require to create jobs, generate income, and sustain working waterfronts. Most marine aquaculture operations in the United States are owned and operated by people from fishing and seafood business families and communities. Interest in using aquaculture as a tool to increase seafood produc-

tion as a complement to commercial and recreational fishing already exists in some regions.

Question 15. How much money is being pre-allocated to implement a national ocean fish farming program despite the lack of legislative action on any authorizing bill? What legislation has been passed into law authorizing NOAA to expend funds on fish farm programs?

Answer. Funding has not been pre-allocated to implement a national ocean fish farming program. Of the $5.1 million requested increase in FY 2011, $2.4 million will be used to conduct research on alternative feeds, and $2.7 million will be awarded on a competitive basis for a range of research and extension activities that includes, but is not limited to: sustainable fish and shellfish farming practices, integrated multi-trophic aquaculture, disease and genetics management, technology development and transfer for a variety of sustainable marine aquaculture systems, marine spatial planning, and stock restoration. As funds will be awarded on a competitive basis, we cannot predict how much funding will go toward each of these specific areas.

Most of NOAA's external aquaculture research is funded through NOAA Sea Grant's National Marine Aquaculture Initiative competitive grants program. This program's authority comes from the National Sea Grant College Program Act and subsequent amendments (33 U.S.C. 1121 *et seq.*). Some aquaculture grant funding is also issued under authority of the Saltonstall-Kennedy Act (15 U.S.C. § 713c–3, as amended).

Question 16. How much money is being pre-allocated to implement the Gulf of Mexico Fishery Management Plan for Offshore Aquaculture that is currently being challenged in court as illegal under existing Federal law?

Answer. No funding has been pre-allocated to implement the Gulf of Mexico Fishery Management Plan (FMP). As NOAA develops its national aquaculture policy, it will examine whether the Gulf of Mexico aquaculture FMP aligns with the new policy. If the FMP is inconsistent with NOAA's national aquaculture policy, NOAA will consider appropriate action, which could include seeking amendment or withdrawal of the FMP pursuant to sections 303 and 304 of the Magnuson-Stevens Fishery Conservation and Management Act (MSA).

Question 17. Given that NOAA has just created the Climate Program Office, will NOAA be testing the reliability and value of long range prediction models such the Seasonal Outlooks and Global Climate Models?

Answer. [Note: The response below assumes this question is in reference to the announced plan to establish a NOAA Climate Service.]

NOAA has been testing the reliability and value of its Seasonal Outlooks since they were first produced in 1987. NOAA tracks the performance of its 3-Month Outlooks by comparing the accuracy of the forecast with the accuracy of a similar forecast based only on the observed 30- year climate normals.[1] Since 1987, the accuracy of the seasonal 3-Month Temperature Outlook has more than doubled—improvement over climate normals was 10 percent in 1987, and is about 20 percent today. Improvement of precipitation forecasts shows even greater progress from a 3 percent improvement over climate normals in 1987 to a 10 percent improvement over climate normals today.

NOAA has also been tracking the reliability and value of its Global Climate Models since 2000. The Global Climate Models are used in the production of the 3-Month Temperature Outlook, and have similarly improved over the 30-year climate normals. Global climate models, which have been used in producing the 3-Month Outlooks since 2000, are also tracked for performance, and have also performed better than the 30-year climate normals.

For longer-term climate models, the model's ability to simulate the past climate record (the last 150 years or so) is also tested and evaluated. This testing is an important part of developing the models. These tests will continue into the future. The evaluation of climate models over the historical climate period is an important component of the work that will be conducted by the NOAA Climate Service.

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[1] A climate normal is defined, by convention, as the arithmetic mean of a climatological element computed over three consecutive decades (WMO, 1989). For example, the climatological normal temperature for the month of January would be the monthly average temperature for January averaged over 30 consecutive years.

Reference: World Meteorological Organization, 1989: Calculation of Monthly and Annual 30-Year Standard Normals, WCDP—No. 10, WMO–TD/No. 341, Geneva: World Meteorological Organization.

