

**THE FISCAL YEAR 2010 BUDGET
FOR THE NATIONAL OCEANIC
AND ATMOSPHERIC ADMINISTRATION**

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

FIRST SESSION

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JUNE 11, 2009
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ONE HUNDRED ELEVENTH CONGRESS

FIRST SESSION

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**THE FISCAL YEAR 2010 BUDGET
FOR THE NATIONAL OCEANIC
AND ATMOSPHERIC ADMINISTRATION**

THURSDAY, JUNE 11, 2009

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 11:02 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. This hearing of the Commerce Subcommittee on Oceans, Atmosphere, Fisheries, and Coast Guard, will come to order.

Good morning. I would like to welcome Dr. Lubchenco and to tell her I look forward to hearing her testimony this morning on the Administration's Fiscal Year 2010 Budget Request for the National Oceanic and Atmospheric Administration.

On Tuesday, this Subcommittee held a hearing on the blue economy and the contribution that oceans and coastal resources play in the Nation's economy and our health. The hearing made three important points.

First, protecting our oceans and coasts is an environmental and economic imperative.

Second, the blue economy faces an uncertain future due to climate change, pollution, and greater demands for marine resources.

And third, the Government must make a greater investment in oceans, coastal management and conservation.

This last point, the need for greater Federal investment, is the focus of our hearing this morning. NOAA's work reaches from the bottom of our oceans to the surface of the sun. From daily weather forecasts to long-term climate monitoring, NOAA touches the daily lives of individual Americans. NOAA's programs support industries from fishery to maritime commerce to aviation. And NOAA is also steward of our oceans and coastal resources.

To highlight a few of the benefits that NOAA brings to the United States, the integrated ocean observatory system supports ocean and coastal management, reducing the risks of maritime accidents and strengthens the search and rescue efforts of our Na-

tion. The associated economic benefits to our U.S. coasts are estimated at approximately \$300 million annually.

Hydrographic surveys ensure safe, efficient, and environmentally-sound marine transportation. Deep draft seaports and sea businesses generate approximately 8.4 million American jobs and added nearly \$2 trillion to our economy in 2006.

And one-third of our economy is very sensitive to weather and climate, and NOAA's climate service and data are more important than ever to the energy and agriculture transportation sector of our economy as they work to adapt to the effects of climate change.

Unfortunately, the importance of NOAA's mission and the resources it is charged with protecting are not translating into the funding for the agency. For Fiscal Year 2010, the Administration is proposing a budget of \$4.48 billion for NOAA, only a 2.5 percent increase over Fiscal Year 2009 enacted levels.

I want to compare NOAA's budget to other agencies. The Administration's budget proposal of \$12.1 billion for the Department of the Interior for 2010 is a 7 percent increase; \$10.5 billion for the Environmental Protection Agency, a 37 percent increase; and \$18.9 billion for NASA, a 5 percent increase. The Department of the Interior, Environmental Protection Agency, and NASA deserve these increases, but so does NOAA. The Administration needs to recognize the valuable science and stewardship that NOAA provides to our Nation and double the budget.

I know that we are going to have a chance to talk about many of the specifics that are in this year's NOAA budget proposal, but before I do that, I am going to turn it over to Dr. Lubchenco to make a statement, and then we will follow that by questions. I do see one of my colleagues has arrived, but if the Senator from Alaska does not have an opening statement, I will turn to Dr. Lubchenco.

Senator BEGICH. No.

Senator CANTWELL. And I am sure my colleague from Alaska will have some very specific questions for Dr. Lubchenco.

So, Dr. Lubchenco, please go ahead.

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

Dr. LUBCHENCO. Madam Chairwoman, thank you so much for your leadership on behalf of NOAA and for your and the Committee's generous support of NOAA in the past. We greatly appreciate your support for our programs as we work to improve our products and the services for the American people.

I am honored to be here as the Under Secretary of Commerce for Oceans and Atmosphere and Administrator of NOAA, one of the Nation's premier science and stewardship agencies. I am pleased to speak today regarding the President's Fiscal Year 2010 Budget Request for NOAA.

The 2010 President's Budget provides a solid foundation to advance NOAA's mission. The request, as you noted, is \$4.5 billion, which represents \$110 million, or a 2.5 increase over the Fiscal

Year 2009 omnibus appropriation. This level reflects our efforts to reallocate resources, to find efficiencies, and to ensure accountability, and fund our highest priority programs. This budget supports core mission functions for environmental prediction and stewardship, provides key investments to address top management challenges for satellite acquisition and fisheries management, and it provides a down payment for climate research, observations, and services, for coastal services, observing, and stewardship.

For the remainder of my testimony, I would like to share with the Committee a selection of important highlights from our Fiscal Year 2010 Budget Request in each of the following key areas: satellites, fisheries, coasts, and weather.

Beginning with satellites, one of the greatest challenges that NOAA faces today is ensuring continuity of satellite operations to provide unbroken coverage of weather forecasts and climate measurements into the future. Providing these data is increasingly vital as the Nation prepares for the impacts of climate change. The uncertainty inherent in climate change calls for reliable, consistent sources of data. It is NOAA's role to provide accurate science and synthesis products on how climate change will affect the Nation.

With this budget, we are investing in multiple satellite acquisition programs. A funding increase of \$272 million is requested to continue the development of the Geostationary Operational Environmental Satellite—Series R program. This increase will provide for continued development of the satellite instruments, spacecraft, and ground systems. The acquisition of NOAA's GOES-R series, in partnership with NASA, is progressing well. The new satellite will carry improved environmental sensors that will enable NOAA's forecasters to enhance the timeliness and accuracy of their severe weather warnings.

There is also \$94 million in the request to support the National Polar-Orbiting Operational Environmental Satellite System, or NPOESS. As this Committee is aware, the development of NPOESS continues to face substantial challenges. The NOAA, Air Force, and NASA managed program has had a history of cost and schedule overruns and other acquisition problems. Should NPOESS be delayed or fail, NOAA's current climate and weather forecasting abilities will be put in jeopardy.

Secretary of Commerce Gary Locke and I have made fixing NPOESS one of our highest priorities. A recent independent review of the NPOESS program has identified significant deficiencies in the program's structure and its budgeting and cost estimating, indicating the program has a low probability of success as currently managed and structured. We are taking these results very seriously and are working with our tri-agency partners and the Administration on a number of options to address the independent review team's findings.

Turning now to fisheries, another challenge facing NOAA is to end overfishing and improve fishery management. Continued overfishing threatens the viability of the fishing livelihood and fishing-dependent communities. NOAA's challenge is to balance the long-term conservation of the fish stocks with immediate economic needs of fishermen, particularly during the difficult economic times we are experiencing now.

The reauthorized Magnuson-Stevens Fishery Conservation and Management Act provides strict regulatory guidelines for ending overfishing. This budget provides \$56.5 million in new increases, for a total of \$98.3 million to implement the requirements of the revised Magnuson-Stevens Act. This request includes funding to establish and monitor annual catch limits and accountability measures, expand annual stock assessments, increase enforcement, and observing of fisheries efforts, promote recreational data collection, and expand cooperative research programs.

A highlight of the Magnuson request is \$18.6 million to support transition to catch share management in the New England groundfish fishery. This funding level builds upon the \$16.7 million provided in Fiscal Year 2009 funds and supports improved at-sea monitoring, documentation of catches, increased enforcement coverage, additional resources for cooperative research projects with the fishing industry, and training for fishermen to use newly required logbooks.

On May 21, 2009, the President submitted a Fiscal Year 2010 budget amendment that includes a transfer for \$50 million of our request for species recovery to the Pacific Coast Salmon Recovery Fund. The budget amendment also included \$11 million to expand the national program for endangered and threatened species. Both of these programs will support efforts to restore habitat and promote the recovery of at-risk stocks, including 28 salmonid stocks which are listed as threatened or endangered under the ESA.

Climate change is among the greatest challenges of our time. NOAA's long history of climate observations and products provides a strong foundation for the agency's work to synthesize scientific data on climate change and create products and services that can be used by the public to guide important decisions such as where to build roads, the types of crops to grow, and how to protect coastal properties. NOAA's climate information, products, and services also play an important role in the siting and design of the Nation's emerging renewable energy infrastructure—wind, solar, and ocean—to help meet the Administration's goal of a clean energy economy.

The Fiscal Year 2010 Budget requests \$41.9 million in new increases, for a total of \$285.7 million for high-priority climate initiatives. This represents a good foundation for NOAA's climate portfolio.

Fifty percent of Americans live in coastal areas and sixty percent of the country's GDP is generated in coastal communities. Coastal populations, estimated at over 160 million in 2008, are expected to grow and risks to life, property, businesses, and coastal habitats will only increase. One of my most important priorities is to advance coastal stewardship through the use of ecosystem-based science. NOAA's budget request provides key investments to promote this goal.

The Budget requests \$2 million for NOAA to establish a Coastal Communities Task Force comprised of key public, private, non-governmental, and university community representatives. This task force will chart a new course for effective and meaningful action for management and stewardship of the Nation's valuable coasts.

Finally, weather. The United States is the most severe weather-prone Nation on Earth. We experience over \$11 billion in damages due to severe weather incidents each year. Accurate weather warnings and forecasts are critical to protect lives and property, and our Fiscal Year 2010 request fills critical gaps in NOAA's ability to observe and forecast weather events.

In conclusion, overall NOAA's Fiscal Year 2010 Budget Request is a good budget for NOAA and provides a solid foundation for our future needs. The overall increase reflects the growing need for NOAA's infrastructure and services, although we continue to work to reallocate resources and identify efficiencies.

I look forward to working with you and the members of this Committee to achieve the goals I have laid out here through the implementation of the Fiscal Year 2010 Budget.

Thank you very much for the opportunity to present some of the highlights of our budget, and I am happy to address any questions.

[The prepared statement of Dr. Lubchenco follows:]

PREPARED STATEMENT OF HON. JANE LUBCHENCO, PH.D., UNDER SECRETARY OF COMMERCE 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.

I am honored to be here as the Under Secretary of Commerce for Oceans and Atmosphere and the Administrator of the National Oceanic and Atmospheric Administration (NOAA), one of the Nation's premiere science and stewardship agencies and am pleased to speak with you today regarding the President's Fiscal Year (FY) 2010 Budget Request for NOAA.

The FY 2010 President's Budget provides a solid foundation to advance NOAA's mission. The FY 2010 Request is \$4.5 billion, which represents a \$110 million or 2.5 percent increase over the FY 2009 omnibus appropriation level. This level reflects our efforts to reallocate resources, maximize efficiencies, ensure accountability, and fund our highest priority programs. This budget supports core mission functions for environmental prediction and stewardship and provides key investments to address the top management challenges for satellite acquisition and fisheries management. It also provides a down payment for climate research, observations, and services; and for coastal services and stewardship.

FY 2010 Budget Request Highlights

Satellites

One of the greatest challenges that NOAA faces today is ensuring continuity of satellite operations to provide state-of-the art, unbroken coverage that enables weather forecasts and climate measurements. Satellites provide essential information for accurate weather forecasts and warnings about weather-related disasters such as hurricanes, tornados and floods. In addition, satellite data are increasingly vital to the understanding of climate change and to forecasts of climate-related phenomena such as severe droughts. One of NOAA's primary roles is to provide reliable, consistent data and understanding about weather and climate change and to integrate that information into products that are useful to citizens and policy-makers alike.

With the FY 2010 Budget we will invest in multiple satellite acquisition programs for the continuity of critical weather, climate, and oceanographic data. I will highlight each of our three programs in turn.

1. A funding increase of \$272 million is requested to continue the development of the Geostationary Operational Environmental Satellite—Series R (GOES-R) program. This increase will provide for the continued development of the satellite instruments, spacecraft, and ground systems. The acquisition of NOAA's GOES-R series in partnership with the National Aeronautics and Space Administration (NASA)

is progressing well. The new satellites will carry improved environmental sensors that will enable NOAA's forecasters to enhance the timeliness and accuracy of their severe weather warnings.

2. As this committee is aware, the development of the National Polar-orbiting Operational Environmental Satellite System (NPOESS) continues to face substantial challenges. The NOAA, Air Force and NASA managed program has had a history of cost and schedule overruns and other acquisition problems. Should NPOESS be delayed or fail, NOAA's current climate and weather forecasting abilities will be put in jeopardy. Unfortunately, technical and management problems continue.

The FY 2010 Budget Request provides an increase of \$94 million to support the NPOESS program. This request represents NOAA's share of the tri-agency program. In December 2008, the Air Force, NOAA and NASA agreed to a revised baseline for the NPOESS program that added resources for on-going technical problems as well as for out-year operations and support costs not previously included in the program's planning. This new baseline increased the program's total life-cycle cost from \$12.5 billion in the FY 2009 President's budget to \$14 billion. The FY 2010 President's budgets for both NOAA and the Air Force fund to this baseline.

Secretary of Commerce Gary Locke and I have made fixing NPOESS one of our highest priorities. A recent independent review of the NPOESS program has identified significant deficiencies in the program structure and its budgeting and cost estimating, indicating the program has a low probability of meeting the performance and satellite coverage requirements for weather and climate monitoring. We are taking these results seriously and are working with both our tri-agency partners and the Administration on a number of options to address the independent review team's findings. In addition, we have added some funding in 2009 to help mitigate cost and schedule in this program. We will continue to consult with you as these options are developed to ensure the continuity of the crucial climate and weather data provided by polar satellites.

3. Sea level rise directly threatens coastal infrastructure through increased erosion, more frequent storm-surge flooding, and loss of habitat through drowned wetlands. NOAA's budget request includes \$20 million for the Jason-3 satellite to provide continuity of sea surface height measurements, thus ensuring continuity of a quality climate record of over 20 years. Jason-3 is planned as a truly joint U.S.-European partnership with U.S. and European funding. By sharing costs with the Europeans starting in FY 2010, both sides have a cost effective way to assure continuity of the sea surface height measurement.

Fisheries

Another challenge facing NOAA is ending overfishing, improving fisheries management and putting fisheries on a path to sustainability and profitability. Continued overfishing threatens the viability of fishermen and fishing-dependent communities. The time has come for a paradigm shift in how we manage our fisheries resources. We now need a fishery management system that will sustain fishing economies and incentivize stewardship and conservation.

The reauthorized Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) provides strict regulatory guidelines for ending overfishing. This budget provides \$56.5 million in new increases, for a total of \$98.3 million, to implement the requirements of the revised Magnuson-Stevens Act and begin a transition to catch-share fishery management programs. This is the second largest increase in the budget, behind satellite acquisitions, and is a significant investment in improving management of our fisheries. This request includes funding to establish and monitor annual catch limits and accountability measures for stocks subject to overfishing, expand annual stock assessments to improve the science used for setting management measures, increase enforcement and observing of fisheries effort, promote recreational data collection, and expand cooperative research programs.

A highlight of the Magnuson-Stevens Act request is \$18.6 million to support transition fisheries around the country to catch-share management. This funding level builds upon \$16.7 million provided in FY 2009 and supports improved at-sea monitoring and documentation of catches, increased enforcement coverage, additional resources for cooperative research projects with the fishing industry, and fishermen training for newly required logbooks.

NOAA has an ongoing investment in implementing the Pacific Salmon Treaty with Canada to ensure conservation and fair harvest-sharing of salmon stocks that span the U.S.-Canada border. NOAA requests \$16.5 million to implement the newly revised Chinook salmon provisions. Within this request, \$7.5 million will support projects to assist the recovery of critical Puget Sound salmon stocks listed under the Endangered Species Act, including hatchery and habitat projects. An additional \$7.5 million will help mitigate economic consequences of significant catch reductions in

the Southeast Alaska fishery. The final \$1.5 million will bolster the coast-wide coded wire tagging program to improve salmon run monitoring in the United States. In addition to NOAA's contribution to this treaty, the Department of State will request a total of \$30 million for Canada Fishery Mitigation—\$15 million in FY 2010 and \$15 million in FY 2011—in fulfillment of United States commitments under the Pacific Salmon Treaty.

In addition, on May 21, 2009, the President submitted an FY 2010 budget amendment that included a transfer of \$50 million of our request for species recovery to the Pacific Coastal Salmon Recovery Fund (PCSRF). The budget amendment also included \$11 million to expand the national program for endangered and threatened species. Both of these programs will support efforts to restore habitat and promote the recovery of at-risk stocks, including 28 salmonid stocks which are listed as threatened or endangered under the Endangered Species Act.

Climate

Climate change is among the greatest challenges of our time. It will permeate nearly every aspect of our lives. What we choose to do about it now will define us for generations to come. NOAA's long history of climate observations and products provides a strong foundation for the agency's work to synthesize scientific data on climate change and create products and services that can be used by the public to guide important decisions such as where to build roads, the types of crops to grow, and how to protect coastal properties. NOAA's climate information, products, and services also play an important role in the siting and design of the Nation's emerging renewable energy infrastructure—wind, solar, and ocean—to help meet the Administration's goal of a clean energy economy. The FY 2010 Budget requests an increase of \$41.9 million for a total of \$285.7 million for high-priority climate initiatives.

NOAA also has made it a high priority to understand climate-ecosystem interactions, particularly the impacts of ocean acidification on biological productivity and distribution. I'd like to thank this Committee for including legislation on ocean acidification in the Omnibus Lands Act passed earlier this year. Ocean acidification has the potential to drastically affect animals that have calcareous shells; those changes in turn will likely affect other species that depend upon the shelled ones. NOAA's FY 2010 ocean acidification initiative has two components: \$4 million for ocean acidification monitoring and \$1.5 million for research on ocean acidification's impacts on living marine resources. With these funds, NOAA will equip open-ocean and coastal moorings with additional sensors to monitor the changes in the pH of the global ocean and will conduct studies on the effects of acidification on living marine resources.

Drought is another serious climate problem facing the United States. There is an urgent need to be able to provide predictions and projections that answer questions such as: Will drought conditions in the U.S. Southwest continue over the next decade?, and How will drought affect farmers? NOAA's FY 2010 Budget includes \$4.6 million for the National Integrated Drought Information System to develop drought early warning system pilot projects in three diverse geographic areas: Colorado River Basin, Southeastern U.S., and California. These funds will allow NOAA to develop and implement the next generation Climate Forecast System, which will lead to improved drought forecast products.

The free and open exchange of scientific information, such as NOAA's climate model data and products, is critical to the global effort to understand and predict global climate change. The President's Budget includes \$2.5 million for the National Climate Model Portal, created by NOAA. This online database will provide archive and user-access capability for the next generation of climate products that utilize major advancements in model physics and coupling across the ocean, air and land interfaces. This is an important step in NOAA's ability to provide climate products and services to the scientific community and the public.

Coasts

Fifty percent of Americans live in coastal areas and sixty percent of the country's Gross Domestic Product (GDP) is generated in coastal communities. Coastal populations (estimated at over 160 million in 2008) are expected to grow, and risks to life, property, businesses and coastal habitats will only increase. NOAA's FY 2010 Budget provides key investments to promote sustainable and safe use of coastal areas.

The Budget requests \$2 million for NOAA to establish a Coastal Communities Task Force comprised of key public, private, non-governmental, and university community representatives. This task force will chart a new course of effective, meaningful action for management and stewardship of the Nation's valuable coasts.

Harmful Algal Blooms (HAB) are one of the most scientifically complex and economically significant coastal issues facing the Nation. The toxins can cause human illness and death, close waters to recreation or seafood harvesting, severely impact tourist economies, alter habitats, and adversely impact fish, endangered species, and other marine organisms. NOAA is requesting an increase of \$2.7 million to implement a national system of operational HAB forecasts and a national HAB event response capacity. This system will be implemented region by region.

Industry, decision-makers, and the public are demanding more accurate maps and charts to benefit the economy, predict coastal hazards, and manage coastal habitats. Precise elevation measurements are needed, especially in coastal areas and watersheds where a small height difference can dictate the need for additional insurance because of location within a flood zone. The budget request includes \$4 million for NOAA to begin a multi-year effort to produce a new national vertical datum by 2020 that will improve elevations and height information used in a variety of critical applications including monitoring sea level rise and coastal subsidence, developing flood evacuation maps, and ensuring safe and efficient marine transportation.

Weather

The United States is the most severe weather prone nation on Earth. We experience more than \$11 billion in damages due to severe weather incidents each year. Weather and climate-sensitive industries, both directly and indirectly, account for about one-third of the Nation's GDP ranging from finance, insurance and real estate to services, trade and manufacturing.¹ Accurate weather warnings and forecasts are critical to protect lives and property and our FY 2010 request fills critical gaps in NOAA's ability to observe and forecast weather events.

Hurricanes are responsible for loss of life and billions of dollars in property damage annually. The United States has seen an increase in both intensity and frequency with recent storms. To improve hurricane track and intensity forecast accuracy by 20 percent within 5 years, NOAA is requesting an additional \$13 million for a total of \$17 million for its hurricane forecast improvement plan. The additional funds will allow NOAA to translate critical research into operations, improve processing of key observations, and enhance model accuracy. Funds will also be dedicated toward additional computing capacity to improve the resolution and accuracy of both global and regional weather forecasts. This effort is critical to ensuring evacuation notices are accurate and false alarms are avoided.

NOAA is actively involved in the multi-agency effort to create the Next Generation Air Transportation System (NextGen). Federal Aviation Administration records indicate that on average, weather is a factor in 70 percent of flight delays, contributing to losses of over \$4 billion annually. These delays will only increase as demand for air transportation is expected to triple by 2025. As passengers on these flights, we want the pilots and commercial airliners to have advance warnings and access to the most accurate information concerning severe weather, thus mitigating delays. Many of the delays can be avoided with enhanced weather information and forecasts. NOAA has requested \$6.1 million to implement this effort through improved aviation model and aviation weather forecasts.

The Budget also includes increases for upgrades and technology refresh of weather prediction systems.

Program Support

Education and outreach are critical for promoting environmental literacy. The FY 2010 President's Budget includes \$5 million for a competitive national environmental literacy program to promote excellence in informal and formal education related to ocean, coastal, Great Lakes, weather, and climate sciences. This request will allow for 10 to 14 competitive awards to be issued per year and directly addresses the educational mandate this Committee helped establish in the America COMPETES Act.

The NOAA Corps officers play an essential role in NOAA, serving across all line offices. They serve at sea aboard NOAA's research and survey fleet, in flight aboard research aircraft that probe everything from hurricanes to snow cover, and ashore in NOAA's labs and offices throughout the United States. The NOAA request of \$2.2 million will increase the number of officers by 22 from 299 to 321 as authorized by law. An expanded NOAA Corps will lower officer attrition rates by avoiding particularly long and arduous at-sea assignments.

¹Dutton, John A., Opportunities and Priorities in a New Era for Weather and Climate Services, *Bulletin of the American Meteorological Society*, September 2002, volume 83, no. 9, pp. 1303-1311.

Conclusion

Overall, NOAA's FY 2010 Budget Request is a good budget for NOAA and provides a solid foundation for our future needs. The overall increase reflects the growing need for NOAA's infrastructure and services. I look forward to working with you, the members of this Committee, to achieving the goals I've laid out here through the implementation of the FY 2010 budget.

Thank you for the opportunity to present NOAA's FY 2010 Budget Request. I am happy to respond to any questions the Committee may have.

Senator CANTWELL. Thank you, Dr. Lubchenco. I want to add my thanks to you on the recognition of the Doppler system that is necessary for the West Coast, particularly the Pacific Northwest, and the head of the Weather Service was there to basically meet with constituents from the Northwest from a whole myriad of industries and described really what is the necessary coverage to protect the citizens of the Pacific Northwest. So we appreciate including that in the budget this year and for the prior Administration's \$2 million to work toward what is an implementation plan on that.

Which brings me to the larger point about how NOAA meets its necessary obligations, and I think that is what we saw at that public meeting in the Northwest was that there was a responsibility of the Weather Service to provide adequate coverage, and now NOAA is going to live up to that.

But starting in 2003, NOAA implemented a planning and programming budget and execution system for its annual budget. This process was to identify the funding required to fill and meet the mandate in mission. So this was referred to as their 100 percent requirement.

So, I want to ask you to begin with, to what degree do you think this 2010 request is sufficient to meet this 100 percent requirement for the agency as a whole?

Dr. LUBCHENCO. Senator, thank you for the question. I greatly appreciate your interest in focusing our attention on this very important issue.

I do believe that the proposed budget is a good budget for NOAA. As I mentioned, we have really worked hard to find some efficiencies and reallocate resources, where appropriate.

I have not had an opportunity to go through the entire budget and calculate 100 percent of our requirements. I agree that that is a very appropriate thing to do. It is beyond the time that we have had to really dig into this since I began.