Question 18. Can the Climate Program Office state for the record an acceptable statistical margin of error for all of the NOAA long range (90 day outlooks or longer) forecast products?

Answer. [Note: The response below assumes this question is in reference to the announced plan to establish a NOAA Climate Service.]

NOAA makes seasonal outlook forecasts for three categories (all percentages rounded):

- 33 percent or greater chance to be above the climatological normal;
- 33 percent or greater chance to be below the climatological normal; and
- The area between the two, or "equal" chances of being above, below or within normal.

Forecast performance verification is based on the non-"equal" chances forecasts compared to forecasts based on long term climate averages. NOAA uses observation points, and compares its forecast to what was actually observed. Correct forecasts are "hits." The result is compared to forecasts made from climate averages. This gives NOAA the best measure of its added forecast value, or skill.

For example, during the 3 month outlook period of January, February, and March of 2010, NOAA's non-"equal" forecast area (areas with over 33 percent chance to be above or below normal) included 154 points to be verified. A climatological forecast for those 154 points would be expected to be correct on 51 of them (33 percent). NOAA was correct on 102 of those points (66 percent), demonstrating significant skill and value added.

A "statistical margin of error" is not calculated nor used as a metric for the performance for seasonal forecasts.

Question 19. Can NOAA establish, for the public record, a minimum performance standard for all of the forecasts, outlooks and prediction models?

Answer. A climatological forecast, developed using only the observed 30-year climate normals, represents the minimum performance standard. NOAA utilizes prediction models to produce enhanced forecasts, and constantly assesses the skill of its forecast products to ensure we are providing the most accurate and reliable information possible. Such assessment includes regularly comparing NOAA's enhanced climate forecasts against the climatological forecast, the minimum performance standard. NOAA also assesses its model forecasts against that minimum performance standard. All official NOAA climate forecasts exceed the accuracy of that standard.

Question 20. Will NOAA submit for the record the quality control standards for meteorological, oceanographic, geophysical and climate data with respect to the Data Quality Act?

Answer. NOAA published Information Quality Guidelines (NOAA, 2006) in response to the OMB directive to "provide policy and procedural guidance to Federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information (including statistical information) disseminated by Federal agencies (OMB, 2002)." In establishing these guidelines, NOAA was responding to Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Public Law 106–554) in regards to Information Quality for Federal agencies. Within the NOAA guidelines, NOAA categorized its data and information into seven broad categories and then issued specific and detailed Objectivity Standards for each category in terms of information quality.

References

NOAA, 2006: National Oceanic and Atmospheric Administration Information Quality Guidelines, *http://www.cio.noaa.gov/Policy_Programs/IQ_Guidelines_110606.html*.

OMB, 2002: OMB 515 Guidelines (Federal Register: February 22, 2002, Volume 67, Number 36, pp. 8452–8460 *http://www.cio.noaa.gov/Policy_Programs/docs/OMB_IQGuidelines_022202.pdf*.

Question 21. Given that NOAA awards grant funding to various research organizations; will NOAA insist that source data, derived from these grants, be made available for the public record?

Answer. NOAA awards grants according to the regulations specified in OMB administrative requirements and cost principles and the Department of Commerce Grants Manual. NOAA encourages grantees to make all data derived as a result of a NOAA grant available to the public. NOAA believes strongly in the peer review process to help ensure the highest data and research quality.

Question 22. Has NOAA ever engaged in selective publishing of Technical Memorandums, or other official scientific and technical publications, based on political policies or agendas?

Answer. NOAA does not prevent scientists from releasing findings and reports. A 2007 GAO report (GAO–07–653) found that NOAA policies for dissemination through publications and presentations were generally clear and should facilitate dissemination.

Question 23. Does NOAA have a policy in place to ensure that compiled data, reports and technical memorandums are not compromised by political agendas regardless of the conclusions contained within these reports?