However, it is very clear to me that as public demand for NOAA's environmental services grows from monitoring climate change, providing climate services, and improving severe weather forecasts, we are going to need significantly greater resources to address this demand.

I think perhaps the most useful thing for me to do in response to your question is to provide some examples of programs where I have had an opportunity to see the difference between what we have in hand and what we think we could be able to provide.

I would like to start with one specific program. The funds that were provided in the ARRA for habitat restoration for NOAA totaled \$167 million. These are competitive projects. We put out a request for proposals and received 813 proposals from 34 States, totaling \$3 billion, and obviously, we have only \$167 million to allocate. Of that \$3 billion, we deemed that \$1 billion of that was shov-

el-ready, high impact, and the remaining two, very viable projects for which we needed some additional information or development.

A second example that I would highlight. We have a wonderful coastal and estuarine lands conservation program. The President's budget included \$15 million for this CELP project or program, and we typically receive between \$80 million and \$100 million in viable high-quality proposals every year.

On a completely different category, our high-powered computing, which provides information for weather, climate, and environmental monitoring, is an area where additional resources vastly enhance our capacity to provide better forecasts, better climate models, especially as we go to finer and finer scales.

Senator CANTWELL. Dr. Lubchenco, so you are giving me some specific examples, but I wonder if you could give me the number of what a full 100 percent requirement funding would be for NOAA.

Dr. LUBCHENCO. I do not have that number, Senator.

Senator CANTWELL. But if you could get that number.

Dr. LUBCHENCO. I look forward to looking into that and doing a complete analysis. As I mentioned, it is clear that almost every one of our programs is not at the level—or we could use additional resources very, very well, and we will do that calculation and get back to you.

Senator CANTWELL. Well, since NOAA implemented this process, we want to see if NOAA is living by the process. Obviously, you have to go through, just as every agency and Executive Branch submitting a budget proposal and a legislative process to confirm or concur with that or disagree with that. But having the agency do its own homework of what it really takes to deliver the resources within the agency is critical because otherwise we will never be able to have a discussion here if the agency cannot provide an assessment about what an accurate 100 percent requirement fulfillment would look like. So if you could give us that number, that would be great.

Dr. LUBCHENCO. I understand the utility of that.

Senator CANTWELL. OK.

You know what? I am going to stick with 5 minutes here. So I will let my colleagues. We will come back to NPOESS unless somebody else has some questions. Maybe my colleague from Georgia does, but I will turn to my colleague, Senator Begich, the Senator from Alaska.

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

Senator BEGICH. Thank you very much, Madam Chair. I do have to leave at 11:30 a.m. So we are going to submit some questions in writing also.

But if I can just follow up on the Chair's request, I am assuming that you prepared a document. I do not know what the rules are here, but I am new, so I get to have that rule that I do not know what the rules are, so I can say that. You probably submitted a document to OMB of what you thought was necessary to fund at 100 percent or at the higher levels. Is that document available for us to see and get to the answer that the Chairman has asked?

Dr. LUBCHENCO. Senator, I apologize. I do not know the answer to that question.

Senator BEGICH. Well, whoever is right behind you is writing that down. That is the question.

But let me ask you, being parochial, about some Alaskan issues but also related to the West Coast. I know one item, the Pacific Coast Salmon Recovery Fund, which I think my colleagues from the western States are aware of—at one point was zeroed out. Then it was put back in, about \$50 million, which is still below its recent year allocations of \$80 million to \$90 million. As you know, the program deals with critical management to the West Coast salmon stock which indirectly and directly affects Alaska.

How do you see those dollars and do you believe there is a need for additional dollars for that program to be successful?

Dr. LUBCHENCO. Senator, let me first say that I have seen firsthand how important that program is. Both Secretary Locke and I believe the program is valuable and are committed to the important goals that it has. It is clear to me that that program is making good progress, is doing what it is intended to do, and yet there is still much work to be done in terms of recovering Pacific Coast salmon.

I believe that the \$50 million that was in the budget amendment is a good start. I believe that the \$11 million that is in the Endangered Species Recovery Fund for the rest of the endangered species all around the Nation is an appropriate fund to have, but it is clear that \$11 million will not begin to address all of the endangered species recovery needs that exist.

Senator BEGICH. Well, you led me right into my second question which is the recent General Counsel's opinion. The Pacific Coastal Salmon Recovery Fund can only be used on endangered stocks. Alaska has no endangered stocks, but the management and utilization of the dollars are important. Rather than waiting until they are endangered, to actually do work ahead of time, I think the words you used were improve management, overfishing, and other elements.

But how will you now use that? Will you follow that very restrictive policy, or are you going to recommend to us or are you going to do internal changes to allow flexibility as has been done in the past? Because that very restrictive really shrinks it down, and I think there is going to be a loss of capacity down the road. So do you have any comment on that?

Dr. LUBCHENCO. When we were constructing the guidelines for the national Endangered Species Recovery Fund, we carefully chose the words "at-risk," species that are at risk.

Senator BEGICH. I did note that you used the word "at-risk."

Dr. LUBCHENCO. And that is intended to allow for exactly the kind of circumstances that you describe, Senator, where it is appropriate to begin activities before species are in the emergency room, if you will.

Senator BEGICH. Very good. Thank you for that clarification.

This is again strictly an Alaskan issue, but the Ketchikan dock where NOAA docks the Fairweather has been condemned, and the Alaska-based vessel—no offense to my colleague in Washington—is now in Seattle. What are the plans for capital improvement to

fix that dock so that the Fairweather can come back and do its Alaska work from an Alaska base?

Dr. LUBCHENCO. Senator, I do not have an answer to that, but I would be happy to look into it and get back to you on that.

Senator BEGICH. That would be great, if you would not mind doing that.

I have about 30 seconds left. So, I am going to ask you about a specific—it is basically an erosion of a NOAA facility funding in Alaska for the lab at Kasitsna Bay. It is the only West Coast lab in NOAA's national center for coastal and ocean research programming which partners with the University of Alaska. NOAA has just spent about \$12.5 million to upgrade the facility, but even with that upgrade, they do not have the operational staff necessary. They have one staff person there, and at one point this year, we were told by the university that because of the lack of \$50,000—\$50,000—that the facility was about to be inactive. It is a pretty important facility, as you probably know.

Do you think the budget you have prepared and proposed adequately funds and maintains that facility? Again, if you do not know the specifics of this, because I am very specific on this, you can surely come back in writing on that.

Dr. LUBCHENCO. Thank you for that option and I will take it.

Senator BEGICH. OK, thank you.

Madam Chair, I apologize but I do have to leave for an 11:30. But I have had two additional opportunities in—I think we keep running into each other in the last 2 days, and I appreciate your comments in your statement about climate change and that future resources are really going to be needed as we move down this path in research, as well as Arctic policy. I know that is a huge effort and a huge interest to the Chair of this Subcommittee too. So, thank you very much for those comments.

Dr. LUBCHENCO. Thank you, Senator. And I really appreciated the remarks that you gave in Annapolis 2 days ago at the Arctic Symposium. I look forward to working with you on Arctic issues.

Senator BEGICH. Very good. Thank you.

Thank you, Madam Chair.

Senator CANTWELL. Senator Isakson?

**STATEMENT OF HON. JOHNNY ISAKSON,
U.S. SENATOR FROM GEORGIA**

Senator ISAKSON. Thank you, Madam Chairman.

Welcome back, Dr. Lubchenco. During your confirmation, I told you I was going to extend to you an invitation to dive in the Georgia Aquarium. I wanted to give you a progress report. They have almost finished the expansion, and that invitation is forthcoming. I look forward to you having the opportunity to come down. She is a great scuba diver. They have now opened it up for that, and I thought it would be a lot of fun.

In the confirmation hearing, I asked you about the Savannah River. In particular, the Corps of Engineers had requested of the National Marine Fisheries Services under NOAA, a request to lower the cubic-feet-per-second releases at the Savannah River down to 3,100 cfs from 3,600, and that was denied because of the short-nosed sturgeon. So for a period of time, that reduction was

denied until the end of January, and then it was extended to the end of February. And to the best of my knowledge, I think it is still there.

As I told you at that time, my understanding was that that was basically an opinion and there was not a lot of scientific data to back up whether or not the difference would affect the spawning of the sturgeon. Did you have a chance or have you had a chance to look into that?

Dr. LUBCHENCO. I did, Senator. Let me share the following with you.

As you know, NOAA is charged with conserving the short-nosed sturgeon and it is listed as endangered. We are required by ESA to use the best available science in making our determinations. In situations where the best available science is not available and the information is not definitive, the benefit of the doubt has to be given to the conservation of the species. So that is just the context in which we are having this discussion.

In the recent issue of the Corps of Engineers ESA consultation with NOAA on water release rates in the Savannah River, NOAA did apply the best available scientific information, consistent with the ESA. It is, I think, relevant to note that NOAA does not have its own capacity to conduct research on the short-nosed sturgeon, and what we did in this case was to depend on the research that has been done by academic scientists, State conservation agencies, NGO's, and other Federal agencies. So that was the base of information on which we drew in making the determination.

NOAA continues to collaborate with the Corps and the Nature Conservancy. Since the recent consultation was completed, to develop better information on the areas that may support short-nosed sturgeon spawning beneath the new Savannah Bluff Dam—and that dam, obviously, blocks or is blocking access to the spawning areas. One of the findings of that continuing research is that the spawning sturgeon did arrive at the dam shortly after the predicted start of the spawning season.

So, I believe that we are using the best available science in making this determination. That said, I think additional scientific information would only be helpful in this case.

Senator ISAKSON. Well, thank you for that answer. At the beginning of the answer, you said if the best scientific advice was not available, the preservation of the species governs your decision. Is that correct?

Dr. LUBCHENCO. That is according to the Endangered Species Act.

Senator ISAKSON. Which allows me, Madam Chairman, to raise a question, and you do not have to respond to this, but it allows me to say something. In Georgia, we have had two category-4 droughts: one in the Savannah River basin and one in the Apalachicola-Chattahoochee flat and the Apalachicola-Chattahoochee-Tallapoosa. Level 4 droughts, as the doctor knows, are very severe.

In fact, Atlanta, which has 5.5 million people—the reservoir that it depends on almost totally for its water was down 22 feet as far back as just about 6 months ago. And we had severe restrictions and severe problems. The increased cfs withdrawals from that reservoir were because of a mussel in the Apalachicola Bay.

And it just seems to me, like in the Endangered Species Act, that when the endangerment of homo sapiens, which in this case, the citizens of northeast Georgia, and their water supply are in danger, there ought to be some judgment applied in these judgments on endangered species. I do not want any species to go away, but because of the mussels—fortunately, the good Lord gave us a lot of rain. The reservoir is filling up. The crisis is over. That is not true in the Savannah River basin yet.

But somewhere along the way smarter people than me—and I think you are one of those—need to think about how we might take the Endangered Species Act and amend it so as to provide equal flexibility of judgment depending on all species affected by the waterway, not just the one in which there is litigation. That is the only comment I wanted to make.

Dr. LUBCHENCO. Senator, I greatly appreciate many of the very challenging issues associated with implementation of the Endangered Species Act, and I think in this case we, in fact, were fortunate that the rains—it did not turn out as badly as it might have. The rains started, and in fact, as you mentioned, the reservoirs are filling up. So in this particular case, that was lucky, but I think the issues will remain challenging.

Senator ISAKSON. Thank you very much.

Senator CANTWELL. Thank you, Senator Isakson.

Dr. Lubchenco, I would like to talk about the National Polar-Orbiting Environmental Satellite System, known as NPOESS. An independent review team has said that the NPOESS program has an extraordinary low probability of success and cannot be successfully executed within the restraints of cost, schedule, and performance with the current management construct. So I am assuming you are familiar with that independent review team report. Is that correct?

Dr. LUBCHENCO. More than I would care to be.

Senator CANTWELL. And I know that you mentioned that you and Secretary Locke are going to make it one of the highest priorities. But how will the Administration address the recommendations in the report?

Dr. LUBCHENCO. Senator, you will recall that at my confirmation hearing, there was keen concern expressed about the NPOESS program, and I indicated that it would be one of my highest priorities. As you accurately note, Secretary Locke is keenly interested in helping to find a solution to this program.

We now have the final report from the independent review team, and its conclusions are, indeed, sobering. I note that they begin by pointing out that this system is a critical national asset for both climate and weather information, and so there is a lot at stake here. It is clear that action is needed. The program as currently structured, as you note, has a very low probability of success.

The findings and recommendations from the independent review team included assessing the priority and the level of participation from each agency, making launch adjustments, changes to the budget and cost estimates, and recommendations for the VIIRS instrument.

What we have done is to engage in intense discussions with the other agencies that are involved in this program, the Department

of Defense and NASA, and also with the Office of Science and Technology Policy to look critically at the recommendations of the independent review team and find a way forward.

I believe that the discussions have been very honest and straightforward. I think we are making good progress to finding the right resolution. There are a number of options that are on the table now. So there is no final decision that is imminent. I think it is appropriate to say simply that as we continue these discussions, our intent is to work with the Committee and the other relevant committees and to identify the solution that actually will put this program back on track.

I am more optimistic than I was when we first began looking into these challenges. I think the guidance from the independent review team is invaluable, and there is increased awareness that the current situation is simply not acceptable. So the funds that we have in the current budget are intended to keep us on track, but we are assuming throughout that we will be resolving the range of different issues identified by the independent review team, both the tri-management structure, the costs, the way the cost estimates are budgeted, and a number of the other issues that they identified.

Senator CANTWELL. Well, if I could probe more because, obviously, the report was pretty damning of the current process. This Committee, obviously, has oversight of a couple of different areas where acquisition programs are not going in the direction that we would like them to go and have had huge cost overruns and delivery of assets that have either not met specification, been delayed, or had to be adjusted. So this Committee clearly does not want to deal with another situation. In this instance, it has a new opportunity with the new Administration to move in a more direct route on this.

I personally believe it is hard to get any kind of acquisition program done by committee. That is a very tough challenge.

So who in the White House is responsible for the interagency coordination?

Dr. LUBCHENCO. The original tri-management structure was set up through a Presidential decision directive through the Office of Science and Technology Policy. So Dr. Holdren, as the head of the Office of Science and Technology Policy, is intimately involved in helping facilitate the tri-agency dialogue to find a solution.

OMB has been involved.

Senator CANTWELL. So, he is leading this effort?

Dr. LUBCHENCO. He is leading this effort.

Senator CANTWELL. So the White House has a coordinated effort, and Dr. Holdren is the lead on that.

Dr. LUBCHENCO. That is correct.

Senator CANTWELL. So we should call him to the next hearing we want to have about the NPOESS satellite? We should call him as the lead in the coordination of this?

Dr. LUBCHENCO. That is obviously your call, but this is an inter-agency issue and OSTP is taking the lead.

Senator CANTWELL. My point is to get one point of contact and leadership about the problems. I want, obviously, each of the individual agencies to help in the resolution of this, but part of the problem is a \$12.5 billion acquisition program divided by three

agencies is not the way to get the oversight and leadership to make sure that the asset acquisition goes correctly for the American taxpayers and for the research that is needed out of the NPOESS system, which is, obviously, across these various agencies, very distinct and necessary needs for both military, for weather, for climate change, and for the future.

Dr. LUBCHENCO. Senator, I think the intent of the tri-agency structure was a good one in recognizing that there are legitimate civilian and military needs and it would seemingly make sense to have those be combined into a single program. But I think the evidence is very clear and the IRT, the independent review team, is very clear in its conclusion that the tri-agency structure is not working and is not serving the program or the Nation and it really needs to be fixed.

Senator CANTWELL. So, how will you establish clear program priorities?

Dr. LUBCHENCO. Within NPOESS, there are important military needs for weather to inform military operations. That is the portion of the program the Department of Defense is responsible for. NOAA's responsibility lies with information that feeds both weather and climate, and the orbits that are required for that information are different. And as the independent review team points out, so too is the quality of the data that are required by the Department of Defense and NOAA. As I understand it and as the independent review team points out, the Department of Defense's requirements are lower in terms of the quality of the data that suffices for their operations.

The independent review team suggests—and I concur—that priority needs to be given to the higher requirement needs which in this case are for both continuity of climate information, as well as state-of-the-art information to inform weather forecasting, and that that priority is—that that is a higher bar and that if the program is to succeed, that bar needs to be met. So that has been one of the tensions in the tri-agency structure that has been addressed by the independent review team and for which we have some good recommendations.

Senator CANTWELL. For example? So strengthening the management of the program, besides having the White House and a key person in the White House taking the lead, what else are you doing? We just talked about clear program priorities, but what else are you doing to strengthen?

Dr. LUBCHENCO. Program priorities are important, but so too is having a better decisionmaking process, a better management process, and there are four different options that are on the table that are currently being reviewed in terms of different configurations that would result in clear management authority and responsibility. Those four have not yet been resolved. There is an active discussion. There are pros and cons of different ones.

Currently the decisionmaking process involves an Executive Committee, a so-called EXCOM. And there are three individuals that sit on the Executive Committee. That committee should have authority to make decisions. That was the way it was set up. That was the intent. In reality, one of the three people who sits on that committee does not have authority to make decisions. So that has

been one of the areas that the independent review team has pointed out has been problematic. So that clearly has to be resolved if the current configuration stands.

Senator CANTWELL. Could you inform us at the time that you are narrowing in on this process so the Committee can be informed about that? Because, obviously, this is a budget increase of 30-some percent, and while we want to make sure that the program is developed, at the same time asking for the additional resources without the improved structure and decisionmaking will be a disaster. So, if you will get us that information. I am assuming that new alignment is going to happen shortly. I think we should have Dr. Holdren come back at some point in time, given the importance of this system for so many different national needs.

Dr. LUBCHENCO. Senator, let me say that the reason that we are moving ahead with the budget request in this year's budget for NPOESS, in parallel to fixing these problems, is simply that any delay in the program, any further delay in the program, puts it at risk because of the loss of continuity of the climate and weather data.

Senator CANTWELL. Well, this Committee is very well aware of Coast Guard needs that are part of the Nation's national security, but when we are presented with boats that don't float or holes that have to be realigned, no one has been served by that process. So, this Subcommittee is very well aware in the acquisition process of the many challenges. So, we want to make clear that as we are going through with the budget process, that the new structure and oversight of this process is not done by committee where no one individual feels the key responsibility.

I think the hierarchy that you have outlined of a key White House contact with each of the agency's tightening up their line of responsibility I think is a good plan. We would like to hear more about it. So as your agency works with this, if you would inform the Committee on the process and decision you are going to follow, that would be very helpful.

Dr. LUBCHENCO. I would be happy to.

Senator CANTWELL. Great. Thank you.

Dr. LUBCHENCO. And thank you for your interest in helping us fix this.

Senator CANTWELL. Thank you. Well, we believe very much in the importance of the data that needs to be collected and the missing gap that we think is currently there on climate change, and only this kind of satellite structure will be able to give us that information in addition to the very important day-to-day functionality that it provides to us on weather and other issues.

Speaking of climate, if I could switch gears to that and the priorities of the agency because NOAA, obviously, has a very important role in both helping us understand climate change and managing the impacts on the oceans. There are countless research topics in which NOAA could invest, and obviously, with the budget that you have now, that makes it very challenging.

So I wanted to find out about phytoplankton which, obviously, is very key because in the ocean it produces 90 percent of the world's oxygen. So loss of that phytoplankton will literally have an unbelievable impact.

So is NOAA conducting research now on how phototrophs are being impacted by climate change and what it means for the oceans and what else we need to be doing?

Dr. LUBCHENCO. Senator, there are both direct impacts of climate change on the microscopic plants of the oceans, the phytoplankton, but there are also impacts mediated through ocean acidification, and NOAA has research activities looking at impacts of both climate change and ocean acidification on these phytoplankton. You are absolutely correct that they are critically important to all of life in the oceans as the base of the food web, and in addition, they do, indeed, provide most of the oxygen that we breathe as well as other critical services.

This is an area where we do have good viable research. It is not at the level or scale that it needs to be to be maximally effective. So this is another area that could benefit from enhanced resources.

Senator CANTWELL. And what would that be? What would the advantages be and what would the additional needs be?

Dr. LUBCHENCO. Let me focus on ocean acidification just as a little more concrete piece. The ocean acidification currently—this is a new problem that we have not really been aware of until relatively recently. Anything that has a shell or a skeleton is affected by changes in the acidity of the ocean. Many of these microscopic plankton have shells, and therefore changes in the level of acidity and changes in other aspects of ocean chemistry affect how productive ocean waters are.

This year's budget has essentially a down payment on ocean acidification research, if you will. And I am looking for my actual numbers here. Thank you. We have requests for \$9.9 million for research on ocean acidification, and that is an increase of \$5.5 million. And it goes to both ability to actually monitor how the acidity is changing. That is one fraction of that, and the other is laboratory research to actually look at the impacts of those changes in ocean chemistry on phytoplankton and other species that have shell or skeleton.

So that amount is as much as we could manage within the constructs of this year's budget, but there is a lot more research that would give us a much better understanding of what is likely down the road. It is not just the microscopic plants, but there are animals that have shells or skeletons that are also affected, and some of those animals, for example—one is called terrapods—are the food for salmon and the food for pollack. So understanding how changes in the food sources are going to affect those species is critically important.

Senator CANTWELL. How they are already affecting the species.

Dr. LUBCHENCO. They are already, undoubtedly.

Senator CANTWELL. Let me ask it differently then. If the health of the oceans was ranked on a scale of A being the healthiest, F being failing, where would we be right now in your assessment, given the gravity of this situation with acidification?

Dr. LUBCHENCO. At the global scale, oceans are seriously depleted and disrupted. I have not actually thought about giving them a letter grade. It is clear that they are not healthy and that—

Senator CANTWELL. So not passing.

Dr. LUBCHENCO. Not passing. They are definitely not passing.

Different parts of our coastlines and oceans are in trouble more than others, and one of the needs is to have more cohesive, comprehensive ways of bringing oceans back to health instead of managing activities one sector at a time; a more comprehensive marine spatial planning, for example, on an ecosystem basis which can provide a blueprint to recovering, restoring coastal and ocean areas to a healthy state. I cannot give you a dollar amount for what that would cost, but it is not just a research enterprise. It is also integrating across management and policy decisionmaking that is in order and is being recommended.

Senator CANTWELL. Well, what I am interested in is your mention of further research that could be helpful. Our Tuesday hearing definitely illuminated this issue, many of the panelists saying that more information about the impacts would help us in moving forward on conclusive findings that this acidification is happening and the problems with it so that we could actually do more in tackling it. Now, obviously, we need to pass climate legislation to reduce the CO₂ impact that is creating this problem as it relates to the oceans.

But we are seeing this in the Pacific Northwest today, and it is alarming. To have a \$100 million shellfish industry literally be brought to its knees by the bacteria and problems that we are seeing as a result of this—it is overnight. It is instant. It is not like you are having a degradation of—it would be like having an entire wheat or corn crop just wiped out in 1 year, not you losing 15 percent, but if you cannot get the seeding, you are not going to have a shellfish industry. So the impacts of this we are seeing now, and they are devastating.

So what else do we need to do on the research side to prove to people that we are at this state? I would definitely give that an F. And I would say that if this is an indicator of where this is heading where we have these viable aquaculture industries, then we are going to see even more dramatic—it is not going to be isolated in the Pacific Northwest. We are going to see this kind of economic impact all over the country.

Dr. LUBCHENCO. I think that is a prime example of many of the changes that are already underway.

Another one that is off your coast is the appearance, the novel appearance of dead zones off the coast of Oregon and Washington, for which the evidence is most likely that this is a result of climate change. Those have appeared in the last 7 years, and before that, at least the 60-year record for which we have good information, that is completely unprecedented. So there are, indeed, changes underway already and more likely down the road.

And we do not have the research enterprise that we need to completely understand, predict the likely consequences, and have that be better informing management and policy. I think what we have is good. It is just not at the scale that is needed.

Senator CANTWELL. Well, I think we should attempt, given this situation being at a crisis level, to get that and get to that point.

Well, let me ask you about adaptation because I think we will come back and talk to you about this from an acidification perspective and research. On adaptation, are there programs now that peo-

ple like these shellfish farmers and others can turn to for adaptation?

Dr. LUBCHENCO. There are small programs that are intended to help advise shellfish growers, for example, through the Sea Grant program and other research program that has been informing the shellfish industry. But that has not been focused so much on adaptation to climate change, and this is a whole new arena for which we really do not have the priorities identified or the scale identified that would be appropriate.

It is clear that because climate change is already underway and there are more changes down the road, thinking about adaptation is best done sooner rather than later. There is currently an inter-agency working group that the Administration has set up to think about adaptation to climate change, and that is intended to focus not only on adaptation of human infrastructure, especially in coastal areas, but also adaptation for agriculture, for aquaculture, for fisheries, and for other parts of the natural world.

That dialogue is in its very early stages. It is an effort that is co-chaired by the Chair of the Council on Environmental Quality, Nancy Sutley, by John Holdren, the head of OSTP, and by me. I am hopeful that it will be a productive dialogue about where do we need to go with adaptation, but it is just in the early stages.

Senator CANTWELL. Well, on this individual instance, obviously, we are going to be requesting help on behalf of this industry, but you can imagine we would rather have a process that NOAA is working with managers and decisionmakers who can help us in the risk assessment and vulnerabilities and with the research on the science that is necessary to help in this area. So I would encourage you to formalize that and to move forward with it as quickly as possible.

I wanted to ask a couple more questions, if I could, on various topics. One of them is about NOAA's oil spill response office and the current backlog of its ecological sensitivity maps. These are used in decisionmaking. I do not want to let your spatial comment go unnoted. I think you are right. I think we need to move more toward ecosystem-based restoration and management, and that kind of spatial planning will help us. In doing so, we really are running into cross purposes where people are wanting to site renewable energy facilities in the same place that are critical fishing and aquaculture areas. So all sorts of, I think, decisions could be better facilitated with the kind of mapping.

But ecological sensitivity maps are important for our oil spill response as well, and during the Cosco Busan spill in San Francisco, responders relied on NOAA's maps to identify the areas needed. But NOAA's maps for some of the outer coasts are very outdated, 25 years old.

So what do we need to do to increase the efficiency and effectiveness of this mapping system and the backlog?

Dr. LUBCHENCO. The hydrographic surveys that NOAA conducts are, I think, not happening at the pace that they need to. So we have an exclusive economic zone that is 3.4 million square nautical miles, and NOAA's goal is to survey 10,000 square nautical miles each year. With the funds that we have in the 2010 budget, we will do 32 percent of that stated goal; *i.e.*, we will be able to survey

3,200 square nautical miles. So clearly, we are not even keeping pace with our own goals, our own aspirations for the rate at which we think we need to be doing this. So you have identified, I think, an important challenge.

The Office of Response and Restoration has activities above and beyond just the mapping, and using that technology to identify where oil spills are likely to go and what the appropriate responses are is, obviously, the goal of that program. The current budget request includes \$19 million for the Office of Response and Restoration. I think this funding level creates very serious challenges for the program, and I think this is yet another area where it would be appropriate to work with you to identify the level that would be appropriate.

Senator CANTWELL. Thank you.

I have a couple of other questions about efforts on regional cooperation and partnerships. My colleague from Alaska, obviously, talked about the Pacific Coastal Salmon Recovery Fund, and I just want to make sure that NOAA is committed to funding this program in future years.

Dr. LUBCHENCO. Secretary Locke and I are committed to this program.

Senator CANTWELL. In future years.

Dr. LUBCHENCO. In future years.

Senator CANTWELL. Thank you. Obviously, what is being currently requested is a cut from the 2009 level, and so as you can see from my colleague, this is very much a regional issue and one that we are going to, obviously, try to address here in the process. But it has been very successful, and we hope that it will get the focused attention from NOAA that it deserves.

The Puget Sound partnership. I asked you during your confirmation hearing about this because it has also been a very innovative and collaborative science-based effort to manage the Puget Sound environment. I could be asking this question for my colleague from Virginia about the Chesapeake or other regions of the country.

But will NOAA invest in these kinds of efforts to continue the partnerships so that they can be effective in implementing the kinds of resolutions that are about these parts of our waterways and ocean systems?

Dr. LUBCHENCO. NOAA has been an active participant in the Puget Sound Partnership and, I believe, is doing some very innovative and useful work to provide much of the science underpinning the development of the management plans and the implementation. I think that is a very appropriate partnership. I think it is a model for other places around the country. I think the relationships and the work that is being done is actually very exciting. A lot of the science is very cutting-edge and is really, I think, providing good guidance for the decisions that are being made.

Could it be ramped up to a higher level? Yes. Would that increase be helpful to the project? Undoubtedly.

Senator CANTWELL. Well, would it not be better if we had a specific pool of funding—if NOAA was able to support this work in a more coordinated way? I mean, I look at these issues from the Great Lakes, as I said, to the Chesapeake, to Puget Sound, to these other waterways, and their importance to their regions economi-

cally and environmentally. Would a more specific program not be better able to target and then target how you specifically as an agency could best help?

Dr. LUBCHENCO. I do not have an answer to that. The challenge, I believe, is that each of those areas has slightly different issues, and the partnerships are structured in a different way. I think the way that NOAA relates to each needs to be appropriate to whatever that particular partnership is. That said, it does not preclude having a dedicated program for those kinds of interactions. I have not thought about the pros and cons of that approach.

Senator CANTWELL. And scalability.

Dr. LUBCHENCO. And scalability.

Senator CANTWELL. And oversight and science. I mean, some of the numbers that come out on these things and on resources are very different to what the Great Lakes is focused on and funded at. So I think having something that is a more formal program helps in establishing what are our national objectives. They are regional resources with huge national economic impact.

Dr. LUBCHENCO. And huge leveraging capacity.

I think the discussion might be broadened to include many of the coastal regional programs that are developing around the country in, I think, a very exciting fashion where States are working together to create management and policies for the waters adjacent to their shores, in the Gulf of Mexico, the Mid-Atlantic States, the Gulf of Maine, the West Coast, the West Coast Governors Agreement, for example, on ocean health. Those, too, are regional efforts that should be supported by good Federal-regional partnerships.

Senator CANTWELL. I agree. I guess what I am getting at is that—this Committee definitely is going to be more focused on elevation of the oceans and waterways and the health of the oceans and waterways and trying to focus our national attention at what a critical—as you said, not a passing grade that they currently have and what we need to do to really restore them to their health. So we are definitely going to shine a bright light on that, and this is just one of the examples where we think a more coordinated effort at the national level would be helpful.

If I could, there is another program my colleague, Senator Murray, has been very involved in for many years. It is another example of innovation and coordination, and that is the Northwest Straits program. It is an initiative, and it is basically a community-based program for restoration activities. So it really focuses on the science-based conservation and restoration.

What do you see those kinds of programs at the regional level—what kind of potential do you see for those like the Northwest Straits and other community-based programs where we are working to coordinate these many resources to address our shortcomings?

Dr. LUBCHENCO. That particular program is often held up as a nice model of local citizens' action in partnership with counties, States, and tribes in the region. I think that that program has made very good progress in doing habitat restoration, the kinds of things that have been identified by locals as useful and relevant and that they want to work on.

I think its utility and effectiveness could be enhanced with stronger connection to science-based information and transfer of information from one program like that to another. I think there are a number of different areas where there could be significant improvement in the effectiveness of programs like that. I think it is a really nice beginning on which one could build.

Senator CANTWELL. Well, I think the interest that we have from a Northwest perspective is that these collaborative efforts, given the solutions to our problems are more often than not the coordination of these various entities taking on new roles and responsibilities or cutting back on current activities and reshaping them—we have found much leverage in the up-front addressing of those issues by that collaborative process. We have gotten much more to the resolution of a solution and implemented that resolution as opposed to, I would say, other regions who followed a traditional court or legal battle and then, consequently, years or decades before they implement anything. So, I hope the agency would continue to look at these as very collaborative efforts within regions and getting many entities, various government entities, and communities to do the right things as it relates to the health of our oceans and waterways.

Well, Dr. Lubchenco, I think that is the questions that I have today. We might have some more that will be submitted from our colleagues. Again, we thank you for being here to testify about the NOAA budget.

As I mentioned, we believe that we should move more toward an organic act here so we can formalize this process even more. If we are really, truly to get to the level of addressing the needs of our oceans, I think we are going to have to do so by proving the validity of programs and the basis for why we are requesting the increase. So we will look forward to working with you on that in the future.

So this hearing is adjourned.

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

A P P E N D I X

PREPARED STATEMENT OF HON. JOHN D. ROCKEFELLER IV,
U.S. SENATOR FROM WEST VIRGINIA

This has been an exciting week for our oceans, starting out on Monday with World Oceans Day, and celebrating Capitol Hill Ocean Week. As Chairman of this Committee, I am very proud that we have taken the time, with Senator Cantwell's leadership, to highlight the great economic and environmental wealth that our oceans and coasts hold.

I am very pleased that the Committee will be hearing from The Honorable Jane Lubchenco, Administrator of NOAA, today as we discuss our oceans, climate change, and many other important issues in the context of the National Oceanic and Atmospheric Administration's Fiscal Year 2010 budget hearing.

This past Tuesday, the Committee discussed the importance of the blue economy to our Nation. We discussed the critical jobs and economic opportunities that emerge from our oceans, Great Lakes, and coastal resources. We started a dialogue that we will continue here today about the need to preserve the value of our ocean and coasts in the face of climate change.

Simply put—our oceans are in peril. Pollution harms the animals that live in the sea, the foods we eat, and the beaches that Americans hold dear. There are areas of the ocean that are now so oxygen-depleted that animals can no longer exist.

The oceans are also becoming more acidic, which reduces the productivity of our fisheries and shellfish harvests by literally dissolving organisms and disrupting the food web. Climate change is further exacerbating all of these problems and threatens the economic and environmental viability of the oceans—a critical global resource that covers seventy percent of the surface of the Earth.

We rely on NOAA to take these threats head-on to help Americans respond to climate change and to maintain the U.S. economy. Dr. Lubchenco, your leadership and your insight are critical to the Nation's well being. NOAA is the Nation's premier science agency charged with managing, restoring, and conserving our coastal and marine resources, in addition to understanding and predicting changes in our weather and atmosphere.

The President's FY 2010 Budget Request for NOAA was \$4.48 million. I do not believe this request is adequate. The agency needs to meet its current mandates *and* prepare the Nation for the impacts of a changing climate. The current budget number will not get us there.

NOAA is the premier ocean-science resource in the United States. The agency is critical to our understanding of climate change and helping communities adapt. This is a time for action to make sure we are protecting our oceans and coasts and the wealth of resources that they provide for the future. I hope the Administration will take bold action and answer the call to double the NOAA budget.

NOAA must have additional resources to:

- Better predict, monitor, model, and understand the effects of increasing carbon dioxide emissions on the oceans, rising sea levels, and other climate impacts;
- Establish a National Climate Service to provide the tools to help our communities and industries adapt to climate change; and,
- Create new blue jobs in oceans and human health, aquaculture, renewable energy, and ocean science and management.

Dr. Lubchenco, thank you for your testimony before the Committee. I look forward to leading the charge to strengthen NOAA's budget and to working with you this Congress.

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

Thank you, Madam Chair, for calling this hearing today to address the issue of the National Oceanic and Atmospheric Administration's budget request for Fiscal Year 2010. It is only appropriate that we convene today, as we approach the end of Capitol Hill Oceans Week, to discuss the financial future of NOAA, and I thank Dr. Lubchenco for being here.

Just this past Tuesday, this Subcommittee held a hearing on the future of the "Blue Economy"—focusing on the ocean's contributions to our National economic well-being. The figures that emerged in the course of that discussion were staggering: the 80 percent of Americans living in coastal and Great Lakes states generate fully 83 percent of America's economic output, contributing \$11.4 trillion to our GDP. Yet despite the mounting pressure on these resources, Federal spending on ocean programs has decreased *nearly sixty percent* in real dollars since 1970. Testimony at the hearing detailed the need for greater funding for baseline data such as that gathered by the Integrated Ocean Observing System, as well as continued and enhanced evaluation of the economic contribution of our oceans' ecosystem level services. We must be able to articulate the dollar value of beaches as a tourism destination, estuaries as buffers from violent storm surges, and healthy reefs as nurseries for our fisheries. Until we understand our oceans' true contributions to the National economy, critical programs will remain underfunded.

I recognize that the President's \$4.48 billion request for NOAA in Fiscal Year 2010 represents an increase of 2.5 percent over last year's appropriated levels. This is a clear improvement, yet current funding levels are simply insufficient to deal with the problems of climate change and increased population pressure on coastal regions. That is why Senator Cantwell and I sent a letter to our colleagues on the Senate Appropriations Committee last month asking that they support funding for NOAA this year of \$5 billion. Today, I lend my support to the growing call to double NOAA's budget by 2012. It is high time that investment in our Nation's oceans reach a level commensurate with their contribution to our economy.

With that in mind, Dr. Lubchenco, I commend you for your early efforts to bolster your agency's funding levels. In particular, I want to thank you for your commitment to our Nation's fisheries. This budget requests \$911 million to fund the National Marine Fisheries Service. \$98.3 million is flagged for Magnuson-Stevens implementation, more than double last year's total. Landings of all U.S. fisheries in 2007 exceeded \$4.1 billion—more than NOAA's entire budget for that Fiscal Year, so this effort is clearly warranted. Specifically, I thank you for all your efforts to help defray the costs of organizing and monitoring the new sector management system in the New England groundfishery by allocating \$16 million from the FY 2009 budget, and now \$18.6 million of the President's request for FY 2010. I hope you will urge the Administration to approve your spend plans immediately so this funding along with the \$170 million in habitat restoration and all of NOAA's funding allocated in the American Reinvestment and Recovery Act.

Stimulus funding will also be integral to our efforts to rebuild our populations of wild Atlantic salmon. NOAA, along with the U.S. Fish and Wildlife Service, is currently in the final stages of determining whether to list Atlantic salmon in the Penobscot, Kennebec, and Androscoggin Rivers, the three largest rivers in the State of Maine, as threatened or endangered. If the agencies find an endangered listing is warranted, it would place great economic strain on the state of Maine, as these rivers would likely be designated as critical habitat, severely restricting industrial activity in two-thirds of the state.

Ultimately, *all* NOAA's efforts must be supported by sound, consistent science, and I am disappointed that funding for the Integrated Ocean Observing System—which provides data to bolster NOAA's work across all line offices and all geographic boundaries—was cut more than 20 percent below 2009 enacted levels from an already paltry \$26.5 million in 2009 to just over \$21 million. In March, President Obama signed a bill into law authorizing IOOS. Unfortunately, this budget fails to capitalize on the remarkable opportunity to demonstrate a commitment to this program that benefits all Americans. In our meeting last week, Dr. Lubchenco, you stated that, as a scientist, you recognize the value of IOOS and share my concerns. I expect that in future years, we will see that concern reflected in NOAA's budget requests.

The bottom line is NOAA cannot continue to do more with less. We must instead take the next step, reach for the necessary commitment of resources, and at long last, enable NOAA to do more with more. Once again, I thank you, Dr. Lubchenco for appearing before us today, and I thank the Chair for convening this hearing.

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

Question 1. What is the current state of knowledge on the role of black carbon and other aerosols in climate change?

Answer. Aerosols (fine particles suspended in air) generally lead to cooling of the atmosphere and are estimated to be currently offsetting as much as 35 percent of atmospheric warming from greenhouse gases, such as carbon dioxide, methane, nitrous oxide, and tropospheric ozone. Black carbon (or soot) aerosols are of particular importance to climate because, in contrast to most other types of aerosol, they have an overall warming effect on the Earth. The net effect of aerosols on climate is determined by the combined presence of both cooling and warming particles; climate studies must therefore consider both black carbon and other aerosols together when evaluating the overall contribution of aerosols to climate change.

Aerosols are very short-lived in the atmosphere and their abundance (and hence their influence on climate) decreases rapidly if their emissions are reduced. Black carbon is implicated in the rapid warming of the Arctic because it darkens the color of sea ice, which causes more heat to be absorbed and generally leads to greater melting. Black carbon is also a pollutant, with direct negative effects on human health.

In order to better understand the role of black carbon and other aerosols in climate change, there are several key questions that will need to be addressed:

- (1) How much of the emissions are natural and how much are human influenced;
- (2) How much of the human-influenced emissions come from which specific sources (information that is essential for any regulatory action);
- (3) What are the other influences of black carbon and other aerosols, particularly, their ability to alter clouds (and thus alter heating or cooling) and precipitation; and
- (4) What are the spatial distributions and properties of black carbon and other aerosols, and how do these properties change in the atmosphere?

Question 2. What is NOAA currently doing to study, measure, and monitor black carbon and other aerosols?

Answer. NOAA's on-going activities related to black carbon and other aerosols include:

- (1) Sponsorship of an international effort to review the current state of the scientific understanding of the role of soot in climate change;
- (2) Monitoring variability and trends of aerosols and their climate-forcing properties at non-urban ground stations;
- (3) Quantifying abundances, properties, and composition of aerosols using NOAA's aircraft and ships via period intensive field campaigns;
- (4) Research measurements of emissions of black carbon from ships and quantifying the emission factors from ships;
- (5) Quantifying optical, small-scale physical, and chemical properties and transformations of black carbon and other aerosols in the atmosphere and in the laboratory;
- (6) Research measurements of the vertical distribution of aerosols using aircraft-based and remote-sensing instruments;
- (7) Development and field testing of highly sensitive and selective instruments for measurement of black carbon in the atmosphere;
- (8) Calculating the climate warming from black carbon using climate models and data that is available; and
- (9) Calculating the effects of black carbon and other aerosols on clouds and climate using a variety of advanced computer models.

As one example, NOAA carried out a major field study to investigate the role of black carbon in the Arctic as a part of the International Polar Year studies (March 2007–March 2009). This study included measurements of soot emissions from ships, measurement of vertical distribution of soot, and monitoring black carbon from a few monitoring sites. NOAA's research efforts have resulted in scientific breakthroughs, communicated in a paper published by NOAA scientists tracing spring-time haze in the Arctic to wildfires in Siberia and agricultural burning in Kazakhstan. Scientists studied 50 haze plumes during an airborne field experiment known as ARCPAC, the Aerosol, Radiation, and Cloud Processes Affecting Arctic

Climate, conducted in April 2008. These examples demonstrate the feasibility and promise of NOAA's research efforts and these results can help answer the many outstanding questions concerning the climate effects of aerosols.

NOAA's demonstrated capability in climate and chemistry modeling is essential for providing information about why past changes have occurred, what the "climate baseline" is now, and what can be expected when emissions are altered. NOAA's models can quantify the effect of changes in emissions of black carbon and other aerosols on both climate and air quality. These models can also be useful in predicting what will happen in the future, with and without emission regulations—providing critical information for decision-makers.

Question 3. Does NOAA require any additional capacity to study black carbon and other aerosols?

Answer. The President's Budget request for FY 2010 supports NOAA's capability to continue to investigate the impact of black carbon and other aerosols on climate and air quality. With respect to performance, these investments will help reduce uncertainty in model simulations of how North American aerosols influence climate.

Aerosols tend to stay in the lower atmosphere for a week or so, and hence they are highly variable in space and time. Further, they undergo transformations in the atmosphere that alter their effects and residence time. NOAA's ongoing efforts, supported by the FY 2010 President's request, include: intensive field studies; continued long-term monitoring of aerosols; improved measurement methods; a robust emission inventory of aerosols and their precursors; modeling, predicting and analyzing the impacts of proposed mitigation actions on climate change; and an integrated evaluation of aerosol forcing of climate.

Question 4. What efforts are underway within NOAA to monitor and measure the carbon cycle in the oceans, atmosphere, and on land? How much funding does NOAA dedicate to this effort?

Answer. NOAA has conducted sustained efforts to monitor and measure the carbon cycle in the atmosphere and oceans for 40 years. Today, NOAA spends approximately \$13 million annually on monitoring and measuring the carbon cycle in the atmosphere. Efforts include taking observations from the ground, air, and tall towers. Ground-based, high-accuracy measurements include weekly samples from approximately 80 sites globally and an intensive effort to measure vertical profiles from 9 tall (1,000 ft) towers in North America. The latter of these efforts is in support of the U.S. Global Change Research Program North American Carbon Program (NACP). Flasks of air are analyzed for over 50 greenhouse gases and tracers to aid in this analysis. Vertical profiles from aircraft are obtained bi-weekly at 14 sites over the United States as part of the NACP, and to help validate emerging NASA satellite retrievals of greenhouse gases (currently limited to carbon dioxide and methane).

NOAA maintains the World Meteorological Organization World (WMO) Calibration Center for carbon dioxide, methane, and other greenhouse gases and is considered the world's leader in this effort. NOAA's measurements of greenhouse gases constitute about 2/3 of the global network for monitoring these gases through the WMO's Global Atmospheric Watch program. NOAA's CarbonTracker tool harmonizes these measurements into useful regional-to-global mapped information, including estimates of regional sources and sinks, and is widely considered the best available analysis to date.

The Global Ocean Observing System includes ocean carbon networks, and NOAA currently spends approximately \$3.4 million on sustained ocean observations directed specifically at monitoring the ocean's role in the global carbon cycle. In addition, the FY 2010 President's Budget includes an increase of \$4 million for ocean acidification monitoring efforts. This activity will equip existing data buoys with additional sensors to monitor changes in the pH of the global ocean that result from the uptake of emissions, in particular carbon dioxide.

In addition to the sustained observations discussed above, NOAA also competitively awards funds for global carbon cycle research, and the amount spent on this research in FY 2008 was approximately \$4.5 million. Competitive funding for such projects continues in FY 2009 and is planned for FY 2010.

Question 5. Is there a need for a comprehensive greenhouse gas monitoring and measuring system? If so, what are the benefits of such a system and what would be necessary to develop such a system?

Answer. Yes, there is a need for a comprehensive greenhouse gas monitoring and measuring system, particularly in light of national goals to reduce greenhouse gas emissions. No large-scale emission reduction effort has ever succeeded without reliable, independent verification of current emissions. This was true for reduction of chlorofluorocarbons, which were contributing to the ozone hole. Routine monitoring

of the atmosphere and scientific assessments informed policymakers at the national and international levels on the degree of success in reducing emissions. This is also true for emission reduction efforts for air quality, where ozone is monitored and assessed, and also for acid rain, where the acidity of rain and lakes is monitored and assessed. Efforts to reduce greenhouse gas concentrations will be far more complex than previous emission reduction efforts. Because climate change is a global problem, addressing it through greenhouse gas emission reductions and offsets will necessarily involve coordinated efforts at the international, national, state, and regional levels. This issue cuts across political divisions and economic sectors, such as energy, transportation, forestry, and agriculture. The Nation and world need an objective, authoritative, and consistent source of consolidated, reliable, and timely climate information to evaluate which efforts are effective and which efforts need improvement.

Current greenhouse gas monitoring systems implemented by Federal science agencies are designed to support research to understand the role of the carbon cycle and gases and aerosols in climate change. However, the growing need for scientific verification and support for efforts to mitigate climate change requires a more comprehensive monitoring system. Such a system would combine space-based and ground-based assets, self-reporting, carbon-cycle modeling, fossil-fuel use data, land-use data, meta-analysis, and an extensive distribution system to provide information about sources and sinks of greenhouse gases at policy-relevant temporal and spatial scales. Such a system would need to be developed over the next decade with cooperation among Federal agencies, such as the National Aeronautics and Space Administration, National Science Foundation, Environmental Protection Agency, Department of Transportation, Department of Energy, Department of Agriculture, Department of the Interior, and international partners. NOAA, with its extensive experience in long-term global monitoring of greenhouse gases, is capable of providing leadership to such an effort.

Question 6. How will the Administration address the recommendations in the NPOESS Independent Review Team (IRT) report?

Answer. NOAA is working with the Department of Defense (DOD) and the National Aeronautics and Space Administration (NASA) to address the issues raised by the Independent Review Team's recommendations. The tri-agency (NOAA, NASA, DOD) NPOESS Executive Committee intends to develop a consensus agreement on actions needed to strengthen the program. White House offices, led by the Office of Science and Technology Policy, are actively engaged in this activity and are providing coordination for the effort.

Question 7. Who in the White House is responsible for interagency coordination and responding to the IRT recommendations? What is the time-frame for action?

Answer. The Office of Science and Technology Policy (OSTP) is leading a task force with representation from the Office of Management and Budget and the National Security Council that is working with NOAA, the Department of Defense (DOD), and the National Aeronautics and Space Administration (NASA) to analyze and review options going forward with regard to the NPOESS program. We anticipate that a decision on a path forward for the program will be made in time to inform the FY 2011 budget process.

OSTP is taking into account the IRT recommendations as it proceeds forward with the goals as laid out for the task force.

Question 8. Specifically, how is NOAA fixing NPOESS management, cost, and schedule problems based on the recommendations of the IRT?

Answer. NOAA, DOD, and NASA are working closely with a task force led by the Office of Science and Technology Policy (OSTP) with representation from the Office of Management and Budget, and the National Security Council to develop and analyze options for strengthening program management and addressing the program's challenges with cost overruns and schedule slips.