Answer. NOAA has a full and open data policy and is committed to scientific integrity. In the case of compiled data, for example, NOAA's National Climatic Data Center (NCDC), which is the primary organization responsible for NOAA's global surface temperature monitoring, maintains all original data used in deriving products in compliance with 44 U.S.C. 3301, National Archives and Records Administration Records Retention Schedules and the NOAA Records Disposition Handbook. All of this data is available to the public. Any documents, such as peer-reviewed scientific journal articles, are likewise available to the public.

In response to the recommendations in the 2007 GAO report (GAO–07–653), the Department of Commerce issued a new administrative order DAO 219–1, which explicitly allows researchers to publicly discuss the results of basic or applied research in science or engineering—termed "Fundamental Research Communications"—without prior approval from NOAA's Office of Communications.

Question 24. In response to questions you answered following the December 2, 2009 hearing on "The Administration's View on the State of Climate Science" before the Select Committee on Energy Independence and Global Warming, U.S. House of Representatives, you indicated that, consistent with the phenomenon known as ocean acidification, the pH of the oceans has been trending downward. What influence will such a decline have on marine organisms?

Answer. Ocean acidification refers to the process of lowering the oceans' pH by dissolving additional carbon dioxide (CO_2) in seawater from the atmosphere. It is now well established that the pH of our ocean surface waters has already fallen by about 0.1 units from an average of about 8.2 to 8.1 since the beginning of the industrial revolution, and that this reduction in pH is due to sequestration by the ocean of a portion of the CO_2 released by fossil fuel burning and land use practices. The interaction between CO_2 and other inorganic carbon species in seawater reduces the availability of carbonate ions, which play an important role in shell formation for a number of marine organisms such as corals, marine plankton, and shellfish. Increasing ocean acidification has been shown to significantly reduce the ability of reef-building corals to produce their skeletons in controlled studies, affecting growth of individual corals and making the reef more vulnerable to erosion (Fabry *et al.*, 2998; Doney *et al.*, 2009).

Changes in seawater pH can also create a more physiologically challenging environment for both calcifying and non-calcifying marine organisms. Ongoing research is showing that decreasing pH may have deleterious effects on commercially important fish. Silver seabream larvae exhibit very high mortality rates in CO_2-enriched waters. The calcification rates of the edible mussel *(Mytilus edulis)* and Pacific oyster (*Crassostrea gigas*) decline linearly with increasing CO_2 levels. Squid are especially sensitive to ocean acidification because it directly impacts their blood oxygen transport and respiration (Pörtner *et al.*, 2005). Scientists have also seen a reduced ability of marine algae and free-floating plants and animals to produce protective carbonate shells (Feely *et al.*, 2004; Fabry *et al.*, 2008; Doney *et al.*, 2009). These organisms are important food sources for other marine species. In particular, pteropods, a type of free-swimming mollusk, are a major food source for North Pacific juvenile salmon, and also serve as food for mackerel, pollock, herring, and cod. It is important to recognize that while many species of heterotrophs—animals—are likely to suffer under ocean acidification, many autotrophs—plants—may benefit because extra carbon dioxide could act as a fertilizer for photosynthesis. Some marine food webs could become unbalanced because of ocean acidification due to the collection of positive, negative, and neutral responses of their constituent species.

Question 25. Is there a scientific consensus that increasing carbon dioxide concentrations are causing ocean acidification, and that this phenomenon will harm marine organisms?