- Additionally, NOAA, DOD and NASA are examining ways to modify and adjust the current planned NPOESS constellation of satellites to better mitigate potential coverage and data gaps.

NOAA, DOD and NASA will revise the NPOESS Acquisition Program Baseline this fall, which details the NPOESS budget baseline for current and future years. In addition, NOAA has allocated \$26 million of American Recovery and Reinvestment Act funding for NPOESS to perform critical development activities and address risk mitigation within the program.

OSTP is taking into account the IRT recommendations as it proceeds forward with the goals as laid out for the task force.

Question 9. If NPOESS fails, what contingency plans do NOAA, NASA, and the Department of Defense have to make sure we have continuity of data?

Answer. Contingency for possible NPOESS failures is an area of concern for NOAA, which was also highlighted in the findings of the NPOESS Independent Review Team.

The ability to use the NPOESS Preparatory Project data operationally, as well as data from our European partner, EUMETSAT, will help to mitigate a potential gap between NOAA-19 and the first NPOESS satellite. DOD has several Defense Meteorological Satellite Program satellites available to mitigate gaps in the early morning orbit. NOAA is also exploring other contingency options, for example, pursuing the use of additional international and interagency assets as well as potential development of a backup imaging instrument.

A tri-agency working group is reviewing the use of a series of smaller alternative satellites, and the inclusion of sensors on commercial spacecraft as possible contingencies.

Question 10. How is NOAA working toward improving their delivery of climate information and climate services to both resource managers and the average citizen?

Answer. In 2008, NOAA began an effort to improve its integrated climate services to, among other things, develop and deliver a broader range of operational climate information products and services in partnership with other Federal agencies with trust resource mandates.

Given its stewardship responsibilities for marine fisheries, coastal and ocean habitat and ecosystems, NOAA is both a producer and consumer of climate change information and is actively adapting its management approaches to changes in climate. In addition, NOAA supports other Federal agencies, state and local governments, and the private sector as they use climate change information to make decisions about coastal planning and development efforts, maritime transportation, water resource management, and other issues like insurance, energy and agriculture.

Understanding the potential impact of climate variability and change on natural resources and the American public is central to adapting to climate change. As made clear by of the 2007 assessment of the Intergovernmental Panel on Climate Change, developing an understanding adaptation and vulnerability is far more complex and challenging than simply demonstrating that the global average climate is changing. In the face of this emerging challenge to decision-making at a variety of levels, NOAA and its partners are working to expand the ongoing assessment of user needs. NOAA is targeting the following areas for improvements in the delivery of climate information and services:

- observations;
- research;
- predictions and projections;
- climate change information products;
- decision support tools, maps, and visualizations; and
- greater coordination and integration of climate science and information services at national and regional levels.

Question 11. Would you describe NOAA's ability to translate and deliver the climate science information from the agency to stakeholders as a user-friendly or user-driven process?

Answer. The community of current and potential users of climate information is as complex as society itself and many potential sectors are only beginning to understand how climate change may influence their industry. As a consequence, NOAA programs are taking a multi-tiered approach to developing and providing climate information that is useful and relevant to a wide array of users and potential users. NOAA programs are working with users in some sectors (*e.g.*, fisheries managers and coastal managers) to provide basic information about the causes and potential impacts of climate in an effort to help these user communities understand the problem and articulate their possible needs for tailored climate information. In other sectors (*e.g.*, water resource managers), NOAA is working to provide information in response to widely established, user-specified information requirements. NOAA also works with decisionmakers to understand how they use and interpret climate forecasts. This information is then fed back into NOAA's operations to improve the presentation of forecasts to the public, ensuring they are user-friendly.

While it remains NOAA's goal to deliver user-friendly climate science information to stakeholders, and to utilize a user-driven process to determine the information needs of those stakeholders, it will take a concerted, sustained effort over several years to achieve a broadly useful level of climate service.

Question 12. Do resource managers and decisionmakers have adequate assessments for risk and vulnerability of climate impacts available to them?

Answer. In June, the U.S. Global Change Research Program released a landmark report, *Global Climate Change Impacts in the United States*. This body of work, a product of Federal agency and outside experts with leadership from NOAA, provides concrete scientific evidence that the climate is unequivocally changing, and gives a comprehensive picture of future impacts on specific regions and sectors. We are seeing the impacts of this change in our own backyards in every region of the country, from extreme weather and coastal impacts to drought and wildfire trends.

NOAA has been supporting the development of risk and vulnerability assessments for weather- and climate-related impacts for states, tribes, and communities nationwide in fulfillment of our existing mandated responsibilities (coastal zone management, fisheries, National Weather Service mandates, etc). NOAA has engaged with resource managers and other stakeholders in the development of decision support products and related services (e.g., training; outreach and educational materials) through current programs like Regional Integrated Sciences and Assessments, Sectoral Applications Research Program, National Integrated Drought Information System, and Coastal Zone Management, along with NOAA's regional engagement through Regional Climate Centers, National Weather Service Weather Forecast Offices and River Forecast Centers, National Estuarine Research Reserve System sites, Sea Grant programs, Coastal Services Center offices, and other regional staff.

Despite the efforts discussed above, the need for climate information to support resource managers and other decision-makers in climate sensitive sectors currently outstrips the capacity of NOAA and other Federal agencies. This demand has been articulated through meetings with decision-makers, and recent studies by the National Research Council (see the 2009 report, "Informing Decisions in a Changing Climate").

Question 13. If not, are risk and/or vulnerability assessments unavailable due to resource limitations within the agency?

Answer. Through ongoing engagement with state, tribal, local, and private-sector stakeholders, we know the diversity and complexity of information needs are growing rapidly as communities and individuals become increasingly aware of the threats and opportunities posed by climate variability and change. A sustained effort over time will be required from NOAA and the broader Federal climate enterprise, in partnership with other levels of government and the private sector, to conduct the necessary research and development activities to allow us to meet the evolving demands of resource managers and decision-makers for risk and vulnerability information concerning climate impacts.

Resource managers and decision-makers would benefit from a coordinated Federal approach to providing climate services. Such an approach could also ensure Federal agencies more effectively respond to requests for climate information and services to aid climate adaptation.

Question 14. How much funding is NOAA providing in FY2010 for climate research and climate services?

Answer. NOAA requested \$292 million for climate activities in FY 2010. This request focuses on NOAA's highest priority climate activities, and will allow NOAA to: (1) conduct critical research activities, (2) initiate new activities that address currently unmet gaps in the NOAA service missions, and (3) meet the information needs of our Nation's environmental decisionmakers.

NOAA's FY 2010 Budget Request includes increases for:

- (1) the National Integrated Drought Information System to implement three regional early warning system pilot projects and to improve climate forecast products related to drought;
- (2) development of decadal climate predictability;
- (3) ocean acidification research and monitoring;
- (4) implementation of a portal to generate and house model-based data records;
- (5) deployment of the U.S. Climate Reference Network in Alaska; and
- (6) development of the Jason-3 satellite altimetry mission.

Question 15. The National Climate Program Act directed NOAA to establish a National Climate Program Office and to establish and maintain an interagency Climate Program Policy Board. The Program was required by Congress to establish mechanisms for intergovernmental climate-related studies and services. What is the current status of the National Climate Program Office and the Climate Program Policy Board? How is NOAA addressing its obligations under the National Climate Program Act and how much funding is NOAA providing for the Program?

Answer. NOAA's climate service work is authorized through existing statutory responsibilities under the National Climate Program Act of 1978 (15 U.S.C. §§ 2901–2908). NOAA has a long history of producing climate information, delivering products and services, and building the capacity of others through established networks and partnerships at all levels. In FY 2010, NOAA requests \$292 million on climate activities across the agency.

Today, multiple elements throughout NOAA contribute to climate science and services. NOAA's efforts include:

- (1) global data collection;
- (2) research to improve the understanding of climate processes;
- (3) management and dissemination of climate data;
- (4) development and improvement of climate forecasts;
- (5) participation in assessments of the effect of climate on the natural environment;
- (6) efforts to increase international cooperation in climate research, monitoring, analysis and data dissemination; and
- (7) mechanisms for intergovernmental climate-related studies and services including participation by universities, the private sector and others concerned with applied research and advisory services.

The interagency U.S. Global Change Research Program coordinates and integrates Federal research on changes in the global environment and their implications for society. The U.S. Global Change Research Program began as a Presidential initiative in 1989 and was authorized by Congress in the Global Change Research Act of 1990 (P.L. 101–606), which called for “a comprehensive and integrated United States research program which will assist the Nation and the world to understand, assess, predict, and respond to human-induced and natural processes of global change.” Thirteen agencies participate in the U.S. Global Change Research Program, including NOAA.

Question 16. There is growing interest in NOAA's proposal to establish a National Climate Service. How does NOAA's FY 2010 budget support this effort? Is there specific funding for the National Climate Service? What steps is NOAA currently taking to develop a climate service?

Answer. A National Climate Service should be the bridge between decisionmakers and climate change science and information, providing timely and authoritative information, such as predictions of changing temperatures and water availability, and assessments of associated impacts, risks, and vulnerabilities. NOAA already provides a wide array of climate information and services including ground, ocean and space-based observations, climate assessments, drought early warning information, and climate predictions and projections. NOAA currently works with a broad spectrum of users to provide climate change information to help inform resource management decisions. NOAA is well-positioned and already moving forward to provide strong Federal leadership, in partnership with other agencies, to meet the growing demand for climate services.

NOAA envisions a National Climate Service as a partnership that would be established with other Federal agencies, various levels of government, and the private sector. While there is no specific request for the National Climate Service in FY 2010, NOAA's Budget Request provides a foundation for strengthening climate services and building a broader national effort.

NOAA requested \$292 million for climate activities in FY 2010. The FY 2010 request supports and enhances NOAA's integrated program of climate observations, research, modeling, prediction, decision support, and assessment. These capabilities, along with NOAA's history of data stewardship and service delivery, will enable NOAA to provide valuable insight and leadership for the development of a National Climate Service in partnership with other Federal agencies, service providers, users, partners, and stakeholders.

NOAA has taken several near-term actions within its existing authorities to improve how it delivers climate science and services. NOAA has been evaluating climate services activities within the agency, and has actively engaged its partners and the user community to determine their specific information needs and the contributions these groups may bring to the development of climate services. NOAA looks forward to engaging in these dialogues with the Congress, its Federal agency partners, and the range of public and private-sector interests in climate services, as the Administration moves forward to develop a National Climate Service.

Question 17. What is NOAA's budget request for FY 2010 for climate change research, and how is NOAA targeting their research efforts and dollars at the key climate change issues?

Answer. NOAA requested \$292 million for climate activities in FY 2010. The request for climate funding is targeted to: (1) sustain critical research activities, (2) initiate new activities that address currently unmet gaps in the NOAA service missions, and (3) meet the information needs of our Nation's environmental decision-makers.

NOAA's FY 2010 Budget Request includes increases for:

- (1) the National Integrated Drought Information System to implement three regional early warning system pilot projects and to improve climate forecast products related to drought;
- (2) development of decadal climate predictability;
- (3) ocean acidification research and monitoring;
- (4) implementation of a portal to generate and house model-based data records;
- (5) deployment of the U.S. Climate Reference Network in Alaska; and
- (6) development of the Jason-3 satellite altimetry mission.

Question 18. Is NOAA conducting research into how phototrophs are being impacted by climate change and what it means for oceans and humankind?

Answer. NOAA is developing systems and methods for assessing the future effects of climate change on marine ecosystems, including those resulting from elevated oceanic carbon dioxide levels, increased temperature, and nutrient limitation, through a combination of research and development efforts.

NOAA conducts numerous ecosystem monitoring and research programs in support of ecosystem-based approaches to management. These programs document changing ocean conditions, and the responses of marine ecosystems and living marine resources to these changes. Phototrophs, organisms such as phytoplankton that carry out photosynthesis to acquire energy, are evaluated through NOAA's programs that take measurements of chlorophyll, primary production, and phytoplankton species composition. In addition, models are beginning to be applied to project the ecological effects of climate change, including those affecting phototrophic species composition and primary productivity. Parts of these studies examine how phototrophs are currently and will likely be affected by climate change, and what effects any changes in the composition or distribution of phototrophic species will have on living marine resources and, ultimately, on human uses of these resources.

NOAA also conducts studies of the oceanographic factors that contribute to the development of harmful algal blooms (HABs) in coastal waters. HABs are termed harmful because they can produce potent toxins, which cause illness or death in humans and marine organisms, or they can produce so much biomass that they overgrow corals, shade seagrasses, or cause water to become oxygen depleted. Currently NOAA is interested in determining if a warmer and more stratified ocean waters contribute to an increased incidence of HABs. NOAA is also particularly interested in how climate change is affecting HABs, which are composed of phototrophs. Climate change is likely to change the frequency and geographic location of HAB events.

In coordination with our Federal partners, NOAA has made considerable progress in the ability to detect, monitor, assess, and predict HABs and hypoxia in coastal ecosystems. This progress has been accomplished through a mix of extramural and intramural research, long-term regional ecosystem-scale studies supported by short-term targeted studies, collaborations between academic and Federal scientists, and multiple partnerships with Federal, state and tribal managers. Advances in our ability to detect, monitor, assess, and predict HABs and hypoxia have helped coastal managers take short- and long-term actions to reduce, and ultimately prevent, detrimental effects of these phenomena on human health and coastal resources.

Question 19. What are NOAA's top three priorities for ocean and coastal scientific research, and for ocean and coastal management?

Answer. NOAA conducted an extensive public process to envision the future of coastal management, which was used to develop a set of principles for reauthorization of the Coastal Zone Management Act. In addition, NOAA has been developing a broader Coastal Strategy focused on three priority issues to serve as the basis for better coordination and integration of NOAA's diverse coastal programs. These efforts have yielded a remarkably consistent set of recurring themes and priorities for ocean and coastal management:

1. Supporting the resiliency of coastal communities, ecosystems and economies to storms/hazards and climate change;

2. Resolving competing coastal uses and stemming habitat loss; and
3. Reducing and reversing coastal pollution and human health effects.

In support of these priority issues, top needs in the area of coastal science include:

1. Coastal climate research, *e.g.*, predicting future shorelines, potential for storms, sea level rise, inundation, storm surge, changes in fisheries and coastal ecosystems, etc., including more robust modeling and integrated assessments. This information could lead to better analyses of the vulnerability and risk of coastal communities and ecosystems to climate change and facilitate adaptation to climate and mitigation of coastal hazards.
2. Better understanding and predictive capabilities of coastal public health risks, such as harmful algal blooms (HABs) and other vectors for human and animal diseases in coastal and ocean ecosystems.
3. Social science including economic studies to support coastal community resiliency, improved coastal and fisheries management and ability to adapt to climate change.

Question 20. The U.S. Commission on Ocean Policy recommended a three-phase approach to improve governance. Phase I recommended solidifying NOAA's role as the Nation's lead civilian ocean agency through the enactment of an organic act that codifies the agency's establishment, clarifies its mission, and strengthens execution of its functions. The Committee is interested in enactment of a NOAA organic act. What is the Administration's position on a NOAA organic act? Will the Administration be submitting proposed legislation for a NOAA organic act?

Answer. At this time, the Administration has not taken a position on a NOAA Organic Act.

Question 21. On June 12, 2009, President Obama sent a memorandum to the heads of executive departments and agencies titled "National Policy for the Oceans, Our Coasts, and the Great Lakes". What is NOAA's role in the Interagency Ocean Policy Task Force?

Question 22. How will the Task Force include public input in the development of the national policy and its implementation strategy and the framework for coastal and marine spatial planning?

Question 23. How will the Administration involve the Senate in development of the national policy and framework?

Answers 21–23. On June 12, 2009, President Obama proclaimed that June 2009 was National Oceans Month and concurrently issued a Presidential Memorandum entitled, *National Ocean Policy for the Oceans, Our Coasts, and the Great Lakes*. This memorandum established an Interagency Ocean Policy Task Force with senior policy officials from 18 different agencies and departments to develop an integrated and comprehensive approach for a national oceans policy that, among other things, incorporates ecosystem-based science and management and emphasizes our public stewardship responsibilities.

Dr. Jane Lubchenco, Under Secretary of Commerce for Oceans and Atmosphere and NOAA Administrator, sits on the Task Force as the Department of Commerce representative. The Task Force is chaired by the Council on Environmental Quality (CEQ). Since the Presidential Memorandum was signed on June 12, CEQ has met or talked with a number of interested Senate offices, including representatives of at least 19 separate offices who participated in a briefing that CEQ held on June 13, 2009 (and to which all Senate offices were invited). Some offices provided letters to CEQ on their specific interests in the Task Force efforts and CEQ has made available to Task Force members all letters received from Members of Congress. The Task Force is also holding a series of regional public meetings around the country so they can benefit from on-the-ground feedback. The first hearing was held in Anchorage, Alaska on August 21, 2009.

Question 24. The Hydrographic Services Improvement Act Amendment of 2008 (P.L. 110–386) increased the total number of commissioned officers from 321 to 379 when the Secretary of Commerce submits to Congress the ship recapitalization plan, the aircraft remodernization plan, and supporting workforce management plans. When will NOAA submit the aircraft remodernization plan and the supporting workforce management plans to Congress?

Answer. The NOAA Aircraft Recapitalization Plan is in the final stages of NOAA review and is scheduled to be submitted to Congress through the Department of Commerce by 1st Quarter FY 2010. The NOAA Corps Workforce Management Plan is scheduled to be submitted by the 1st Quarter FY 2010 as well.

Question 25. Is the current authorization of 379 NOAA Corps officers sufficient? Please offer justification.

Answer. Yes, the authorization of 379 NOAA Corps officers is sufficient based on the current scope of the NOAA Corps mission and the size of the NOAA Corps fleet. The NOAA Corps strength is dependent on the size of the fleet, structure of shore-based billets to sea/air billets, and the Corps' ability to respond to national emergencies (hurricane response and recovery, oil spills, etc.).

Question 26. How will the current number of officers affect NOAA operations?

Answer. Currently the NOAA Corps is staffed at approximately 299 officers, with authorization of up to 321 officers. With the enactment of the Hydrographic Services Improvement Act Amendment of 2008 (P.L. 110-386), NOAA is now authorized up to 379 officers.

The FY 2010 President's Budget requests the additional resources necessary to fund a NOAA Corps end strength of 321 officers. NOAA Corps Officers typically serve in three functional areas to meet organizational requirements: (1) Planning (long-term planning to determine future needs for operations, logistics, resources, and technologies), (2) Preparation (near-term activities that support data collection, training, and missions) and (3) Execution (collection of data at sea or in the air such as ship, aircraft, and field assignments). These additional officers will enable NOAA to maintain the current level of support to the Line Offices. The increase will also provide to appropriate balance of officers at each rank and allow Junior Officers to full training billets to acquire the necessary technical and leadership skills. Finally, the additional requested officers will provide a surge capability in times of natural disasters or other emergency situations.

Question 27. What are the top challenges facing the NOAA Corps and how is NOAA addressing those challenges?

Answer. The NOAA Corps' principal challenges are: (1) the current shortage of NOAA Corps officers overall and (2) an experience gap that exists due to a lack of sufficiently experienced officers to serve in critical leadership and operational roles.

The FY 2010 President's Budget requests an increase to increase the number of NOAA Corps officers from 299 to 321 by FY 2011. To date, the Office of Marine and Aviation Operations has implemented the following actions to address the NOAA Corps officer shortage and experience gap:

- Requested resources to increase the number of NOAA Corps officers
- Improved training by:
 - Establishing Professional Mariner Qualifications (A, B, C, and D school)
 - Providing Potential Senior Ship Officer training (management, risk assessment training)
 - Providing Leadership Development Training
- Hired civilian Mates
- Recruited inter-service transfers
- Implemented mandatory augmentation policy
- Improved Corps administration and recruiting strategy by:
 - Defining competencies in the Leadership Development Framework
 - Developing a new NOAA Corps recruiting video
 - Revising the recruiting action plan
 - Establishing Core Values

Question 28. The Administration's Budget Request for OMAO is \$197 million, which is an \$18.2 million (8.5 percent) decrease from FY 2009 enacted levels. More specifically, there were \$17.5 million reductions for terminations, \$4.3 million reduction in program changes, \$3.6 million increase to adjustments to base (labor and inflation). Can you explain the \$17.5 million in terminations in the FY 2010 OMAO budget?

Answer. The \$17.5 million in terminations in the Office of Marine and Aviation Operations' FY 2010 Budget are associated with funding Congress provided in the FY 2009 Omnibus Appropriations Act above the FY 2009 President's request. During FY 2009, OMAO allocated these funds consistent with Congressional intent as described in the FY 2009 Omnibus Conference Report: to ensure continuity of ship operations and proper manning levels and to offset fuel cost increases to maintain operating days and flight hours. These funds were considered one-year funding in FY 2009; consequently, they were reduced from OMAO's FY 2010 Budget. The President's FY 2010 Budget requests \$164.2 million for the Office of Marine and

Aviation Operations for ship and aircraft operations and maintenance, an increase of \$3.6 million over the FY 2009 request.

Question 29. Does the FY 2010 Budget allow NOAA to meet aviation modernization needs?

Answer. Yes. The FY 2010 President's Budget provides necessary funds to operate and maintain newly-acquired and reconditioned aircraft (King Air and a third P-3 aircraft).

Question 30. Does the \$3 million in new vessel construction allow NOAA to continue with the ship recapitalization plan?

Answer. Yes. The \$3 million in new vessel construction allows NOAA to continue with its ship recapitalization plan by supporting the initial design process for Fishery Survey Vessel 5, the replacement to NOAA ship *Oregon II*.

Question 31. Is the current number of NOAA vessels adequate to meet the growing mission requirements for the service? If not, how many ships are necessary?

Answer. Yes, the FY 2010 President's Budget Request provides support for approximately 3,400 ship operating days for the NOAA fleet, plus an additional 400 operating days via outsourcing/charter.

This request also provides support for the operation and maintenance of NOAA's fleet of active ships and shoreside support facilities.

Question 32. Has NOAA conducted a study to determine the optimal number and mix of its NOAA fleet of ships and aircraft?

Answer. Yes. NOAA's Ship and Aircraft Recapitalization Plans, which are currently undergoing agency review, establish the optimal number and mix of platforms to replace NOAA's aging fleet to meet current requirements. The plans analyzed the capability and cost effectiveness of different platforms to identify an optimal number and mix of ships and aircraft. NOAA continues to explore new technologies and alternatives to address NOAA's mission needs.

Question 33. Are there plans to standardize NOAA operations and maintenance procedures?

Answer. Yes. OMAO established the Fleet Standardization Office to develop and implement a fleet-wide management system. The development phase adapted best practices from maritime industry and government organizations' safety management systems and blended them with the Office of Marine and Aviation Operations' organizational requirements. The developed model is called the "Fleet Operations Management System," which integrates safety and environmental requirements with operational management components. The management system is in the implementation phase.

OMAO is developing the plans to implement a Shipboard Standardized Maintenance program to ensure a high degree of readiness. Though catastrophic failure of equipment can never be eliminated, it can be reduced through effective oversight and standardized maintenance practices to minimize ship down time. A Maintenance Logistics Manager position will be established which will be responsible for over-arching NOAA maintenance strategy and to develop policy and procedures for a maintenance improvement plan. The Maintenance Logistics Manager will conduct maintenance effectiveness reviews to inventory current maintenance practices and issue administrative guidelines, instructions and policies that implement and govern changes in procedures to ensure best practices are followed.

Question 34. In 2000, Congress passed, and President Clinton signed into law, the Shark Finning Prohibition Act of 2000 (Pub. L. 106-557). Although this statute prohibits shark-finning in U.S. waters, the prohibition applies only to fishing vessels. Earlier this year, Senator Kerry introduced S. 850, the Shark Conservation Act of 2009, which would expand and enhance this anti-shark-finning language in the Magnuson-Stevens Act to prohibit all U.S.-flagged vessels from having custody, control, or possession of shark fins not naturally attached to their corresponding carcasses. A companion bill to S. 850, H.R. 81, has already been passed by the House of Representatives. Does NOAA support the expanded shark-finning prohibition contained in S. 850 and H.R. 81?