Answer. On the basis of global ocean carbon dioxide (CO_2) surveys and time-series studies over the past two decades, there are very clear results from oceanic measurements that ocean acidification is a predictable consequence of rising atmospheric CO_2 (Feely *et al.*, 2004; Bates and Peters, 2007; Santana-Casiano *et al.*, 2007; Dore

et al., 2009; Feely *et al.*, 2009; Takahashi *et al.*, 2009; Byrne *et al.*, 2010) that is independent of the uncertainties and outcomes of climate change (for example, see Figure 1). Based on changing the atmospheric CO_2 levels and numerical models, the pH of ocean surface waters is believed to have decreased by about 0.1 since the industrial era began (Caldeira and Wickett, 2003; Orr *et al.*, 2005), with a measured decrease of 0.018 units per decade observed over the last quarter century at several open-ocean time-series sites (Bates, 2007; Bates and Peters, 2007; Santana-Casiano *et al.*, 2007; Dore *et al.*, 2009). By the middle of this century, atmospheric CO_2 levels could reach more than 500 parts per million (ppm), and exceed 800 ppm by the end of the century (Friedlingstein *et al.*, 2006). These CO_2 levels would result in an additional decrease in surface water pH of 0.3 units from current conditions by 2100, which represents an increase in the ocean's hydrogen ion (H+) concentration by 2.5 times relative to the beginning of the industrial era.

Since ocean acidification research is still in its infancy, it is impossible to predict exactly how the individual species responses will cascade throughout the marine food chain and impact the overall structure of marine ecosystems. It does appear, however, from the existing data and from the geologic record that some coral and other calcifying species will be reduced in a high-CO_2 ocean. The disappearance of many calcifying species in past extinction events has been attributed, in large part, to ocean acidification events (Zachos *et al.*, 2005).

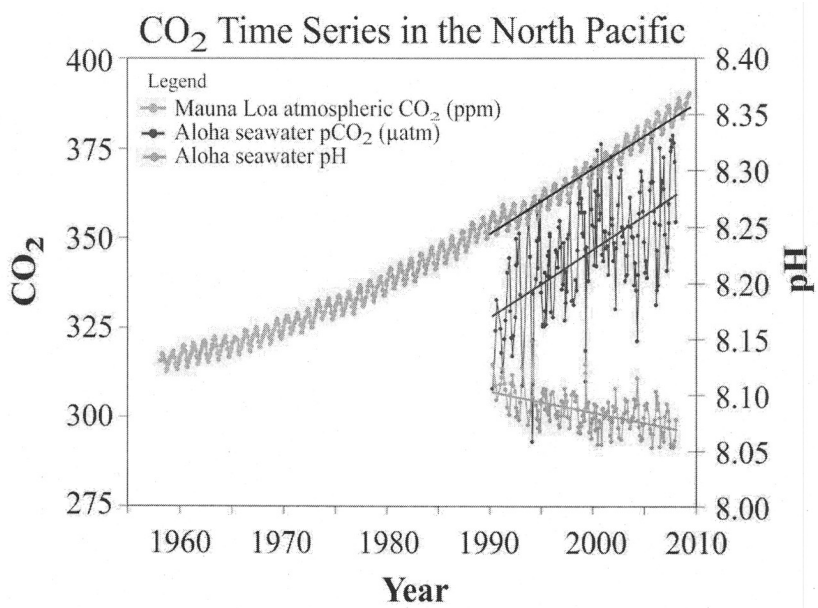


Figure 1. Time series of atmospheric CO_2 at Mauna Loa (ppm) and surface ocean pH and pCO_2 (µatm) at Ocean Station Aloha in the subtropical North Pacific Ocean. Note that the increase in oceanic CO_2 over the period of observations is consistent with the atmospheric increase within the statistical limits of the measurements. The lines are placed to guide the eye rather then to imply a linear trend. Mauna Loa data: Pieter Tans, NOAA/ESRL, *http://www.esrl.noaa.gov/gmd/ccgg/trends*. HOT/ALOHA data: David Karl, University of Hawaii, *http://hahana.soest*. (Figure modified from Feely 2008).