Answer. NOAA supports the proposed amendments to the Magnuson-Stevens Fishery Conservation and Management Act contained in S. 850 and H.R. 81, which would explicitly prohibit transfer or receipt-at-sea of shark fins that are not naturally attached to their corresponding carcasses. The proposed amendments help to clarify the scope of the government's enforcement authority, and effectively reverse the Ninth Circuit's decision in *U.S. v. Approximately 64,695 Pounds of Shark Fins*, 520 F.3d 976 (9th Cir. 2008). In that case, a U.S. vessel was caught engaged in the at-sea transfer of thousands of pounds of fins, purchased from fishing boats, with the intention of landing them in Guatemala for shipment to Hong Kong. The vessel

was charged with violating the Shark Finning Prohibition Act under the broad definition of “fishing vessel” contained in the Magnuson-Stevens Fishery Conservation and Management Act. The District Court found for the government, but the 9th Circuit reversed that ruling holding, in relevant part, that the vessel was not a “fishing vessel” under the Magnuson-Stevens Fishery Conservation and Management Act. Transshipment of fins-at-sea presents a significant threat to the sustainability of shark stocks and the new prohibitions contained in S. 850 and H.R. 81 squarely addresses this activity.

NOAA believes the requirement contained in S. 850 and H.R. 81 that prohibits the removal of shark fins at sea and requires all sharks to be landed with the fins naturally attached would greatly increase the at-sea enforceability of the finning ban. Because identifying sharks can be difficult without the carcasses attached to the fins, this change would also improve the ability of fishermen, dealers and enforcement personnel to identify sharks at the species-level, thereby improving the accuracy of reporting and enhancing our ability to enforce prohibitions on the harvest of protected sharks. In 2008, NOAA took action in the Atlantic Ocean, including the Gulf of Mexico and the Caribbean, that now requires all shark fins, including the tail, must remain naturally attached to the shark carcass until that carcass has been offloaded. This new requirement seems to be promoting improved compliance with the finning ban.

The legislation also retains the rebuttable presumption that illegal finning has occurred whenever shark fins are landed from a fishing vessel and the weight of the fins, after landing, exceeds 5 percent of the weight of the carcasses. The rebuttable presumption is a critical tool for dockside enforcement when enforcement officers are unable to monitor an entire offload, and enhances shark conservation efforts by allowing NOAA to utilize dealer landing records to detect potential shark finning violations post-landing for subsequent follow-up investigation. The legislation also provides a rebuttable presumption that an illegal transfer has occurred when fins are found onboard a vessel, other than a fishing vessel, that are not naturally attached to the corresponding carcass. This rebuttable presumption is also critical for at-sea enforcement of the shark finning ban. While those in the legal shark trade could easily document the legitimacy of fins onboard, this provision is critical to addressing the illegal shark fin market because it obviates the requirement that would otherwise exist that the vessel be caught in the act of transferring fins illegally.

NOAA supports the amendment of the rebuttable presumption from the Magnuson-Stevens Fishery Conservation and Management Act contained in S. 850 and H.R. 81. This amended rebuttable presumption will significantly enhance dockside and at-sea enforcement by enabling us to detect a violation even when enforcement personnel are not present to observe the entire offload or transfer. Although NOAA supports the intent of this amendment, NOAA recommends clarifying the language in section 3(2) by replacing the “and” after “such fin was transferred in violation of subparagraph (P)(iii)” with “, or”, so that section 3(2) would read as follows:

“by striking the matter following subparagraph (R) and inserting the following: “For purposes of subparagraph (P), there shall be a rebuttable presumption that if any shark fin (including the tail) is found aboard a vessel, other than a fishing vessel, without being naturally attached to the corresponding carcass, such fin was transferred in violation of subparagraph (P)(iii), or that if, after landing, the total weight of shark fins (including the tail) landed from any vessel exceeds 5 percent of the total weight of shark carcasses landed, such fins were taken, held, or landed in violation of subparagraph (P).”.”

NOAA recommends including a definition of “naturally attached” to mean shark fins that remain attached to the shark carcass via at least some portion of uncut skin. The addition of a definition of “naturally attached” would both clarify the intent of the amendment and would also allow fishermen to process and transport the shark in a manner that maintains the quality of the meat.

Question 35. In recent years, organizations such as the United Nations Food and Agriculture Organization and the International Union for Conservation of Nature have observed population declines in scores of different shark species worldwide. S. 850 and H.R. 81, the Shark Conservation Act of 2009, would amend the High Seas Driftnet Fishing Moratorium Protection Act (Title VI of Pub. L. 104-43) to allow the United States to take appropriate action against countries that do not have in place a shark conservation regulatory regime comparable to that of the U.S. Does NOAA support the proposed amendment to the High Seas Driftnet Fishing Moratorium Act contained in S. 850 and H.R. 81?

Answer. NOAA does not support the amendments to the High Seas Driftnet Fishing Moratorium Protection Act contained in section 2 of H.R. 81. First, the amend-

ments imply there is a single identifiable standard of shark conservation and management in the United States, and fail to recognize the differences between state and Federal approaches to shark management. Thus, as drafted, H.R. 81 could pose implementation challenges and add to the litigation risks of defending the U.S. in the face of potential challenges alleging that the U.S. failed to properly identify nations engaged in shark fishing that had not adopted a regulatory conservation program.

Second, the newly proposed requirements to the High Seas Driftnet Fishing Moratorium Protection Act in H.R. 81, to address shark harvest and bycatch, represent sometimes duplicative additions to the existing requirements of that Act. For example, amendments to the High Seas Driftnet Fishing Moratorium Protection Act, enacted as part of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act, require a biennial report to Congress that identifies nations whose vessels have been engaged in illegal, unreported, or unregulated fishing or bycatch of protected living marine resources, including sharks.

Third, the amendments to the High Seas Driftnet Fishing Moratorium Protection Act contained in H.R. 81 appear to be broader in geographic scope, relative to the current provisions in that Act, and may extend into areas within the jurisdiction of other countries. NOAA would not support such a provision insofar as it could require the United States to take action against other nations for activities within their own waters.

Finally, the United States succeeded in inserting strong new language regarding shark conservation and management into the 2007 United Nations General Assembly Resolution A/RES/62/177. This language calls on states and regional fisheries management organizations to, among other things: ensure the long-term conservation, management, and sustainable use of sharks; prevent further declines of vulnerable or threatened sharks; and take immediate and concerted action to improve the implementation of, and compliance with, existing international and national shark conservation measures, including those prohibiting the practice of shark finning. NOAA is committed to carrying this Resolution's call for action to the regional fisheries management organizations of which the United States is a member, with the goal of adopting legally-binding conservation measures where appropriate. NOAA has determined that this multilateral approach will be a more effective means of improving nations' efforts to conserve and manage sharks than the amendments proposed in H.R. 81 to the identification and certification process authorized in the High Seas Driftnet Moratorium Protection Act.

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

Question 1. I can tell you that the people of Washington State greatly appreciate the \$7 million NOAA included in its budget for a new coastal radar. Given the weather-sensitivity of so much of the region's economy, wouldn't you agree that this radar is in many ways a piece of economic infrastructure?

Answer. Yes, NOAA agrees. This new radar will provide important data to improve our ability to forecast and provide more advanced warning of high-impact weather events. These events affect all sectors of the economy, including the transportation and marine industries. Improved forecasts and increased warning lead times will allow for appropriate mitigation actions that will benefit the region's economy. Residents will also benefit from increased warning lead times, which will support effective decisions that impact their lives and livelihoods.

Question 2. If the full \$7 million is not appropriated for the radar in this Fiscal Year (2010), wouldn't we have to either sacrifice the radar's capabilities or potentially delay the acquisition?

Answer. Yes. Appropriations of less than \$7 million will cause either a delay in the acquisition or a reduction in the capabilities of the radar.

Question 3. Earlier this year, we enacted a number of ocean bills as part of the omnibus public lands package. One of these bills, the Federal Ocean Acidification Research and Monitoring Act, establishes the first-ever national research program on ocean acidification. I appreciate the funding in NOAA's 2010 budget for ocean acidification research, but this funding is not designed to implement the ocean acidification program created by our recently-enacted legislation. What are NOAA's plans and timeline for implementing the Federal Ocean Acidification Research and Monitoring Act?

Answer. NOAA looks forward to working with Congress to implement the recently-passed Federal Ocean Acidification Research and Monitoring Act, which creates an ocean acidification program within NOAA. NOAA maintains a continued

leadership role in this issue area, as we work with our interagency partners to coordinate the development of the required interagency working group and ocean acidification plan through the Joint Subcommittee on Ocean Science and Technology. NOAA is currently developing a coordinated plan to monitor and conduct research on the effects of ocean acidification on marine organisms and ecosystems. NOAA is also developing a set of options for evaluation, as we work to develop the structure of the ocean acidification program within NOAA. Finally, NOAA scientists met in March 2009, to draft a set of priorities for ocean acidification research, based on the anticipated ecosystem and socioeconomic impacts (at both regional and national scales) that will likely result from increased ocean acidification. Writing teams are currently drafting these priorities, and implementation actions will be carried via a prospective interagency plan.

Question 4. How soon will Congress see the bill's implementation reflected in NOAA's budget?

Answer. Although the FY 2010 President's Budget was crafted before passage of the Federal Ocean Acidification Research and Monitoring Act, it does include a request for \$9.9 million for research on ocean acidification, which is an increase of \$5.5 million. The additional funds include \$4 million to implement long-term monitoring of ocean acidification, and \$1.5 million for efforts to understand, monitor and forecast how ocean acidification affects the Nation's ecosystems and living marine resources. NOAA looks forward to implementing the recently passed Federal Ocean Acidification Research and Monitoring Act, which creates an ocean acidification program within NOAA, and it will continue to assess and evaluate the budget that will be needed to allow NOAA to carry out this important work.

Question 5. In Washington State, we are lucky enough to have the Olympic Coast National Marine Sanctuary—a unique, pristine area that is one of America's most productive marine ecosystems and spectacular undeveloped shorelines. Over the past several years, I have pushed NOAA and the Coast Guard to conduct a much-needed Safe Seas oil spill drill in this Sanctuary to prepare for how to protect it in the event of an oil spill. Why has NOAA not been able to conduct a Safe Seas drill in the Olympic Coast Sanctuary yet?

Answer. The FY 2008 enacted appropriation for the Office of Response and Restoration (ORR) was \$5.2 million below the President's FY 2008 Budget Request of \$16.8 million, causing a significant impact on the office. The FY 2009 appropriation provided the full President's Request for ORR (\$17.3 million) for the first time since FY 2003. These funds enabled ORR to begin to restore the capacity and capabilities lost over the past several years, but did not include resources to conduct Safe Seas drills.

Question 6. Don't you think this would be a valuable step in protecting Washington's vulnerable outer coast?

Answer. Yes, previous Safe Sea exercises have demonstrated the value of advanced planning coordination between different response agencies in training personnel and testing and implementing response capabilities.

Question 7. How much would this cost?

Answer. An exercise on the Outer Coast of Washington is estimated to cost about \$700,000. This estimate includes funds to plan and evaluate the exercise, provide training to response personnel and volunteers, support tribal participation, conduct field operations, and support contingency plan updates based on the lessons learned during the exercise.

Question 8. In Washington State, we have 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 NOAA invest in this important effort in Washington State, which is already being seen throughout the country as a model for regional ocean governance and ecosystem-based management?

Answer. We agree the Puget Sound Partnership is an important initiative to prioritize restoration efforts and coordinate Federal, state, local, tribal and private entities. The Partnership has helped to implement salmon recovery plans, which outline specific management actions needed to ensure listed species and their ecosystems are restored. Implementation of these specific management actions has been one of the Partnership's highest priorities. NOAA has invested in this effort through numerous avenues including the Pacific Coast Salmon Recovery Fund (PCSRF), Endangered Species Act Recovery Plans, and the American Recovery and Reinvestment Act of 2009.

Since 2000, through PCSRF, NOAA Fisheries has provided almost \$70 million to projects in Puget Sound, which leveraged \$22 million in state matching funds as well as other critical funds from tribes and local entities. This investment goes to

ward projects throughout Puget Sound to protect, restore, and conserve Pacific salmon populations and their habitats.

Under the American Recovery and Reinvestment Act of 2009, NOAA has selected high-quality, high-priority projects to restore wetlands, salt marsh, oyster and coral reefs, as well as remove fish passage barriers on coastal rivers and streams. Puget Sound will receive \$16.5 million, or nearly 10 percent, of the funding awarded through a national competition to support six projects from the Puget Sound Partnership's Action Agenda to clean up Puget Sound.

Question 9. The work that NOAA does each and every day helps support the science and conservation needed by the Puget Sound Partnership. I worry, though, that in terms of its budget, NOAA can only fund efforts to support the Puget Sound Partnership when it is work the agency is already doing. Isn't there a "budget flexibility" problem when it comes to this state/Federal partnership?

Answer. The Puget Sound Partnership represents a special opportunity for NOAA to demonstrate that the agency has the expertise to assist in making ecosystem-based management a reality for the largest estuary in the Pacific Northwest. NOAA is uniquely capable of delivering and using science to inform restoration and conservation actions on an ecosystem scale.

As noted above, NOAA uses a variety of funding mechanisms in order to participate in the recovery of the Puget Sound. Within current funding, NOAA is expanding its role in delivering the science to better understand the Puget Sound ecosystem and the stresses it faces by developing the tools, such as an Integrated Ecosystem Assessment, to support science-based risk assessments and decisionmaking. NOAA will continue to play an integral and important role in efforts to recover the Sound by 2020.

Question 10. Wouldn't NOAA have the flexibility to more effectively support the work of the Puget Sound Partnership if it had a pool of funding devoted specifically to this effort?

Answer. As outlined above, NOAA has been actively supporting the Puget Sound Partnership and believes we currently have the necessary tools to continue to do so effectively.

Question 11. A small program called "Mussel Watch" will be reduced under the NOAA 2010 budget to \$295,000 (down from \$395,000 for FY 2009). This program analyzes mussel tissues to monitor water quality and chemical contaminants. In April, NOAA released a major report based on Mussel Watch data that found flame retardant chemicals in all U.S. coastal waters and Great Lakes. I'm deeply concerned about NOAA's proposed cuts to the Mussel Watch program. The 24-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. As a scientist, wouldn't you agree that long-term data sets like the Mussel Watch program are crucial for monitoring our environment?

Answer. Yes, long-term data sets like the Mussel Watch program are crucial for monitoring our environment. NOAA's Mussel Watch is the longest continuous, nationwide contaminant-monitoring program in U.S. coastal and Great Lakes waters, and is counted among NOAA's "Top 10 Foundation Data Sets." The program analyzes chemical and biological contaminant trends in sediment and bivalve tissue for a suite of more than 130 organic and inorganic contaminants; *Clostridium perfringens* (pathogen) concentrations; and trace metals. In addition, Federal, state, and local authorities rely on the program to provide baseline data or evaluate impacts of extreme events such as oil spills, tropical storms, and hurricanes. Program data are called upon to evaluate the efficacy of environmental regulation and coastal and Great Lakes remediation efforts. Mussel Watch also provides critical baseline data to NOAA's Office of Response and Restoration in their efforts to respond to a wide range of events across the Nation each year, and to evaluate the environmental impacts of these events.

Question 12. 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 13. Will you commit to working with me to restore this funding to a more appropriate level?

Answer. NOAA is committed to working with Congress on this program.

Question 14. 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. Your 2010 budget, however, only includes just over \$1 million for these efforts. At these funding levels, doesn't NOAA risk failing to delist the species within 28 years as the recovery plan states?

Answer. NOAA must balance many priorities for recovering threatened and endangered species when developing budget requests. Based on the life history of killer whales and the nature of the threats, progress toward recovery will be a long-term effort that could take 28 years or more. Although NOAA is responsible for developing recovery plans, the plan for Puget Sound Southern Resident Orcas guides the actions of many agencies, and while some of the costs identified in the recovery plan are attributable to actions for which NOAA is the lead responsible party, many of the actions include other responsible parties as well. NOAA strives to identify the highest priority and most cost-effective research and recovery actions to fund within available resources, to ensure the agency is contributing to the recovery of the Southern Residents and moving toward the goal of delisting. NOAA has already designated critical habitat, completed the Recovery Plan, and begun implementing recovery actions.

Question 15. The Orca Recovery Plan states that recovery efforts over the first 5 years will cost \$15 million. Under this budget, aren't 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. NOAA has made gains in establishing a recovery program, including designating critical habitat, completing the Recovery Plan, and implementing recovery actions. 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 enforcement presence on the water and through education. Orca recovery is part of the Puget Sound Partnership Action Agenda, and NOAA is coordinating with salmon recovery programs. In coordination with the 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, an active research program including NOAA, universities, and private research organizations is working to help fill in data gaps and guide recovery. 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.

Question 16. The Pacific Salmon Stronghold Conservation Act of 2009, S. 817, would establish a new regional Salmon Stronghold Partnership program that provides Federal support and resources to protect a network of the healthiest remaining wild Pacific salmon ecosystems in North America. The bill promotes enhanced coordination and cooperation of Federal, tribal, state and local governments, public and private land managers, fisheries managers, power authorities, and non-governmental organizations in efforts to protect salmon strongholds. This Act will complement efforts to recover threatened and endangered stocks by directly supporting public-private incentive-based efforts to maintain strong "seed" stocks, sustaining the economic, ecological, cultural, and health benefits of wild Pacific salmon for future generations. What are the benefits to investing public resources in areas where populations are healthy?

Answer. Pacific salmon conservation requires a prioritized, yet multi-pronged approach. This includes restoring those habitats and populations that are most imperiled, managing fisheries and hatcheries effectively, and promoting sound stewardship of watersheds that are home to the most robust populations and habitat. Protecting healthy, properly functioning habitat can provide a buffer against extinction and may provide habitat for listed species as populations rebound due to conservation efforts or migrate through or past these areas. Robust populations from stronghold areas could also serve to help repopulate degraded habitats as conditions are improved through recovery efforts.

Question 17. What is the economic value of commercial and recreational salmon fisheries in the U.S.?

Answer. In 2007, U.S. commercial dockside value of salmon landings was \$381 million, or 9 percent of total U.S. landings and 19 percent of West Coast and Alaska landings. Salmon ranked in the "top five" species by both landings and dockside value in 2007. When using economic multipliers, in 2007 U.S. commercial salmon fisheries generated \$5 billion in sales and \$2.2 billion in income, and supported over 77,000 jobs. The overall economic value of recreational marine fishing in 2007 was \$5.2 billion.

Question 18. What is the value of these fisheries to coastal communities, in particular?

Answer. A significant portion of the \$5 billion in sales, \$2.2 billion in income, and over 77,000 jobs from commercial salmon fishing is generated in coastal communities.

The recreational value of salmon fishing to coastal communities is believed to be substantial. It was estimated by Ted L. Helvoigt and Diane Charlton in *The Economic Value of Rogue River Salmon* (2009) that a single recreationally caught salmon or steelhead is worth approximately \$245 in economic benefits. Add tourism and other secondary benefits of salmon conservation and it becomes apparent that by investing in natural resources, the United States is sustaining economic drivers as well.

Question 19. What is the relationship between climate change adaptation and mitigation and the salmon stronghold approach?

Answer. Climate change will affect salmon in a variety of ways, including temperature changes in riverine habitat and changes in freshwater timing, quality and quantity. Identifying and protecting habitats before they become degraded could help mitigate the potential negative impacts of climate change on salmon. The Intergovernmental Panel on Climate Change predicts that 30 percent of species may become extinct as a result of climate change, but that some species may benefit. Although NOAA's ability to predict climate change-related effects is greatest at the global and regional scales, NOAA is developing the ability to predict climate change effects at increasingly finer scales. This ability will ultimately be used to identify and protect habitats that will continue to support various life stages of salmon under warming conditions. Other effects, such as changing ocean conditions, are more difficult to address. But these effects can be managed by understanding the role ocean conditions play in the growth and survival of juvenile fish, recruitment of fish to fisheries, and maturation of fish into returning spawners and then using this information to increase production in natural freshwater habitats or to reduce harvest rates during poor conditions.

Question 20. Does global climate change suggest a greater need for the Pacific Salmon Stronghold Conservation Act?

Answer. Protecting salmon habitat is important, especially in light of the threat posed by global climate change and changing ocean conditions. NOAA manages a number of existing programs that could support land acquisition and restoration in salmon strongholds, such as the Pacific Coastal Salmon Recovery Fund, Coastal and Estuarine Land Protection program, and Community Based Restoration program. The Department of the Interior manages other applicable programs.

Question 21. Describe how the Pacific Salmon Stronghold Conservation Act would complement the Pacific Salmon Coastal Recovery Fund.

Answer. As indicated in the recovery plans for listed species, additional large investments will be required over the coming decades, not only to reverse the significant degradation of salmon habitat that has occurred but to preserve the healthiest intact salmon habitats that remain. The Pacific Coastal Salmon Recovery Fund is currently focused on listed and at-risk salmon, and targets funds on restoring degraded habitats to help recover them to the point that Endangered Species Act protections are no longer needed. We believe recovering these stocks is the highest priority at this time. However, we recognize the importance of preserving healthy stocks as well. The Pacific Salmon Stronghold Conservation Act offers a conservation tool that would benefit populations of both listed and non-listed species, including stocks that are in good condition.

Question 22. How will this Act help us measure our overall effectiveness in recovering and protecting Pacific salmon populations?

Answer. Habitats in good condition and species that are not listed under the Endangered Species Act can provide baseline and other information on how to prevent future listings and on factors that are affecting all populations, such as ocean conditions.

Question 23. Do you have suggestions of ways to improve the Pacific Salmon Stronghold Conservation Act?

Answer. NOAA believes that the Pacific Coastal Salmon Recovery Fund and other existing programs, including NOAA's programs for salmon management, habitat restoration, and land protection, have the flexibility to focus on the highest priorities with respect to salmon recovery, but recognizes the importance of the PSSCA's focus on preserving high quality salmon habitats. Nonetheless, there is a risk that funding for a new program would compete with existing high priorities. If a new source of funding is established, NOAA would want to ensure that it truly is targeted to the most important and effective uses.

NOAA has reservations about the difficulty of designing and implementing a program that compensates land holders based on the ecosystem services provided by their property. Program requirements would have to be developed to ensure landowners were not being compensated for mitigation obligations required by state or Federal law or that landowners were not compensated multiple times by different programs for the same land. NOAA, the U.S. Fish & Wildlife Service, and the National Fish Habitat Board would need to ensure that ecosystem service payments do not overlap with other conservation payments by working and communicating closely with other agencies and programs that already do, or might in the future, provide such payments.

In addition, because some grants might pass through the National Fish and Wildlife Foundation (NFWF), it could be difficult to retain consistency in how the program is administered. Taking advantage of NOAA's existing relationships would be a more effective way to implement the grant program for habitat protection, rather than establishing a new, dedicated stronghold initiative solely with NFWF.

Finally, NOAA would prefer the Salmon Stronghold Partnership Board include a balanced representation across the coastal western states. Currently, the structure of the board includes both the Bonneville Power Administration and the Northwest Power and Conservation Council, as they provide and help direct a significant amount of salmon funding in the Columbia basin. Given that salmon are in critical condition along the entire West Coast, NOAA recommends that the legislation structure the Board to contain additional representatives from across the region.

Question 24. Late last month, the National Marine Fisheries Service announced that it will open public comment on a proposed Fishery Management Plan by the North Pacific Fishery Management Council for the possible development of commercial fishing in the Arctic. Just 3 years ago, the North Pacific Council considered options for fishery management in the Arctic and ultimately voted to prohibit commercial fishing there until researchers gather sufficient information on fish and the Arctic marine environment. In your opinion, do we really have sufficient information at this point to make a well-informed decision on Arctic fishery management?

Answer. The North Pacific Fishery Management Council began considering Arctic fisheries management in 2006. After a series of Council meetings and review of analyses for the action, the Council unanimously recommended the Fishery Management Plan for Fish Resources in the Arctic Management Area in February 2009. This plan includes measures designed to ensure sustainable fisheries management in the Arctic Management Area. The management measures include a prohibition on commercial fishing until more information is available to identify sustainable harvest levels, and a review process that specifies the information to be analyzed if the Council chooses to consider allowing commercial fishing in the Arctic Management Area. A plan amendment and revisions to the regulations would be required before commercial fishing could be allowed in the Arctic Management Area. The public comment period on the proposed plan and rule ended July 27, 2009. The plan and rule are expected to be effective some time in the Fall of 2009.

Question 25. Coastal economies generate nearly 60 percent of the Nation's Gross Domestic Product, are home to 157 million Americans and employ 69 million people. Unfortunately, funding for the Coastal Zone Managements grants has stagnated at a time when these communities need more help with building resilient communities to adapt to climate change, mitigating pollution into our watersheds, and helping to conserve land. How does the NOAA budget reflect the Administration's priorities for coastal issues?

Answer. The President's FY 2010 Budget requests significant funds to address coastal priorities. Within the Office of Ocean and Coastal Resource Management (OCRM) a total of \$121.6 million is requested, which includes:

- \$66.1 million for coastal zone management grants;
- \$26.1 million for the National Estuarine Research Reserves;
- \$15 million for the Coastal Estuarine Land Conservation Program;
- \$10.4 million for coastal stewardship including a new Communities Task Force;
- \$2.1 million for marine protected areas; and
- \$1.9 million to assist the States with energy licensing.

In addition to the \$121.6 million requested for OCRM, NOAA's FY 2010 Budget Request also includes additional funding to support coastal priorities, including: \$20.6 million for the Coastal Services Center, to provide technical assistance to states and other partners; \$6 million for implementation of the coastal near-term priority of the Ocean Research Priorities Plan; \$2.9 million for the Coastal Storms Program; \$52 million for the National Centers for Coastal Ocean Science; \$55 mil-

lion for the National Sea Grant College Program; and \$44 million for the Office of Habitat Conservation. The funds requested for these offices and programs support NOAA's coastal activities, including efforts to understand and predict changes in the coastal environment, conserve and manage coastal and marine resources, and interpret and deliver tools and products to enhance coastal management.

Question 26. The FY 2010 Budget Request provides level funding for the Coastal Zone Management grants. If I do my math correctly: \$66 million divided by 156 million Americans then we are investing 42 cents per person in our coastal counties while these economies are generating \$5,000 per person in GDP. This does not seem equitable. How can coastal states meet the growing demands placed on them and continue to generate wealth for our country if their Federal partner is not proposing a realistic budget to support their needs?

Answer. NOAA provides support to coastal states through a variety of programs, in addition to providing funding through Coastal Zone Management grants. NOAA's Office of Ocean and Coastal Resources Management, which has primary responsibility for coastal management, also includes the National Estuarine Research Reserve System, Marine Protected Areas Center, Coastal and Estuarine Land Conservation Program, and Coral Reef Conservation Program—all of which respond to the needs of coastal managers. NOAA also provides non-monetary support to coastal managers, including policy and technical assistance to the states.

NOAA has been working to address new challenges in coastal management, such as climate change, and to develop new approaches to these issues. Over the past several years, NOAA has worked with the states to develop a new vision for coastal management as part of reauthorization of the Coastal Zone Management Act. NOAA's vision is for a stronger program that will set challenging goals while using resources efficiently and effectively to meet them. Building upon this new vision, NOAA has begun to develop its own internal coastal strategy, as a way to better integrate our programs and our abilities to deliver needed products, services, and assistance to our coastal management partners.

Ensuring healthy, resilient, and vibrant coastal ecosystems, communities and economies is a priority for NOAA. NOAA looks forward to working with coastal states to address these challenges, and to ensure that our existing resources are used strategically and efficiently to meet the most pressing needs.

Question 27. The Northwest Straits Initiative takes a grassroots approach to marine conservation and leverages Federal, state, and foundation dollars to carry out protection and restoration projects at the local level. While NOAA is a Federal agency with regulatory powers, the Northwest Straits Initiative is a small, non-regulatory organization that functions through consensus and builds capacity at the county levels. Both approaches are necessary and complimentary, and many relationships and partnerships already exist between NOAA and the Initiative. What are your thoughts on collaboration and partnerships between NOAA and the Initiative, and other successful grassroots programs? What can be done to encourage such partnerships?

Answer. As noted, NOAA and the Northwest Straits Initiative (Initiative) collaborate in several ways. NOAA's Marine Debris Program has funded a number of projects proposed by the Initiative, and additional projects were recently supported with American Recovery and Reinvestment Act funding. In addition, the Initiative staff is housed at the Padilla Bay National Estuarine Research Reserve, a NOAA-funded partnership program with the Washington State Department of Ecology.

NOAA has many other examples of successful partnerships with grassroots programs. Most of the National Estuarine Research Reserves were supported by grassroots organizations during their designation phase, and reserves continue to enjoy support from grassroots "friends of the reserve" organizations. Similarly, NOAA's Community-Based Restoration Program involves numerous grassroots and community organizations in its restoration projects. NOAA's Coastal Zone Management Program has partnerships at the community level in special area planning, urban waterfront redevelopment, and public access development. As NOAA increases regional collaboration efforts, it will become easier to identify local partnerships and leverage NOAA resources for partnership opportunities that address NOAA's mission. NOAA programs with significant local components such as the National Estuarine Research Reserves and other community-based restoration programs help support these types of partnerships. Continued support for these NOAA programs can help encourage partnership activities.

Question 28. The Magnuson-Stevens Act put in place clear deadlines to end overfishing by 2011 by requiring annual catch limits set by science, coupled with accountability measures intended to ensure their effectiveness. What do you anticipate

NOAA's budget needs will be over the next several years to end overfishing, as required by the MSA?

Answer. NOAA's FY 2010 Budget includes \$98.3 million to implement the 2006 amendments to the Magnuson-Stevens Fishery Conservation and Management Act, an increase of \$56.5 million over the amounts provided for implementation in the FY 2009 enacted budget. This amount includes \$12 million for NOAA and \$4 million for the Regional Fishery Management Councils to implement annual catch limits and accountability measures to end overfishing. The FY 2010 request focuses on species that have an overfishing determination. NOAA will continue to focus on implementing its Magnuson-Stevens Fishery Conservation and Management Act mandates.

Question 29. NOAA is the primary Federal agency charged with managing our Nation's fisheries in Federal waters. Further, under the Magnuson-Stevens Act, it has been determined that NOAA has the authority to regulate aquaculture, in addition to our wild fish stocks. Dr. Lubchenco, will you affirm this point?

Answer. Yes, I will affirm that NOAA has the authority to regulate aquaculture in Federal waters, in addition to our wild fish stocks. NOAA's longstanding position has been that "fishing" encompasses aquaculture under the Magnuson-Stevens Act. This position is based on a 1993 legal opinion issued by NOAA's Office of General Counsel, which concluded in part:

. . . The Act contains an exceptionally broad definition of the term "fishing" encompassing not only the catching or taking of fish, but also the "harvesting" of fish and "any other activity" expected to result in, or "other operations at sea" in support of, "the catching, taking or harvesting of fish." Use of the term "harvesting" is particularly significant since it adds an additional concept beyond "catching" or "taking"—harvesting connotes the gathering of a crop—which brings within the purview of the Act any aquaculture facility located in the EEZ.

Question 30. Given the developments in the Gulf of Mexico Fishery Management Council, and the interest among many nationwide to pursue offshore aquaculture development, how does NOAA plan to manage this sector of the fishing industry going forward?

Answer. NOAA plans to manage this sector of the aquaculture industry as part of a comprehensive national framework for domestic marine aquaculture. On September 3, 2009, the agency announced its intent to develop a new national policy for marine aquaculture in the coming months, including aquaculture activity in Federal waters. The national policy will build on NOAA's significant work to date to safeguard U.S. coastal and ocean environments, while enabling sustainable domestic aquaculture that adds to the U.S. seafood supply and supports important commercial and recreational fisheries. The policy also will include development of coordinated Federal standards for permitting aquaculture facilities in Federal waters and strategies to provide the scientific information needed for permitting decisions. This approach will ensure that offshore aquaculture proceeds in an environmentally responsible manner that is consistent with NOAA's stated policy to protect wild stocks and the quality of marine ecosystems and is compatible with other uses of the marine environment. The new national policy also will provide context for the Fishery Management Plan (FMP) for Regulating Offshore Aquaculture in the Gulf of Mexico, which took effect on September 3, 2009, by operation of law.

Question 31. At our hearing on May 9, Alexandra Cousteau said that if we are to take ocean policy serious, we need to take it to the land. Land-based pollution is one of the biggest threats to our oceans, how will the Administration help communities and local business address this threat if it is proposing to zero out the non-point pollution implementation grants?

Answer. The Administration has not included specific funding for non-point pollution implementation grants within NOAA's budget. However, the Administration has requested funding for non-point pollution efforts in the budget requests for both the Environmental Protection Agency and U.S. Department of Agriculture.

Within the NOAA budget, existing Coastal Zone Management Act (CZMA) funding mechanisms can be used to support non-point pollution efforts. States can use a portion of their CZMA Section 306 funding for non-point pollution control. While there is no specific request for non-point pollution, other programs including the National Centers for Coastal Ocean Science, the Coastal Services Center, and the National Estuarine Research Reserve System, develop and disseminate management tools and scientific research on non-point source pollution problems and responses.

Question 32. At the confirmation hearing for you and Dr. Holdren, I asked both of you how to ensure that NOAA and the National Marine Fisheries Service had

adequate say in the environmental decisions regarding offshore oil and gas drilling in the Arctic. In particular, I was concerned that the agency's scientists had been ignored by Minerals Management Service in the past, and want to make sure that mistake is not repeated. What steps have you taken within NOAA, and the Obama Administration taken throughout the Federal Government, to ensure that environmental agencies' concerns are given the deference they deserve?

Answer. NOAA, the Minerals Management Service (MMS), and other Federal agencies involved in Arctic oil and gas development issues coordinate our views at the field level and coordinate on policy issues at the headquarters level, with significant national issues handled through the Council on Environmental Quality (CEQ). For example, NOAA recently provided input to CEQ on the Department of the Interior's review of its 5 year plan for outer continental shelf exploration and development.

For Arctic issues in particular, NOAA Fisheries Service's staff in Alaska routinely meet with MMS to discuss the potential effects of oil and gas exploration and development on fish stocks, marine mammals, human users, and other components of the ecosystem. This is done through a variety of avenues. Examples include coordination and review of MMS's Annual Studies Plans; consultations under the Endangered Species Act and the Magnuson-Stevens Fishery Conservation and Management Act on lease sales, exploration (both seismic and exploratory drilling), and development plans; and coordination of oil spill response plans.

Question 33. What is NOAA's current involvement in the Department of Interior's reevaluation of arctic oil and gas drilling plans?

Answer. NOAA recently provided comments to the Minerals Management Service (MMS) on the Draft Environmental Impact Statement for the Beaufort and Chukchi Sea Planning Areas—Oil and Gas Lease Sale Areas 209, 212, 217, and 221, and continues to work with MMS to address resource issues.

NOAA also works with the Department of the Interior to develop oil spill contingency plans. These plans include ensuring environmentally sensitive areas are mapped and strategies are prepared to protect marine resources.

The week of July 20, 2009, NOAA and MMS held a Strategy Retreat in Anchorage, Alaska to discuss upcoming Arctic oil and gas activities.

Question 34. What steps are you taking to ensure that as the Department of Interior reevaluates its arctic oil and gas drilling plans, NOAA's scientists are free to give their professional scientific evaluations and that those evaluations are given the weight they deserve?

Answer. NOAA's primary role in these matters is to provide scientific information and resource management advice to minimize adverse effects of oil and gas drilling on the marine mammals and fish that rely on the fragile Arctic environment. NOAA also has a role in authorizing the incidental take of marine mammals that may result from oil and gas activities authorized by the Minerals Management Service (MMS). NOAA scientists are encouraged to provide their professional advice on these issues, providing MMS with the best available information to support informed decisionmaking.

NOAA will continue to work with agencies such as MMS to ensure sound management decisions by:

- Participating in the environmental impact analysis of proposed actions that may adversely affect living marine resources and their habitats;
- Consulting with the Federal action agencies under the Endangered Species Act and Magnuson-Stevens Fishery Conservation and Management Act;
- Recommending measures to avoid, minimize, or offset adverse effects;
- Providing technical assistance, sharing available data, and identifying data gaps; and
- Working with the oil and gas industry applicants during the Marine Mammal Protection Act process to prescribe measures to effect the least practicable impact on marine mammal species that may be harassed by oil and gas activities.

Question 35. Last Congress, the Subcommittee led the successful effort to reauthorize the National Sea Grant College Program Act at substantially higher funding levels. It was disappointing to see that the program was level-funded in NOAA's recent budget proposal. How can we work together to build on Sea Grant's more than 40 years of success in marine and coastal research, education and outreach?

Answer. NOAA appreciates Congressional support 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 pro-

grams promote better understanding, conservation, and use of America's coastal resources, addressing issues from local to global concerns.

The President's FY 2010 Budget requests approximately \$55 million for the National Sea Grant College Program, consistent with Administration priorities and FY 2009 levels; the FY 2010 request also provides an additional \$88,000 for an Adjustment to Base (ATB). The ATB for Sea Grant is part of a larger NOAA ATB request within the President's request for Fiscal Year 2010. Across NOAA, increases for ATBs will enable NOAA to fund the estimated FY 2010 Federal pay raise of 2.0 percent and annualize the FY 2009 pay raise of 3.9 percent. This request is critical to sustain the current operations level and support the estimated number of full-time employees in 2010. Without these funds, NOAA will not be able to support inflation for labor and non-labor activities including service contracts, utilities, field office leases and rent charges from the General Services Administration.

Question 36. How can the Sea Grant network be better used by NOAA to achieve its mission responsibilities?

Answer. NOAA and Sea Grant are aligning their strategic objectives to new and emerging NOAA and regional mission priorities and responsibilities. The Sea Grant program's network is being relied upon to help NOAA better connect with stakeholders at the regional level.

As one example, NOAA is working to better utilize the Sea Grant program's networks to provide climate services to key stakeholders. NOAA is expanding regional coordination and communication efforts by integrating program activities to more effectively address NOAA's mission at both the national and regional scales. In FY 2010, NOAA is seeking to advance priority climate engagement strategies throughout the agency through climate engagement mini-grants. These climate engagement projects will serve to catalyze collaboration and cooperation between Sea Grant and the NOAA regional teams and will jumpstart NOAA's ability to provide climate services to key stakeholders. These projects will also serve as internal models for all regions, line offices, and agency programs.

Question 37. What is your vision of Sea Grant's role in the National Climate Service?

Answer. The impacts of climate change are imminent for coastal and island communities, which are home to over fifty percent of the U.S. population, contribute to one-third of the U.S. gross domestic product, and produce one-half of the Nation's jobs. The Sea Grant extension network offers a conduit to provide climate services to key stakeholders, including immediate assistance to mayors and coastal communities. In addition, Sea Grant can work to develop community knowledge and expertise related to: renewable production and efficient use of energy; adaptation to the impacts of climate change; sustainable approaches to building-scale and community development.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. DANIEL K. INOUE TO
DR. JANE LUBCHENCO

Question 1. The Coral Reef Conservation Act of 2000 (CRCA) established the Coral Reef Conservation Program (CRCP) within NOAA and authorized appropriations to NOAA for coral reef protection and management through 2004. The CRCA provided NOAA with the authority to undertake a number of activities to understand, manage, and protect coral reef ecosystems by authorizing five major activities including the National Coral Reef Action Strategy (NAS); a granting program for coral reef conservation projects in the states and territories; the establishment of the Coral Reef Conservation Fund in partnership with the non-profit National Fish and Wildlife Foundation; additional authority for NOAA to implement a national program to conserve coral reef ecosystems; and authority for the NOAA Administrator to provide grants to state and local governments to respond to unforeseen or disaster-related coral reef emergencies.

NOAA's CRCP is a valuable program that should be reauthorized in order to ensure that these authorities are preserved and updated. It is my understanding that NOAA currently has a draft bill in preparation. I look forward to working with the Administration in crafting a bill for consideration. To this end, when do you estimate the Administration's proposed bill will be made available?

Answer. NOAA will not be forwarding an Administration proposal to reauthorize the Coral Reef Conservation Act to Congress for consideration in the 111th Congress. We intend to work with the Senate and the House on any introduced legislation to ensure it meets the needs of the Administration. To that end, NOAA generally supports the direction taken in S. 1580, which was considered in the 110th

Congress. We look forward to working with the Senate Committee on Commerce, Science, and Transportation when similar legislation is introduced this Congress.

Question 2. More than 80 percent of seafood consumed in this country is imported—often from nations that do not have stringent environmental and conservation regulations. More than half of that imported seafood is farm-raised, again with little environmental regulation. In my home state of Hawaii, we are fortunate to have environmentally-responsible aquaculture as part of our economy, but many other states and territories are moving their operations abroad because of the inability to obtain permits in the U.S. Unfortunately we will lose important jobs in the process. What is your position on establishing a national framework for domestic aquaculture, fostering a viable domestic industry, and keeping both environmentally-sustainable jobs and food supply here in the U.S.?

Answer. NOAA supports establishing a national framework for domestic marine aquaculture. On September 3, 2009, the agency announced its intent to develop a national policy in the coming months, including a comprehensive framework for addressing aquaculture activity in Federal waters. The national policy will build on NOAA's significant work to date to safeguard U.S. coastal and ocean environments, while enabling sustainable domestic aquaculture that adds to the U.S. seafood supply and supports important commercial and recreational fisheries. The policy also will include development of coordinated Federal standards for permitting aquaculture facilities in Federal waters and strategies to provide the scientific information needed for permitting decisions. The new national policy also will provide context for the Fishery Management Plan (FMP) for Regulating Offshore Aquaculture in the Gulf of Mexico, which took effect on September 3, 2009, by operation of law.

The new national policy for aquaculture will help foster a more robust domestic aquaculture industry that provides safe and sustainable seafood and jobs for our Nation. At the same time, the policy will ensure effective management of the industry through reasonable regulations and policies that protect and conserve marine species and habitats and ensure that the industry operates in a manner consistent with NOAA's stewardship responsibilities.

Question 3. What role will aquaculture play, in partnership with the Magnuson-Stevens Act, in the broad mandate to end overfishing? What level of funding would be required for such an effort?

Answer. One of NOAA's missions is to manage the sustainable use of marine resources to provide safe and sustainable seafood and create jobs in coastal communities. Marine aquaculture and traditional harvest fisheries together achieve both of these goals. With wild capture harvest at or above sustainable levels for many fisheries, and with demand for seafood growing, wild capture fisheries should be rebuilt and domestic marine aquaculture should grow to provide safe seafood and economic opportunities for struggling coastal towns. The President's FY 2010 Budget requests \$7.7 million for the NOAA Aquaculture Program.

Two key areas where aquaculture can help to end are: (1) using demonstration projects to assist interested fishermen in adopting aquaculture practices, and (2) using stock enhancement to help rebuild overfished stocks.

Demonstration Projects: NOAA is currently exploring options to develop a network of near-shore and onshore aquaculture demonstration projects with state, local, academic, and traditional fishing and aquaculture industry partners. These projects would build on lessons learned from similar projects in Puerto Rico, New Hampshire, and Hawaii by testing new technologies and serving as "learning laboratories" to further monitor and minimize environmental impacts. These projects could act as floating classrooms to train interested fishermen in adopting sustainable marine aquaculture practices.

Stock Enhancement: Stock enhancement is a type of aquaculture that has shown promise for reducing the natural rebuilding time required for some depleted fish stocks. NOAA-sponsored stock enhancement research is underway to help achieve fishery management and habitat restoration goals around the Nation—such as rebuilding stocks of Alaskan king crab, Pacific groundfish, and salmon, restoring oyster reefs, as well as protecting and enhancing depleted near-shore fishery resources in Hawaii.

Question 4. What role will the Marine Spatial Planning (MSP) tool have in assisting with proper siting for aquaculture?

Answer. NOAA plans to build on past work as well as the ongoing work of the Ocean Policy Task Force to create a comprehensive framework for marine aquaculture that facilitates safe and sustainable U.S. operations. Within this context, Marine Spatial Planning would provide an analytical and decision-making tool to help determine where aquaculture facilities could be located in the context of multiple other uses. Importantly, in addition to informing where facilities should avoid

siting aquaculture operations, Marine Spatial Planning can also identify locations where potential synergies could arise from co-location. For example, a symposium scheduled this Fall in Rhode Island will explore the idea of co-locating wind farms with aquaculture operations to achieve multiple benefits and reduce the environmental footprint of such an operation.

Question 5. Will the lack of a current regulatory framework for offshore aquaculture prevent it from being an active part of the MSP process?

Answer. NOAA has funded several Marine Spatial Planning research projects (now underway) to look at aquaculture siting and carrying capacity in Federal and state waters. NOAA Aquaculture Program staff is actively engaged in Marine Spatial Planning discussions within NOAA to make sure aquaculture is considered in the process. However, a comprehensive aquaculture regulatory framework in Federal waters, as a complement to the new national aquaculture policy that the agency is developing in the next several months, would provide a stronger basis for consideration of the emerging needs of this sector.

Question 6. U.S. fisheries are among some of the most stringently managed fisheries globally. However, as mentioned above, more than 80 percent of all seafood consumed in the U.S. is imported. Many of these countries do little to ensure that their fisheries are sustainable, and in some cases even fail to comply by their own or international fishery management measures. In my home state we are facing the challenge of maintaining a stake in the Pacific domestic tuna market as a result of the non-compliance of other Pacific nations, and I have explored with you some creative ideas on how to level the field for U.S. fisherman and how to preserve our competitiveness in the market. To this end, I would appreciate your thoughts on how we can work together to move this issue forward and level the playing field for U.S. fishermen.

Answer. The United States actively supports the adoption of measures to ensure an ecosystem approach to fisheries management in multilateral fora, including measures to stop overfishing, rebuild overfished stocks, and reduce bycatch and bycatch mortality. Given the highly migratory nature of many of our important U.S. fish stocks, it is crucial for the United States to work cooperatively with its international partners to develop sustainable fisheries. NOAA believes that by working collaboratively through the multilateral process, agreements can be reached on measures that will have a wide-ranging impact on marine stewardship.

In addition to these multilateral efforts, NOAA is working through the new measures in the 2006 reauthorization of Magnuson-Stevens Fishery Conservation and Management Act to identify countries whose fishing vessels have been engaged in illegal, unreported and unregulated fishing and bycatch, and to build capacity in developing countries to address these issues. Under the international provisions of the Magnuson-Stevens Fishery Conservation and Management Act, subsequent to consultations with each identified nation, the Secretary of Commerce is required to certify whether the Nation has taken corrective action or whether the relevant international organization has implemented effective measures to address the illegal, unreported, and unregulated or bycatch activities of concern. The absence of sufficient steps to address illegal, unreported, and unregulated fishing or bycatch may lead to the denial of port privileges for vessels of an identified nation, prohibitions on the importation of certain fisheries products into the United States from that nation, or other measures.

In January 2009, NOAA submitted its first report to Congress under this new authority. The report identifies six nations as having vessels engaged in illegal, unreported, and unregulated fishing during 2007–2008: France, Italy, Libya, Panama, the People's Republic of China, and Tunisia. The U.S. Government has informed each nation of their identification and has sought or initiated formal consultations. To date, the U.S. Government has met with government representatives from all of the previously mentioned countries, except Tunisia, to discuss these issues. These meetings were productive and will help open the way for continued consultations between the U.S. Government and officials of these nations to encourage these nations to take corrective actions to stop illegal, unreported, and unregulated fishing by their vessels. These meetings also served as an invitation for these nations to work cooperatively with the U.S. Government to address illegal, unreported, and unregulated fishing on a bilateral basis and through international fishery management organizations.

One of the most effective ways to promote sound practices is to provide other nations with tools, training, and resources to increase their capacity for sustainable fisheries management and enforcement. To this end, NOAA has hosted several international workshops and training sessions including bycatch reduction techniques, cooperative research, and observer programs. There has been a tremendous

response to these successful efforts, and demand for assistance continues to grow. In addition to improving the capabilities in the developing world, these collaborative activities can strengthen relations with other countries and thereby enhance U.S. ability to successfully negotiate at meetings of international fishery management organizations.

Question 7. Many of the employees in your agency participate in the Program Planning, Budgeting, and Execution System (PPBES) process to calculate the needs of their programs over the short- to mid-term in accordance with NOAA's long-term goals. This information is carefully derived and will be valuable to you as you continue to come up to speed about the broad, diverse range of programs within your NOAA portfolio, and the specific financial resources required. These data also provide a direct link between NOAA's career employees and the priority-setting process. Upon review of the system, what do you envision as the future role of PPBES or other similar system?

Answer. I am still evaluating the PPBES process NOAA uses and need to better understand the strengths and weakness of the system. I appreciate the performance measures and justifications that come from the process, but I feel work needs to be done to better align the budget process with the strategic process. The current system is adequate for evaluating the efficiencies of existing resources before asking for new or additional funding.

Question 8. How do you plan to use these PPBES data?

Answer. PPBES data is useful for evaluating the efficiencies of existing resources before asking for new or additional funding. It will continue to be used to calculate the needs of the programs in accordance with NOAA's goals and missions.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. BILL NELSON TO
DR. JANE LUBCHENCO

Question 1. The Gulf longline grouper fishery recently closed due to interactions with loggerhead sea turtles; best case scenario, it will reopen in the Fall with a reduced fleet. This fishery provides over 2,000 jobs not just for fishermen, but also for restaurants and fish houses. It also generates about \$88 million for Florida's economy along with the tilefish fishery. In order to gain more comprehensive data about turtle interactions, we need to drastically increase observer coverage in this fishery. Unfortunately, observer coverage as a whole historically has been underfunded. How does the President's budget address this crucial component of fisheries management, and how will it provide the commercial grouper fishery in the Gulf of Mexico with the observer coverage it needs?