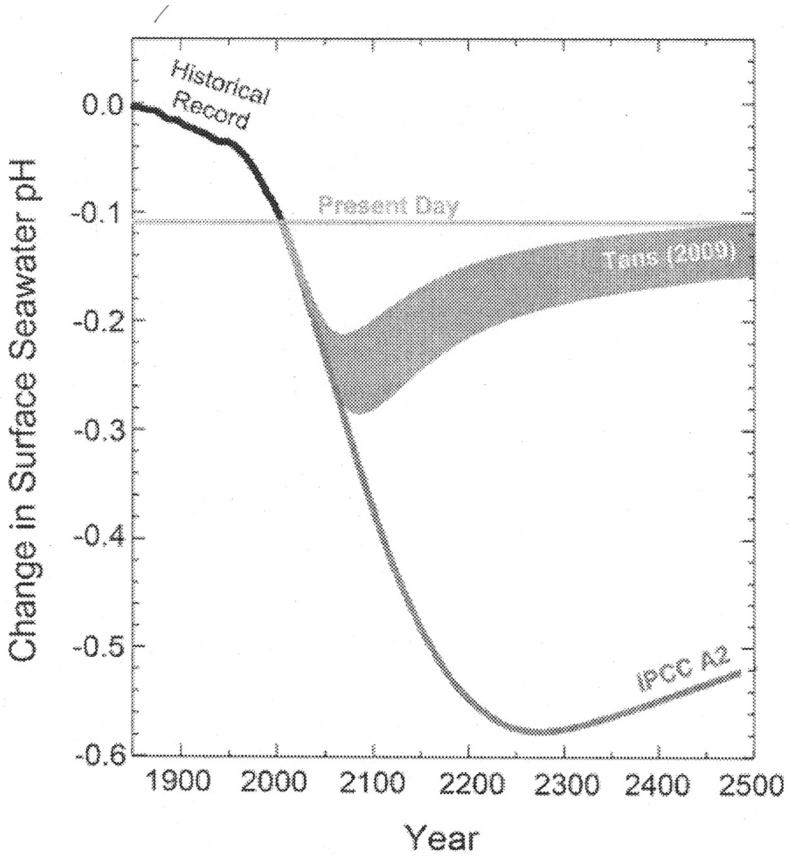
Question 26. How strong is that consensus? And are the impacts of ocean acidification expected to have serious consequences for marine life? And do you agree with that assessment?

Answer. There is no question about the changes in carbon dioxide concentrations and decreased pH in the global oceans that occur as a result of the uptake of anthropogenic carbon dioxide by the oceans (see response to Question 25, above). Further, the global CO_2 surveys of the World Ocean Circulation Experiment/Joint Global Ocean Flux Study World Ocean Survey in the 1990s, and the CLIVAR/CO_2 Repeat Hydrography Program clearly document these changes (Sabine *et al.*, 2004; 2008; Sabine and Tanhua, 2009; Feely *et al.*, 2009; Byrne *et al.*, 2010). With respect to the impacts of ocean acidification on marine organisms, please see the responses to Question 24 and 25 above.

Question 27. Given your prior testimony, I am a little troubled that the Under Secretary of Commerce for Oceans and Atmosphere and NOAA Administrator, National Oceanic and Atmospheric Administration, U.S. Department of Commerce would take so rigid a stance on this issue when numerous articles continue to be published in the peer-reviewed scientific literature that indicate ocean acidification is not as serious a threat as you claim it to be. Are you aware of *any* peer-reviewed journal articles that do not support the alarmist position on ocean acidification?