Answer. The number of sea turtle interactions observed in the bottom longline fishery was sufficiently high to trigger an Emergency Rule prohibiting bottom longline gear inside the 50-fathom contour in the eastern Gulf of Mexico. Estimates of sea turtle interactions were derived by observing only a small percentage of the bottom longline fishery. Improved coverage would allow greater confidence in the estimate of sea turtle interactions. The President's budget for FY 2010 requests an additional \$330,000 over the FY 2009 funding level for observer coverage in the Gulf of Mexico Reef fish fishery. This increase will provide an additional 315 observer sea days necessary to achieve greater precision in the turtle interaction estimate. This increased coverage will allow for more extensive data collection and documentation of such factors as fishing gear, bait modifications, and environmental variables that may provide insights into strategies for reducing bottom longline and sea turtle interactions.

Question 2. I am pleased to see that the FY 2010 Budget Request includes an increase of \$13 million for Hurricane Forecast System Improvements to accelerate improvements in hurricane track and intensity forecasting. Senator Martinez and I will be introducing a bill to support hurricane research and mitigation. In what ways is NOAA working to build partnerships with the external hurricane research community, in this effort to improve our collective understanding of and operational forecasting of hurricanes?

Answer. NOAA is building partnerships with the external hurricane research community in following ways:

(1) NOAA builds partnerships with the external hurricane research community through cooperative agreements in which NOAA scientists are substantially involved in the research and science.

a. Through the National Hurricane Center's (NHC) Joint Hurricane Test Bed, NOAA is funding the transfer of promising research in both academia

and other government labs directly into forecast operations at NHC. The identification of the most promising research is done collaboratively between NOAA, academic, and Department of Defense (DOD) researchers. NOAA has been investing \$1 to \$1.5 million per year in this research since 2001.

b. In partnership with the Office of Naval Research (ONR), NOAA is actively funding research in the external community to improve our capability to forecast hurricane intensity changes through the National Ocean Partnership Program. NOAA and ONR are each investing \$1 million in this effort.

c. The NOAA Atlantic and Oceanographic Laboratory's Hurricane Research Division is sponsoring hurricane modeling and coastal observation research at the University of Miami's Rosenstiel School of Marine and Atmospheric Sciences (RSMAS), Naval Post Graduate School, and at the University of South Alabama.

d. NOAA's National Weather Service is also supporting research at RSMAS to improve our understanding and prediction of hurricane intensity changes.

e. Florida International University is conducting hurricane storm surge research on NOAA's behalf.

f. NOAA supports the Florida Hurricane Mitigation Alliance of 7 public universities research of various topics related to land falling hurricanes and their socioeconomic impact.

g. NOAA's Office of Oceanic and Atmospheric Research is jointly sponsoring research with the National Science Foundation on the mitigation of socioeconomic impact of hurricanes and tropical cyclones.

(2) In partnership with the National Science Foundation, United States Navy, National Aeronautical and Space Administration, and the University Corporation for Atmospheric Research, NOAA is working to develop a National Hurricane Research Alliance to coordinate hurricane research and mitigation efforts. NOAA and the Navy are jointly leading a taskforce of government research leaders and managers, through the Office of the Federal Coordinator for Meteorology and Supporting Research, to coordinate the overall Federal hurricane research efforts.

(3) NOAA is actively collaborating with the external scientific community through a visiting scientist program administered at NHC. This program enables at least 12 scientists to become familiarized with NHC forecast capabilities and limitations and to exchange ideas on possible enhancements to forecast operations.

(4) NOAA's Hurricane Forecast Improvement Project is actively supporting collaborative research at a number of universities, including Pennsylvania State University, University of Wisconsin, Colorado State University and the University of Arizona, to improve the modeling of hurricanes and improved hurricane forecast guidance. NOAA is funding collaborative efforts with the National Center for Atmospheric Research's Research Applications Laboratory and university scientists to improve hurricane intensity models. This partnership provides a collaborative modeling environment for use by the broader academic community.

NOAA's scientists are actively collaborating with the broader research community on numerous externally funded projects and in scientific and administrative workshops, committees, and meetings such as the American Meteorological Society's Conference on Hurricanes and Tropical Meteorology.

Question 3. Coastal communities require accurate land elevation data and water depth data to build levees and flood protection infrastructure; to ensure safe and efficient marine transportation; to plan evacuation routes; to estimate storm surge; and to monitor the impact of sea-level rise.

Dr. Lubchenco, the 2010 President's Budget provides additional funding to improve elevation and height information throughout the United States. What is the importance of this initiative to the National Spatial Reference System, which NOAA manages and maintains?

Answer. The FY 2010 President's Budget requests an increase of \$4 million to improve elevation information as a foundation for better commerce, economic efficiencies, and to better protect the public from coastal hazards and flooding. This requested funding supports the NOAA "Gravity for the Redefinition of the American Vertical Datum" (GRAV-D) initiative.

The GRAV-D initiative will allow NOAA to enhance the vertical component of the National Spatial Reference System (NSRS). The NSRS includes a network of permanently marked points; a consistent, accurate, and up-to-date national shoreline; a network of continuously operating reference stations which supports three-dimensional Global Navigation Satellite System positioning activities (such as using the global positioning system or GPS); and a set of accurate models describing dynamic, geophysical processes that affect spatial measurements.

The GRAV-D initiative will improve elevation and height information through the collection of high resolution gravity data and will establish a new vertical datum for the country. This new vertical datum will provide the baseline for a more accurate NSRS that will improve transportation and infrastructure planning and repair, shoreline mapping and charting for commerce and safety, and a multitude of scientific and engineering applications.

According to a 2009 socioeconomic study,¹ refining and modernizing the NSRS 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 4. How will this initiative improve our ability to plan for and adapt to challenges such as inundation from hurricanes, flooding and sea-level rise?

Answer. The Global Positioning System (GPS) yields accuracies of a few yards. To improve this accuracy NOAA provides additional information in the form of Continuously Operating Reference Stations, and a differential processing service called, "Online Positioning User Service." These systems allow processing of GPS data to achieve accuracies of less than one-half inch horizontally.

Even with this additional processing, GPS is currently incapable of providing accurate elevations, or heights, relative to sea level. Once GRAV-D is completed, the new gravity-based vertical datum for the U.S. will, for the first time, enable transformation of ellipsoid (GPS) heights to orthometric (Sea Level) heights for the entire country and provide national elevations with GPS to an accuracy of under an inch, compared to a range of 16 inches to six feet or more today.

The lack of accurate orthometric data is a nationwide problem, and coastal regions are especially concerned about using current, unreliable elevation data as the basis for public safety decisions, evacuation route planning, flooding and storm surge prevention efforts, and coastal restoration. Improving vertical data through this initiative will reduce elevation errors in floodplain mapping. This information will support improved decision-making regarding planning for building structures, highways, public safety requirements, levee construction, and evacuation routes, and may subsequently affect insurance rates. Once completed, the new national vertical datum will also help users better anticipate the potential damage associated with coastal storms, river flooding, sea level rise, and climate change that a home, road, or other structure might incur. The 2009 socioeconomic study estimated that this new initiative could save the Nation an estimated \$240 million in costs annually through improved floodplain management alone. If appropriated, the increase requested in the FY 2010 President's Budget will enable NOAA to provide the accurate orthometric elevation data throughout the United States, beginning in coastal and at-risk areas prone to flooding after extreme weather events.

Question 5. How will this initiative support marine spatial planning efforts?

Answer. Effective marine spatial planning will rely on many sources of data and information, including accurate geodetic and tidal datum reference system. The National Spatial Reference System, as enhanced by the NOAA "Gravity for the Redefinition of the American Vertical Datum" (GRAV-D) initiative, will provide the necessary framework, at the appropriate accuracy level, for marine and coastal mapping and delineation of uses.

Because most maritime boundaries were defined without this framework, many of the world's nautical charts, treaties, and regulations may contain marine boundary descriptions that are insufficiently defined for use in effective and accurate marine spatial planning efforts. These discrepancies can negatively affect many ocean related activities, including marine managed areas, resource and alternative energy development, open ocean disposal zones, and enforcement of fishing and environmental laws. If appropriated, the increase requested in the FY 2010 President's Budget Request will enable NOAA to improve the geodetic infrastructure used for marine spatial mapping and planning throughout the Nation, beginning in coastal areas.

¹Levenson, Irving (2009) *Socio-Economic Benefits Study: Scoping the Value of CORS and GRAV-D, Final Report*. Report available at http://www.ngs.noaa.gov/PUBS_LIB/Socio-EconomicBenefitsofCORSandGRAV-D.pdf.

Improved data providing accurate information regarding water depth and land elevation will support effective marine spatial planning. In addition to navigation, accurate and detailed water depth data is vital to support decisions, such as those related to the development of offshore renewable energy infrastructure. Data collected through the GRAV-D initiative will support efforts to map the character of the seabed at a resolution currently unavailable on the outer continental shelf, and will therefore help to address one of the challenges for siting and permit review currently limiting infrastructure development. Data produced through the GRAV-D initiative will also allow for accurate determination of state and Federal boundaries, on which revenue sharing for offshore energy depends. Because these boundaries are measured from baseline points at the mean low-tide line, it is important to monitor sea-level rise at the finest possible resolution as these boundaries will move relative to the rising seas. As a final example, the data collected through the GRAV-D initiative will support planning for new energy infrastructure to ensure connection points on land are not placed in areas vulnerable to sea-level rise and its related impacts.

Question 6. Florida is at the front lines of climate change. From 2003 to 2008, for example, the coastal populations in St. Johns River, FL, Cape Canaveral, FL, and Santa Ana, CA, all grew by over 70 percent. These communities will be directly impacted by sea level rise. Satellite sensors are indispensable tools for monitoring sea height globally. The Jason/OSTM satellite missions, jointly led by NASA-NOAA-EUMETSAT, are important for tracking ocean circulation patterns, for measuring sea-surface heights, and for modeling tropical cyclone intensity and storm surge. This is a proven technology, and we need to ensure overlap with Jason-2 for calibration and validation, and for maintaining data continuity.

During Governor Gary Locke's nomination hearing, I asked Governor Locke where the Jason satellite mission fell within Commerce's budget priorities for 2010 and beyond. I am pleased to see that an additional 20 million dollars has been included for the Jason-3 Altimetry mission in the FY2010 Budget Request. Dr. Lubchenco, perhaps you could briefly comment on the importance of the Jason-3 mission, and the scientific research it will support?

Answer. The importance of the Jason-3 satellite altimeter mission is perhaps best considered in the context of understanding how maintaining continuity of the satellite record of sea surface height will help coastal states, like Florida. The data from Jason-3 will help to inform coastal states about two different climate-related threats, primarily the threat of an acceleration in the rate of sea level rise caused by global warming, and possible changes in the number and intensity of hurricanes.

Sea Level Rise: Sea level rise directly threatens people who live in coastal areas and coastal infrastructure through inundation; increased erosion; more frequent storm-surge flooding; and loss of habitat through drowned wetlands. The only feasible way to resolve the spatial variability needed to accurately determine global sea level rise is by means of satellite altimetry, specifically the systematic collection of sea level observations initiated by TOPEX/Poseidon in 1992 and being continued today by the on-going Jason series of satellite missions. A complementary global network of tide gauges, each with geodetic positioning to estimate vertical land motion, provide essential cross-validation for sea level rise. Together, these observations indicate that global sea level has been rising nearly twice as fast over the past 1.5 decades as over the past century (3.1 mm/yr vs 1.7 mm/yr). Whether this increase reflects a true long-term acceleration or decadal variability remains to be determined. It is important to note, however, that altimeter observations of global sea level rise overlay the mid-point of the Intergovernmental Panel on Climate Change (IPCC) projections for the late 21st century (2090-2099).

The IPCC projections of global sea level rise during the 21st century range between 18 and 59 cm, and local changes could be substantially different. In order to understand and improve the projections of sea level rise, it is necessary to continue the Jason series of sea level observations and also monitor the major contributors to change—thermal expansion due to the warming oceans, and the addition of melt water due to the warming of terrestrial ice sheets and glaciers (and, to a lesser extent, changes in terrestrial water storage by lakes, reservoirs and aquifers). Thermal expansion estimates, previously based on sparse coverage by ship observations, now principally come from the Argo array of profiling floats. Initiated in 2000 and having achieved full coverage with 3,000 floats in late 2007, Argo is systematically observing the temperature and salinity in the upper half of the global, ice-free oceans on a continuing basis.

A number of research programs are directed at estimating the addition of melt water. For example, these programs measure changes in the gravity of the ice sheets and oceanic water masses, as well as changes in the topography and flow rate of glaciers and ice sheets to help determine how much the additional water is

contributing to sea level rise. Jason-3 and Argo observations will contribute to this research by providing continuing baseline measurements of the amount of global sea level rise, as well as estimates of the thermal expansion component to determine how much of the sea level rise is due to ocean warming. Together, these estimates can be used to infer a contribution from melting glaciers and ice sheets as a consistency check for these research efforts, as well as help assess the performance of climate models projecting sea-level rise.

Hurricane Intensity Prediction: The Jason-3 mission will also serve a critical operational function, helping to improve the prediction of hurricane intensity. Hurricanes feed on heat energy stored in the upper layer of the ocean and can dramatically increase in strength when passing over patchy areas of high heat content, such as those often found in the Gulf of Mexico. The evolution of Hurricane Katrina as it traversed the Loop Current in the Gulf is a good example of this process. Professor Lynn Shay of the University of Miami, in collaboration with NOAA researchers, has developed a method for mapping the location and magnitude of ocean heat anomalies using altimeter observations, supplemented with in-ocean temperature measurements. This information is presently employed by the National Hurricane Center to initialize their Statistical Hurricane Intensity Prediction Scheme (SHIPS) for intensity forecasts. The use of Jason altimeter data in this fashion has been shown to reduce SHIPS forecast errors between 5 to 22 percent. A Jason-3 mission will enable the continued use and refinement of this important forecast capability.

The Jason series is in the process of being transitioned as a research endeavor from NASA and CNES (the French Space Agency) to NOAA and EUMETSAT (NOAA's operational satellite counterpart in Europe) for joint implementation as a sustained operational capability. This process has started, as NOAA and EUMETSAT are currently responsible for the ground system and operation of the Jason-2 satellite launched in June 2008. The launch of Jason-3 will complete the transition. By sharing costs with the Europeans starting in FY 2010, both Europe and the United States have a cost-effective way to assure continuity of sea surface height measurement.

Question 7. The National Polar-Orbiting Environmental Satellite System (NPOESS) system is considered a critical system for forecasting the weather, including path and intensity of hurricanes, and for monitoring global climate change. The NPOESS Independent Review Team, led by the well-respected Tom Young, will be releasing a report that calls for an immediate restructuring of the NPOESS program. What are the best options for NPOESS?

Answer. The Office of Science and Technology Policy (OSTP) is leading a task force with representation from the Office of Management and Budget and the National Security Council that is working with NOAA, the Department of Defense (DOD) and the National Aeronautics and Space Administration (NASA) to analyze suitable options for strengthening the NPOESS program.

OSTP is taking into account the IRT recommendations as it proceeds forward with the goals as laid out for the task force.

Question 8. What immediate steps are being taken by NOAA and the Administration to address this problem, and who ultimately will be responsible for making the decisions?

Answer. The Office of Science and Technology Policy (OSTP) has formed a task force with representation from the Office of Management and Budget and the National Security Council that is working with NOAA, the Department of Defense (DOD), and the National Aeronautics and Space Administration (NASA) to determine suitable options to help make the NPOESS mission more successful and avoid potential gaps in coverage or data availability.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. FRANK R. LAUTENBERG TO DR. JANE LUBCHENCO

Question 1. Changes in ocean chemistry caused by carbon dioxide will affect our food supply and the health of our oceans, yet research on ocean acidification is still in its infancy. I wrote a bill that recently became law requiring NOAA to lead an effort to study the effects of ocean acidification. Is this budget adequate to allow NOAA to carry out this important work?

Answer. The FY 2010 President's Budget includes a request for \$9.9 million for research on ocean acidification, which is an increase of \$5.5 million. The additional funds will implement long-term monitoring of ocean acidification, and an integrated Ocean Acidification initiative to understand, monitor and forecast how ocean acidification affects the Nation's ecosystems and living marine resources. NOAA looks forward to working with Congress to implement the recently passed Federal Ocean

Acidification Research and Monitoring Act, which creates an ocean acidification program within NOAA, and it will continue to assess and evaluate the budget that will be needed to allow NOAA to carry out this important work.

Question 2. What progress has been made in implementing the ocean acidification program?

Answer. NOAA looks forward to working with Congress to implement the recently passed Federal Ocean Acidification Research and Monitoring Act, which creates an ocean acidification program within NOAA. NOAA maintains a continued leadership role in this issue area, as we work with our interagency partners to coordinate the development of the required interagency working group and ocean acidification plan through the Joint Subcommittee on Ocean Science and Technology. NOAA is currently developing a coordinated plan to monitor and conduct research on the effects of ocean acidification on marine organisms and ecosystems. NOAA is also developing a set of options for evaluation, as we work to develop the structure of the ocean acidification program within NOAA. Finally, NOAA scientists met in March 2009 to draft a set of priorities for ocean acidification research, based on the anticipated ecosystem and socioeconomic impacts (at both regional and national scales) that will likely result from increased ocean acidification. Writing teams are currently drafting these priorities, and implementation actions will be carried via a prospective interagency plan.

Question 3. Negotiations will soon take place on international regulations on fishing for Atlantic tuna. Many U.S. fishermen, including those in New Jersey, are worried that without a strong U.S. presence at the negotiations, our fishermen could lose substantial portions of long-held rights to fish for these tuna. Will you fight to preserve U.S. fishermen's fishing rights at upcoming meetings of the International Commission for the Conservation of Atlantic Tunas?

Answer. The U.S. delegation to the International Commission for the Conservation of Atlantic Tunas meetings is keenly aware of the challenges in ensuring that our fleet's share of the global quota for Atlantic species such as bluefin tuna and swordfish. Working collaboratively through the multilateral process, the United States has addressed allocation issues head-on by insisting that only those countries who fully comply with the International Commission for the Conservation of Atlantic Tuna measures, who actively support an ecosystem approach to management, and who are members in good standing of the organization should have a right to fish these quotas. The United States has numerous bilateral consultations in advance of the main International Commission for the Conservation of Atlantic Tunas meeting, with a broad number of partners including the developing and developed countries. Through NOAA's efforts, the United States has established a stronger rapport with the member countries around the table, including development assistance. NOAA will prepare the U.S. delegation and its strategy with a view to ensuring the preservation of the rights of U.S. fishermen at the International Commission for the Conservation of Atlantic Tunas meeting in November 2009.

Question 4. Pollution run-off is a major problem for many coastal states, including New Jersey. To address this problem, New Jersey depends on assistance from the Federal Government. This proposed budget fails to fund NOAA's coastal non-point pollution control program. Why was this program omitted?

Answer. The Administration has not included specific funding for non-point pollution implementation grants within NOAA's budget. However, the Administration has requested funding for non-point pollution efforts in the budget requests for both the Environmental Protection Agency and U.S. Department of Agriculture.

Within the NOAA budget, existing Coastal Zone Management Act (CZMA) funding mechanisms can be used to support non-point pollution efforts. States can use a portion of their CZMA Section 306 funding for non-point pollution control. While there is no specific request for non-point pollution, other programs including the National Centers for Coastal Ocean Science, the Coastal Services Center, and the National Estuarine Research Reserve System, develop and disseminate management tools and scientific research on non-point source pollution problems and responses.

Question 5. The Magnuson-Stevens fisheries law included a provision I authored to protect deep-sea corals from destructive types of commercial fishing. The law also established a coordinated research program on deep sea corals, which are an essential foundation for healthy seas. What steps has NOAA taken under this law to protect deep-sea corals?

Answer. NOAA recognizes the importance of deep-sea coral ecosystems and is committed to enhancing their conservation. In consultation with the Regional Fishery Management Councils, and in coordination with other Federal agencies, educational institutions and non-governmental organizations, NOAA has taken the fol-

lowing actions pursuant to the deep-sea coral provisions of the 2006 reauthorized Magnuson-Stevens Fishery Conservation and Management Act:

- In 2008, NOAA submitted the first report to Congress and the public on *Implementation of the Deep Sea Coral Research and Technology Program*. The report included an initial list of deep-sea coral areas in the U.S. exclusive economic zone with limited protection from interactions with fishing gear.
- In 2009, NOAA received \$1.5 million to begin implementation of the Deep Sea Coral Research and Technology Program (Program). First year activities focused on the following areas:
 - Targeted field research and mapping expeditions off the Southeast U.S. in the South Atlantic Fishery Management Council Region. Three cruises are planned to map and characterize deep-sea coral habitats and conduct research on the ecology of deep-sea corals and associated faunal assemblages, including those associations between corals and managed fish stocks to address the most pressing information needs for management. Research will be conducted during an August 2009 submersible cruise and August/September deep Remotely Operated Vehicle cruise, followed by a November 2009 ship-based mapping cruise. The science program is designed to inform the final design of the Council's proposed deepwater Coral Habitat Areas of Particular Concern and reduce potential conflict with users of bottom-tending fishing gear.
 - A workshop in July 2009 on deep-sea coral exploration and research priorities for Southeast Region, designed to guide subsequent scientific activities under the Program.
 - Integrating and managing deep-sea coral data in Geographic Information System databases, with a goal of making information available in usable formats to the science and management communities and the general public.
 - Using data from fisheries and other sources to map the distribution and intensity of fishing with gears that may damage deep-sea corals and improving the reporting and analysis bycatch of deep-sea corals caught in fishing activities.
 - Analyzing priority existing data sets on deep-sea corals and associated species to inform management and enhancing outreach and education on these ecosystems.
- NOAA has requested an additional \$1 million in the President's FY 2010 Budget to expand major field research activities under the Program to a second region, the U.S. West Coast in the Pacific Fishery Management Council Region. If appropriated, this funding will enable work that will support the Council's five-year review of essential fish habitat as it relates to deep-sea coral habitats. It will also inform management plan reviews by the region's five National Marine Sanctuaries, all of which have rich deep-sea coral resources.
- This fall, NOAA will publish the *NOAA Strategic Plan for Deep-Sea Coral and Sponge Ecosystems: Research, Management, and International Cooperation*. This plan identifies goals, objectives, and approaches to guide NOAA's exploration, research, management, and international activities needed to improve the understanding and conservation of deep-sea coral and sponge ecosystems, and inform emerging ecosystem-based marine spatial planning efforts.
- NOAA is developing guidance on the use of deep-sea coral discretionary provisions included in the reauthorized Magnuson-Stevens Fishery Conservation and Management Act, and has recommended the Regional Fishery Management Councils evaluate areas for protection as allowed under these provisions.
- NOAA is working closely with Regional Fishery Management Councils to incorporate deep-sea coral protection measures in their management. Such measures include the following:
 - The North Pacific Council's 2008 Bering Sea trawl closures, which protected nearly 90,000 square miles of benthic fish habitat from trawling.
 - The South Atlantic Council's four proposed Deepwater Coral Habitat Areas of Particular Concern covering approximately 23,000 square miles and including the best developed *Lophelia* deep-sea coral reefs known from U.S. waters.
 - The New England Council's proposed Essential Fish Habitat Omnibus Amendment. Phase 1, completed in 2007 recognized 15 deep-sea canyons and portions of two seamounts that contain deep-sea corals as Habitat Areas of Particular Concern. The Council is expected to propose management measures for some or all of these Habitat Areas of Particular Concern in 2010.

- The Pacific Council's review of proposals for protection for deep-sea coral and sponge areas, which began in June 2009.
- Under the Bycatch Reduction Engineering Program, in FY 2009, NOAA is supporting research and technology development in the Northwest and Alaska designed to reduce damage to benthic invertebrates, including deep-sea corals, due to trawl interactions.
- NOAA will report on these and other activities in the 2nd report to Congress and the public on *Implementation of the Deep Sea Coral Research and Technology Program* in January 2010, as required in the Magnuson Stevens Fishery Conservation and Management Act.

In addition to activities called for under the Magnuson Stevens Fishery Conservation and Management Act, several other NOAA programs actively engage in exploration and research efforts in areas that contain deep-sea coral and sponge habitat. The *Lophelia* II project is a prime example of a contribution being made to assist in our understanding of deep-sea coral ecosystems. This summer, NOAA, in partnership with the Minerals Management Service and U.S. Geological Survey, will embark on the second year of the 4-year project to enhance our knowledge on the distribution of deep-sea corals in the Gulf of Mexico. This year's work will focus on studying the community structure and function of deep-sea corals at both natural and man-made sites.