Answer. Some studies have shown that some species of non-calcifying and calcifying marine organisms exhibit a positive response to increasing carbon dioxide in the ocean. As in any changing environment, there will always be organisms that thrive when conditions shift—and organisms that are not as capable of adapting to the new conditions. However, our concerns are about ocean acidification on the ecosystem as a whole, and in particular the impacts to commercially important species that appear particularly susceptible. Furthermore, there have been several highly-respected review articles by NOAA scientists and their academic colleagues that have summarized much of the peer-reviewed scientific literature on ocean acidification and its impacts on marine organisms, that show some positive, but predominantly negative response of calcifying organisms (see, for example, Feely *et al.*, 2004; Kleypas *et al.*, 2006; Fabry *et al.*, 2008a, b; Guinotte and Fabry 2008; Doney *et al.*, 2009a,b). These papers are considered to be among the most authoritative papers on this topic, and they clearly indicate that there is substantial evidence that decreased calcification of corals (Cohen and Holocomb, 2009; Kleypas and Yates, 2009) and other pelagic and benthic calcifiers (Fabry *et al.*, 2008; 2009; Balch and Utgoff, 2009) generally slows the overall calcification process by mechanisms that are just beginning to be understood (Cohen and Holocomb, 2009). Because decreased calcification alone could have negative impacts on marine ecosystems as well as commercially important shellfish species (*i.e.,* clams, oysters, sea urchins), I am very concerned about the health of our marine ecosystems and the associated economic and societal impacts.

Question 28. Let me share with you the results of some papers that do not support your cause for alarm with regard to ocean acidification. For starters, are you aware of the study by Peiter Tans, published in the December 2009 issue of *Oceanography* (Vol. 22, N. 4, pp. 26–35)? According to data published by Dr. Tans, as shown in this figure, the IPCC is overstating the decline in oceanic pH by more than a factor of two. Instead of a pH decline on the order of 0.6 units, Dr. Tans' research suggests a more modest 0.2 to 0.28 decline followed by an abrupt turn-around and a fairly rapid recovery toward present-day values. In light of this new research it would seem, Dr. Lubchenco, that concerns about a 0.4, a 0.5 or even a 0.6 pH unit decline in the world's oceans is overblown, as are concerns about its impact on marine organisms. Please discuss what your thoughts are on how these findings are accurate or inaccurate and why the findings would be published in *Oceanography* if they were inaccurate. Does this journal have a reputation for publishing findings that are below NOAA standards for peer-reviewed research?



Answer. The special issue on ocean acidification in Oceanography magazine focused on drawing attention to the comprehensive and multi-faceted research in this rapidly evolving field. The work by Dr. Tans on the impact of different carbon dioxide (CO_2) emission projections on surface pH levels is one example of the thoughtful and unbiased work that was performed by the scientists that contributed to this special volume.

In the Oceanography article quoted by you, Dr. Tans showed that until now the ultimate rise of CO_2 depends primarily on the total cumulative amounts emitted. Then, when it came to making future prognoses he made it very clear on which assumptions they were built. He assumed that emissions from fossil fuel burning would peak in the first half of this century, and go toward zero fairly rapidly after the peak. In other words, he assumed that aggressive policies would be put in place, and/or that the price of fossil fuel extraction would increase on its own very substantially as a result of increasing depletion of the reserves. Second, he also assumed that there would not be large uncontrolled emissions from the Arctic as a result of Arctic warming. He made the latter assumption only because the course of such potential emissions cannot be reliably predicted at this time, not because he thought they were unlikely. The A2 scenario in the graph you provide is only one of a large range of scenarios discussed by the IPCC. In fact, it is at the high end of the range, and it applies to a world in which little attention is paid to the environmental risks of burning fossil fuels. In the same Oceanography article, Dr. Tans showed how one can estimate the atmospheric CO_2 increase that has to accompany the pH drop of ocean surface waters. In the graph you provide of the A2 scenario in the year 2270, atmospheric CO_2 would have to be about 1090 ppm, almost a quadrupling of preindustrial CO_2. Dr. Tans argued that the probability of catastrophic climate change,

because of plausible feedbacks in the climate system, would be unacceptably large if CO_2 is allowed to rise to such a high level.

Question 29. To further illustrate the point that so-called ocean acidification will have little negative impact on marine life, I would like to introduce you to a study published earlier this year by Hendriks and colleagues in the journal *Estuarine, Coastal and Shelf Science* (Vol. 86, pp. 157–164). Are you aware of this article? This peer-reviewed scientific paper represents the most recent and most comprehensive analysis conducted to date on experimental studies that have explored the effects of rising atmospheric CO_2 concentrations on marine biota. Upon assembling and analyzing a database of 372 experimentally-evaluated responses of 44 different marine species to ocean acidification, the authors concluded that *"marine biota [are] more resistant to ocean acidification than suggested by pessimistic predictions identifying ocean acidification as a major threat to marine biodiversity, which may not be the widespread problem conjured into the 21st century."* Now those are their words, not mine. Please explain your thoughts on why these findings are accurate or inaccurate and why the findings would be published in *Estuarine, Coastal and Shelf Science* if they were inaccurate. Does this journal have a reputation for publishing findings that are below NOAA standards for peer-reviewed research?

Question 30. There are several other important findings from Hendriks *et al.* Study, again quoting the authors.

1. "There was no consistent effect of experimental acidification on calcification of corals, considered one of the most vulnerable groups to ocean acidification."
2. "[Ocean acidification] effects are likely to be minor along the range of pCO_2 predicted for the 21st century, and feedbacks between positive responses of autotrophs and pH may further buffer the impacts."
3. "The attention that ocean acidification as a sole threat to marine biodiversity has drawn recently might not be fully justified concerning the limited impact of experimental acidification on organism processes as shown by the meta-analysis presented here."
4. "The effects of ocean acidification on biological processes may therefore not be biologically significant, even for calcification rates, the process most sensitive to ocean acidification. This conclusion is in contrast with previous claims of ocean acidification as a major threat to marine diversity. This difference may be explained by a suite of at least three features that have not as yet been considered in models predicting the impacts of future ocean pH: existing gradients in concentrations, boundary layer effects and intracellular regulation of concentrations."

Please discuss how each of the above statements is accurate or inaccurate based on the most recent peer-reviewed science. Considering the implications of the many real-world observations presented in the Hendriks *et al.* Study, I am deeply troubled by the fact that your prior testimony before Congress on the expected impacts of ocean acidification significantly contradicts what has been observed by numerous researchers in the real world. In addition, upon a review of several NOAA-related websites on the topic of ocean acidification, I am further troubled by the fact that a government agency such as NOAA presents a similarly flawed and alarmist view on ocean acidification and makes no mention of the good news (or non-negative effects) found among the 342 peer-reviewed journal papers examined by Hendriks *et al.*. How do you explain that? Why is NOAA cherry-picking studies? How come you have failed to include discussion on at least some of the papers analyzed by Hendriks *et al.*?

Answer (29 and 30): In the Hendriks *et al.* (2010) paper, the authors conducted a meta-analysis of a small subset of the older published literature on the ocean acidification impacts on marine biota with the purpose of providing a broad view of the present and future biological effects. While the Hendricks *et al.* database contains a total of 372 experimentally evaluated responses of 44 species and three types of communities (sand, phytoplankton and coral) to ocean acidification, they review only 42 peer-reviewed journal papers (see Hendriks *et al.* 2010 appendix) with the most recent manuscripts published in 2008. The peer-reviewed literature on ocean acidification is growing exponentially, and a current database of published studies that explore the biological implication of ocean acidification includes over 130 papers. Thus, the scope of the Hendriks *et al.* (2010) review is limited compared to the current state of understanding in the field.

Hendricks *et al.* (2010) determined effect size (ratio of treatment impact over the control response) for five different processes (*e.g.,* calcification, fertility, growth, metabolism, and survival). Their results show both positive and negative results for different groups of organisms and for different metabolic processes within those

groups, but no significant impacts when the data are grouped together and averaged, . . .“When all biological responses were pooled the extracted data in the database showed no general consistent effect of ocean acidification, as the general effect size across species and processes did not differ significantly from the null value of 1 indicative of no effect.” Consistent with these results, the recent review articles of Fabry *et al.* (2008) and Doney *et al.* (2009) showed very similar kinds of positive and negative responses for individual groups and individual metabolic processes. However, all of these studies show that when individual processes are studied in detail significant impacts did occur. For example, on page 161 Hendriks *et al.* states that “The data do suggest that calcification rate, the most sensitive process responding directly to ocean acidification, will decline by, on average, 25 percent at elevated pCO_2 values of 731–759 ppm.” In another study, Ries *et al.* (2009) determined the response of 18 benthic marine calcifiers to aragonite also found a wide range of responses. The underlying controlling factor of these variable responses may be the energetic costs of manipulating carbon dioxide (CO_2) within the calcifying fluid in order to maintain calcification under conditions that are thermodynamically less favorable for calcification. No simple statistical analysis is capable of delineating the complex mechanisms that an organism may employ at different life stages to adapt to the stress of higher CO_2 levels in the oceans. Nor will it address the combined impacts of increased acidification, increased warming, and decreased oxygen levels over the next century. Doing so will require careful studies of the multiple responses organisms at different life stages to the increasing levels of CO_2 and temperature and decreased dissolved oxygen caused by humankind that also simulates the natural variability found in the environment. Since calcifying marine organisms play a major role (nearly 50 percent) in the U.S. fishing industry, these studies are absolutely necessary for understanding the long-term impacts of ocean acidification on this critical component of our Nation’s long-term strategy for food security, jobs and the economy.

With respect to the coral reefs, Hendriks *et al.* (2010) state in the discussion that “There was no consistent effect of experimental acidification on calcification of corals, considered one of the most vulnerable groups to ocean acidification.” However, this seems unsupported, even opposite to what they show in Figure 1 and Table 1 for calcification of corals. They do go on to qualify their statement in the following paragraph, but they suggest that a 25 percent reduction in coral calcification will be less because, “these gradual changes [in atmospheric CO_2] take place on the scale of decades, permitting adaptation of organisms even including genetic selection.” I should point out that, the debate remains open on this issue because there is no direct evidence that adaptation and acclimation of corals could occur on decadal time scales. [See also the answer to question 27 above.]

Hendriks *et al.* (2010) statement that “effects are likely to be minor along the range of pCO_2 predicted for the 21st century, and feedbacks between positive responses of autotrophs and pH may further buffer the impacts” is inconsistent with their own results in Table 1 for calcification. Their rather arbitrary limits of appropriate thresholds are not well justified, and their assertion that positive responses of autotrophs and pH may further buffer the impacts has yet to be proven.

Hendriks *et al.* (2010) statement that “The attention that ocean acidification as a sole threat to marine biodiversity has drawn recently might not be fully justified concerning the limited impact of experimental acidification on organism processes as shown by the meta-analysis presented here” is not consistent with the recent scientific literature. Several authors have stressed that the combined stressors of acidification and warming may lead to lower thermal bleaching thresholds, and decreased calcification and benthic food resources for higher level organisms (Metzger *et al.*, 2007; Anthony *et al.*, 2008; Fabry *et al.*, 2008; 2009; Cooley *et al.*, 2009; Silverman *et al.*, 2009).

Hendriks *et al.* (2010) statement that “The effects of ocean acidification on biological processes may therefore not be biologically significant, even for calcification rates, the process most sensitive to ocean acidification. This conclusion is in contrast with previous claims of ocean acidification as a major threat to marine diversity. This difference may be explained by a suite of at least three features that have not as yet been considered in models predicting the impacts of future ocean pH: existing gradients in concentrations, boundary layer effects and intracellular regulation of concentration.” is not consistent with all of the responses, references and reviews discussed previously [see also the response to question 27 above]. In addition, with respect to the models, apparently Hendriks *et al.* (2010) were not aware that already large-scale ocean model simulations of future changes due to ocean acidification do indeed include seasonal and interannual variability as well as changes due to climate change (*e.g.,* Orr *et al.*, 2005). It is a fair criticism to say that most global-

scale models do not include diurnal variability, but that does not matter if new thresholds are indeed crossed, as has recently been the case for coral bleaching.

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