Question 6. The funding for NOAA's Office of Response and Restoration would not allow it to respond to two major spills at the same time, while performing its other duties. What level of funding would be necessary to give NOAA the capacity to deal with at least two spills at the same time?

Answer. The FY 2010 President's Request includes \$19.1 million for the Office of Response and Restoration base. The request includes a \$1.4 million program increase to improve innovative response tools, such as a 3-dimensional oil spill model. The \$1.4 million will support critical NOAA activities mandated by the Oil Pollution Act, the Superfund Act, and the National Contingency Plan.

From 2003–2008, the Office of Response and Restoration received appropriations below the President's Budget Request. In FY 2009, funding was restored to the President's request of \$17.3 million and the Office of Response and Restoration has begun to restore the capacity and capabilities lost over the past several years. While NOAA does not currently have the capacity to respond to two simultaneous large oil spills, the Office of Response and Restoration continues to provide critical scientific support to numerous smaller oil and chemical spills. In FY 2008, the Office of Response and Restoration responded to over 170 events including the DM932 barge incident that spilled nearly 500,000 gallons of fuel oil in the Mississippi River in downtown New Orleans.

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

Question 1. NOAA has been a key Federal partner in the Chesapeake Bay restoration effort since 1984. Virginia and the other Bay watershed states, and our scientific community at VIMS and other universities, rely heavily on NOAA's programs in fisheries and habitat restoration, its data management tools and high-tech buoy system for monitoring changes in the Bay's environmental conditions, and its B-WET education program for the science, management support and environmental education necessary to restore the Bay. But restoring the Bay's ecosystem has proven to be extremely difficult and is taking far longer than anyone anticipated when the restoration effort was initiated 25 years ago. What more can NOAA do to accelerate the restoration effort and how is that additional work reflected in the Fiscal 2010 Budget Request?

Answer. In light of President Obama's Executive Order 13508, signed on May 12, 2009, the Department of Commerce (through NOAA), as a partner with several other Federal agencies, is playing a significant role in using the agency's expertise and resources to contribute to improving the health of the Chesapeake Bay. NOAA is a co-lead agency for several of the reports required by the Executive Order, including climate change impacts and adaptation, monitoring and science to support decisionmaking, and coordinated habitat and research activities to protect and restore living resources and water quality. Through the strategy development process of these coordinative efforts, NOAA will be examining the full extent of requirements and needs that the agency will address in executing the Executive Order.

NOAA will leverage its core capabilities in climate science, observing systems, information management and decision support, and community-based restoration,

along with fisheries science, to engage partner institutions in new and innovative approaches that address the new challenges society faces today with knowledge and lessons learned from past experience. For example, NOAA is using the science and evaluation of oyster restoration efforts to further delineate ecological restoration goals as discretely different from economic recovery goals for the oyster industry. This separation of policy objectives is key to developing sustainable oyster populations.

The \$3.4 million requested for NOAA's Chesapeake Bay activities in FY 2010 including efforts to monitor and assess the status of living resources and habitat in the Chesapeake Bay ecosystem, and identify science-based management alternatives for restoration and protection in the Chesapeake Bay through:

- Researching, modeling, monitoring, and observing Bay living resources.
- Assessing oyster, blue crab, and fish populations.
- Coordinating and partnering with other programs in the region to ensure maximum effectiveness.
- Developing policies and strategies to restore the Bay's living resources.
- Communicating and reaching out to the public.
- Creating oyster reefs that can be "seeded" with hatchery-reared juvenile oysters.
- Augmenting the capacity to produce oysters, placing oysters where they will grow successfully, and monitoring their health and survival.

In particular, NOAA's Chesapeake Bay Office Fisheries Science Program supports ecosystem-based fisheries and habitat research important to the management of a variety of significant species through:

- Competitive grants and cooperative agreements with multiple academic recipients; and
- State fishery management programs which use the data for fisheries assessments to regulate commercial and recreational species.

Question 2. President Obama has issued an Executive Order calling for "a new era of shared Federal Leadership with respect to the protection and restoration of Chesapeake Bay." In view of the fact that the Department of Commerce is charged (as a co-lead with the Department of Interior) with drafting reports and making recommendations to address climate change, expanded environmental research and monitoring, and coordinated habitat and research activities that protect and restore living resources and water quality of the Chesapeake Bay, how does NOAA plan to address these new requirements in both its Fiscal 2010 and Fiscal 2011 budgets?

Answer. Section 205 of the Executive Order specifically calls for an "Annual Action Plan and Progress Report." Beginning in 2010, the newly established Federal Leadership Committee will publish an annual Chesapeake Bay Action Plan describing how Federal funding proposed in the President's Budget will be used to protect and restore the Chesapeake Bay during the upcoming Fiscal Year. The Administration is still developing NOAA's FY 2011 Budget and will carefully consider any new requirements generated by the recommendations contained in the reports required by the Executive Order, balanced against other priorities.

Question 3. For many years, Congress has appropriated additional funds to NOAA—above the President's Budget Request—to address urgent unmet needs critical to Chesapeake Bay protection and restoration, including native oyster restoration, fisheries research, environmental education, and observational buoys. Why hasn't the Administration incorporated these long-standing appropriations into the President's Budget Request particularly in light of NOAA's responsibilities to the Bay restoration effort and the authorization for the NOAA Chesapeake Bay Office?

Answer. NOAA's Budget Requests reflect competing demands across multiple mandates and requirements with a limited amount of resources. In particular, NOAA has prioritized its investments to meet significant new requirements under the recently reauthorized Magnuson-Stevens Fishery Conservation and Management Act to end overfishing for federally-managed species.

In light of the President's Executive Order for Chesapeake Bay Protection and Restoration, NOAA will carefully consider the heightened emphasis on and interest in accelerating Chesapeake Bay efforts in the development of future budgets.

Question 4. As you know, I have introduced legislation in the Senate, S. 1224, to reauthorize the NOAA Chesapeake Bay Office. There is a companion bill (H.R. 1771) that has been introduced in the House. How will NOAA's Fiscal 2010 and 2011 budget address the programs and expectations set forth in this new authorization?

Answer. NOAA will evaluate any new requirements established as the result of new legislative authorization for NOAA's Chesapeake Bay Office and determine how to best address those requirements through the FY 2011 planning process.

Question 5. The GAO has criticized the Chesapeake Bay Program for not having an accurate means for measuring the progress of the Bay restoration effort, essentially relying too much on modeling forecasts that have proven to be overly optimistic and not enough on real-time monitoring data. With support from the Congress, NOAA is developing a network of environmental observation buoys in the Chesapeake Bay which provide real-time data on the health of the Chesapeake Bay. The buoys are part of a broader observing system in the Chesapeake Bay region and an important component of the U.S. Integrated Ocean Observing System (IOOS). But, to date, there are only six of these Chesapeake Bay Interpretive Buoys (CBIBS) in the Bay—three in Maryland and three in Virginia. Consequently huge gaps still remain in data on environmental conditions and water quality. What has the Agency done in its Fiscal 2010 Budget Request to advance these important monitoring tools?

Answer. Though the Chesapeake Bay Interpretive Buoy System (CBIBS) is not specifically included in the FY 2010 request, NOAA has taken a broad look at its observational capacity and is developing a recapitalization plan for all of the agency's observing assets, including CBIBS.

As described above, NOAA's co-leadership role in development of the required Executive Order report on monitoring and decision support will include recommendations for "strengthening environmental monitoring of the Chesapeake Bay and its watershed." NOAA envisions that the CBIBS, and integration of CBIBS into the broader framework for NOAA's Integrated Ocean Observing System, will be a key part of this strengthened capacity for improving the tools available for decision support.

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

Question 1. The Administration initially zeroed out the PCSRF but after the issue was raised by West Coast Senators, funding was restored at \$50M, far less than the \$80M to \$90M in recent years. This program has been critical in the management of west coast salmon stocks. At a time when many of these stocks are threatened or endangered, will the PCSRF be restored to levels of past years?

Answer. The Administration's request for FY 2010 remains at \$50 million which is a \$15 million increase over the requested level for FY 2009. This amount, in combination with increases to other programs in NOAA and across the Federal Government in the FY 2010 Administration's request, represents a substantial investment in salmon recovery.

Question 2. A recent General Counsel's opinion said PCSRF funds could *only* be used on endangered stocks of which there are none in Alaska. Alaska has used and wants to use PCSRF funds for research and management efforts to maintain salmon stocks' sustainability and prevent their listing. Do you intend to follow the more restrictive policy for administering PCSRF funds which would exclude Alaska?

Answer. The FY 2010 Budget Request includes \$50 million for Pacific Coastal Salmon Recovery. The program will be administered similarly to the FY 2009 program that was authorized by Congress, and Alaska projects will be eligible to compete for funds along with projects from other West Coast states. Eligible uses of the funds include actions that: (1) recover and conserve salmon and steelhead that are listed as threatened or endangered, or identified by a state as at-risk to be listed; (2) maintain salmon and steelhead populations necessary for exercise of tribal treaty fishing rights or native subsistence fishing; or (3) protect and restore habitat for salmon and steelhead.

Question 3. The Alaska Department of Fish and Game (ADF&G) works cooperatively with NMFS Alaska Region to fulfill fishery management and research needs that arise from Federal laws and treaties including management of Bering Sea crab, statewide scallop and groundfish fisheries, and requirements under the Pacific Salmon Treaty, Marine Mammals Protection Act and Endangered Species Act. The ADF&G has the management infrastructure and expertise to efficiently perform these responsibilities but requires funding that is sufficient and reliable. Past funding levels have been neither and these programs have been characterized as chronically underfunded. What levels of funding are proposed for ADF&G management activities in support to NMFS mission? Will you support the fully-funding ADF&G requests to NMFS mission?

Answer. In FY 2010, NOAA proposes that Alaska Department of Fish and Game receive funding for the following items totaling \$7,545,000:

Marine Mammals:	
Alaska Seals and Sea Lions State of Alaska	\$1.491M
Salmon Management Activities:	
Pacific Salmon Treaty	\$2.96M
Survey and Monitoring Projects:	
FMP Extended Jurisdiction	\$0.986M
Crab Rationalization	\$0.958M
Bering Sea Crab	\$1.000M
Interjurisdictional Fisheries Grants	\$0.150M

Question 4. The NOAA dock for the R/V *Fairweather* in Ketchikan has been condemned and as a result this Alaska-based vessel is now temporarily home ported in Seattle. Is there funding in the FY 2010 Budget for the necessary design and other work necessary to rebuild NOAA's Ketchikan dock and if not, what are your plans to rebuild this facility and return the R/V *Fairweather* to Alaska?

Answer. NOAA is currently funding an Architectural and Engineering study to determine the extent of damage to the dock at Ketchikan, but the FY 2010 Budget does not include a request for funding to rebuild the dock. This report is expected to be completed by December 2009, and will provide an estimate of the funding and level of effort required to repair the dock for use as a home port facility by NOAA Ship *Fairweather*. The first funding opportunity for the repair effort would be FY 2012.

Question 5. NOAA's Kasitsna Bay lab near Homer is the only West Coast lab in NOAA's National Center for Coastal and Ocean Resources Program. In partnership with the University of Alaska, the facility is considered a key component in Alaska's marine research and education network. NOAA recently spent \$12.5M to remodel and update the facility, however, it is now staffed by just a single NOAA employee and was at risk of closure this year for lack of \$50K. Does the FY 2010 Budget include funding to maintain and operate the Kasitsna Bay lab?

Answer. The FY 2010 President's Budget Request includes funding for the National Centers for Coastal Ocean Science, but does not specifically allocate funds among the various laboratories. NOAA also is working with our partners in Alaska to continue important research and education efforts at the Kasitsna Bay Laboratory.

Question 6. The FY 2010 Budget includes a significant increase for marine aquaculture, a program that Alaska has voiced serious concerns over regarding the serious problems of the spread of disease and pollution from fish farms as well as escapees. How much is budgeted toward development and or implementation of a national marine Aquaculture program?

Answer. The President's 2010 Budget requests \$7.7 million for the NOAA Aquaculture Program: \$1.6 million for NOAA's Office of Oceanic and Atmospheric Research and \$6.1 million for NOAA's Fisheries Service, which includes a \$2 million increase to bolster scientific research at NOAA's Fisheries Science Centers in Washington and Connecticut. About \$4 million, including all of the \$2 million increase, would support research by NOAA and its partners on a wide range of marine aquaculture topics, including coastal shellfish aquaculture, open ocean aquaculture, development of alternative aquaculture feeds, marine stock enhancement, and hatchery research.

Question 7. What is your intent on moving forward with this program that is opposed by some states such as Alaska?

Answer. NOAA recognizes and respects Alaska's concerns with respect to finfish aquaculture and Alaska's opposition to U.S. commercial marine finfish aquaculture. At the same time, aquaculture is something the U.S. Government cannot ignore. Aquaculture currently accounts for half of the world's seafood supply and the farming of fish, shellfish, and other seafood products will likely continue to expand globally. The Department of Commerce, working through NOAA and with partners from across the public and private spectrum, has a role to play in fostering a safe, sustainable U.S. aquaculture industry. On September 3, 2009, NOAA announced its intent to develop a comprehensive national policy for sustainable marine aquaculture in the coming months, including a comprehensive framework for addressing aquaculture activity in Federal waters. The national policy will build on NOAA's significant work to date to safeguard U.S. coastal and ocean environments, while enabling sustainable domestic aquaculture that adds to the U.S. seafood supply and supports important commercial and recreational fisheries. The policy also will include development of coordinated Federal standards for permitting aquaculture facilities in

Federal waters and strategies to provide the scientific information needed for permitting decisions.

NOAA is interested only in those aquaculture practices that are sustainable over the long term and will not compromise the health of the marine ecosystem. NOAA believes continued refinement of best management practices for aquaculture, coupled with information sharing and technology transfer, is the most effective way to ensure sustainable practices are the rule both domestically and abroad.

Most states have an interest in pursuing some type of aquaculture, whether it is stock enhancement for commercial and recreational fisheries, restoration aquaculture for threatened or endangered species, or commercial production of finfish or shellfish. All of these different types of aquaculture have the potential to create new jobs, support working waterfronts and resilient coastal communities, and provide important economic opportunities for the United States as long as they are conducted in a sustainable fashion that does not adversely impact wild capture fisheries or the health of the ecosystem. A robust domestic aquaculture industry should be seen as a complement to wild-catch fisheries, as both will be needed to meet the growing demands for seafood.

Alaska, for example, has a long history of success with using aquaculture techniques to enhance its wild salmon runs through a system of state and privately-run salmon hatcheries. For many years, Alaska has been releasing hatchery-raised fish in significant numbers to maintain that important commercial fishery. There is also a growing commercial shellfish aquaculture industry in Alaska. Current NOAA Sea Grant and NOAA Fisheries Service activities in Alaska provide examples of how Aquaculture Program initiatives can be aligned with state priorities. NOAA's Sea Grant program is providing support to Alaska's existing shellfish farming industry. The Alaska Fisheries Science Center is collaborating with the University of Alaska-Fairbanks on stock-enhancement research for king crab and the Northwest Fisheries Science Center is partnering with the Alaska Fishery Development Foundation to study innovative ways to use trimmings from Alaska's fish-processing industry as ingredients in aquaculture feeds.

With ties across the agency, the broad mission of the NOAA Aquaculture Program is to foster and manage environmentally responsible and sustainable marine aquaculture for food production and stock enhancement. We will move forward with this program in a way that protects the marine environment and wild stocks, complements commercial fishing, fosters local solutions, and helps maintain working waterfronts. NOAA has four main goals:

- (1) Develop a comprehensive regulatory program for marine aquaculture;
- (2) Enable sustainable commercial marine aquaculture and replenishment of wild stocks;
- (3) Facilitate public understanding of marine aquaculture; and
- (4) Increase collaboration and cooperation with international partners.

NOAA will continue to support Aquaculture Program activities that reflect the diversity of stakeholder priorities in different states and regions. NOAA defines aquaculture as the culturing of aquatic organisms for any commercial, recreational, or public purpose. This broad definition allows us to support both commercial aquaculture (marine shellfish, finfish, and algae farming) and the use of hatcheries for stock replenishment or restoration (*e.g.*, salmon, king crab, redfish, and oysters). The NOAA Aquaculture Program and the President's Budget Request support all of these types of aquaculture.

NOAA looks forward to working with Alaska and other states to develop appropriate forms of environmentally-sustainable marine aquaculture that meet their needs, so that all states can benefit from the technologies and techniques developed for marine aquaculture.

Question 8. Our gaps in basic scientific data about the Arctic (elevations, hydrology, ice thickness, etc.) are significant. The Arctic is rapidly transforming and we lack baseline data, the instruments to even measure it, much less be able to model it. We need a robust system for observation resources much more significant than the 29 new observing stations your FY 2010 Budget proposes. Are the 29 observing stations that are budgeted enough, and if not, what is your plan for funding research needed to monitor the rapidly changing Arctic?

Answer. The FY 2010 President's Budget contains \$1.3 million to begin deploying U.S. Climate Reference Network stations at 29 locations in Alaska over 5 years. In FY 2010, six stations will be deployed in Alaska. The U.S. Climate Reference Network sites in Alaska will improve NOAA's ability to monitor and quantify climate variation and change in Alaska through a network of integrated climate-observing systems, which will enable policymakers and resource managers to make informed

regional, national and global policy decisions. Alaska has been impacted by climate change earlier and to a greater degree than other regions, and Alaska is projected to have the largest changes in climate over the next 25–50 years.

A major concern for the Arctic is the potential for climate change feedbacks that could exacerbate climate change abruptly and irreversibly. These concerns are not remote possibilities, but likelihoods under current climate-change scenarios. Importantly, U.S. Climate Reference Network sites focus on detecting the rate of climate change through high-precision monitoring of properties such as temperature, precipitation, radiation, and wind speed. This information is particularly valuable in the Arctic, where climate is changing more rapidly (relative to temperate regions).

In addition to the U.S. Climate Reference Network sites, a smaller number of sites are maintained by or operated cooperatively with NOAA, and take measurements to address one of these serious feedbacks—rapid emission of two major greenhouse gases, carbon dioxide and methane, associated with thawing permafrost in the region. These other six sites, which are part of NOAA's and the World Meteorological Organization's global networks, are located high in the Arctic to capture broad scale signals. NOAA will continue to support these measurement sites, and recognizes a growing need for sites near the edge of thawing permafrost (e.g., at locations along the Arctic Circle in Alaska and Canada).

Question 9. The rapid changes in climate affecting Alaska and the entire nation warrants a dedicated response such as envisioned in the National Climate Services Act set for markup in the House committee on July 3. What are the Administration's views on a National Climate Service and how is that reflected in the FY 2010 Budget?

Answer. NOAA envisions a National Climate Service as a partnership established with other Federal agencies, various levels of government, and the private sector. While there is no specific request for the National Climate Service in FY 2010, NOAA's budget request provides a foundation for a National Climate Service to move forward.

NOAA requested \$292 million for climate activities in FY 2010. NOAA's FY 2010 Budget Request includes increases for:

- (1) the National Integrated Drought Information System to implement three regional early warning system pilot projects and to improve climate forecast products related to drought;
- (2) development of decadal climate predictability;
- (3) ocean acidification monitoring;
- (4) implementation of a portal to generate and house model-based data records;
- (5) deployment of the U.S. Climate Reference Network in Alaska; and
- (6) development of the Jason-3 satellite altimetry mission.

All of these requested activities, along with existing activities, contribute to NOAA's integrated program of climate observations, research, modeling, prediction, decision support, and assessment. These capabilities, along with NOAA's history of data stewardship and service-delivery capability, will enable NOAA to provide valuable insight and leadership for the development of a National Climate Service in partnership with other Federal agencies, service providers, users, partners, and stakeholders.

NOAA has taken several near-term actions within its existing authorities to improve how it delivers climate science and services. NOAA has been evaluating climate services activities within the agency, and has actively engaged its partners and the user community to determine their specific information needs and the contributions these groups may bring to the development of climate services. NOAA looks forward to engaging in these dialogues with the Office of Science and Technology Policy, Executive Office of the President, Congress, its Federal agency partners, and the range of public and private-sector interests in climate services, as the Administration moves forward to develop a National Climate Service.

Question 10. The 33rd Center for Ocean Law and Policy held an international meeting in Seward in May on "Changes in the Arctic Environment and the Law of the Sea" in which the mapping of the U.S. Continental Shelf in Alaska's Arctic was raised as a serious need related to ratification of UNCLOS. What is included in NOAA's budget for FY 2010 and future years toward completing mapping of the Arctic continental shelf?

Answer. NOAA's FY 2010 Budget includes a request of \$3.4 million for activities required to define the limits of the U.S. Extended Continental Shelf (ECS) beyond 200 nautical miles, through the Office of Ocean Exploration and Research. About \$2 million of this is for ECS-related seafloor mapping in the Arctic in FY 2010.

NOAA, the Department of State, and the U.S. Geological Survey have been recognized as primary U.S. agencies with the capabilities to execute the required activities and ensure a successful submission. Each agency has its own respective role in the project; for example, NOAA is the lead for collecting bathymetric data and maintaining the national baseline as depicted on NOAA charts. The ECS Task Force (established in 2007) is developing a project plan for collaborative action to define the U.S. ECS. This project plan will refine out-year requirements for all agencies engaged in this effort.

This work will allow the United States to delineate the area of its jurisdiction over its ECS, which includes an estimated \$1.2 trillion worth of resources.² The U.N. Convention on Law of the Sea sets forth a clear process for international recognition of the outer limits of a coastal nation's continental shelf and the sovereign rights over the associated seabed resources therein. Russia, Canada, Denmark, and Norway are actively pursuing submissions to the Commission on the Limits of the Continental Shelf in the Arctic. According to the U.S. Arctic Research Commission, if the U.S. were to become a party to the U.N. Convention on Law of the Sea, its submission could include an area in the Arctic of about 450,000 square kilometers—an area approximately the size of California. Although limited information exists pertaining to potential resources in this area, it is anticipated that petroleum, gas hydrates, and other mineral resources will be discovered, as well as new habitats attracting communities of fish, deep-sea coral, and other benthic organisms.

Question 11. In April, Alaska hosted the Indigenous Peoples Global Summit on Climate Change, in which the impacts of climate change on indigenous people was detailed, as well as the challenges in adapting to changes in the environment and with traditional lifestyles. Many stressed the need to work with our indigenous people in assisting with adaptation strategies, in recognizing their traditional knowledge and wisdom, and in developing monitoring strategies and education programs by which we all can understand the magnitude of the challenges facing our residents with climate change. What is budgeted to work with indigenous people in assisting on adaptation strategies to climate change and the incorporation of local and traditional knowledge?

Answer. NOAA has no funding specifically directed toward assisting indigenous people on adaption strategies to climate change. NOAA has several projects that incorporate local and traditional knowledge related to cooperative management of marine mammals. NOAA routinely funds projects promoting the role of Alaska Natives in marine mammal conservation and management efforts, as well as educating and informing the public about the traditional and contemporary relationship between Alaska Natives and marine mammals. These projects concentrate on the cooperative management of protected species, such as cetaceans and pinnipeds in Alaska. In FY 2009, NOAA anticipates spending over \$2.3 million through grants and contracts toward the cooperative management of marine mammals. NOAA also solicits and funds information gathering from indigenous people regarding fisheries management, but not for climate data.

Question 12. The Arctic Marine Shipping Assessment, recently completed for the Arctic Council found that “based on the information provided, significant portions of the primary Arctic shipping routes do not have adequate hydrographic data, and therefore charts, to support safe navigation.” What is budgeted to improve the marine navigation services, including hydrographic surveys, charting and tide and current information in the United States Arctic, which includes the Bering Sea?

Answer. NOAA's FY 2010 President's Request for Navigation Services, which include mapping and charting, geodesy, and tides and currents, is \$155.1 million to support the Nation's navigation, positioning and water level requirements. Of this, roughly \$31 million is allocated to support contract hydrographic surveys of waters critically in need of survey for safe navigation, which is in addition to in-house survey work conducted by the NOAA Hydrographic Fleet. Although a large portion of NOAA's hydrographic survey work occurs in Alaska each year (approximately 40 percent in calendar year 2008, by area), there have not been any major projects assigned in the Bering Sea or farther north in recent years. In 2010, there are plans to send the NOAA Ship *Fairweather* north to conduct hydrographic surveys in the Bering Straits. Survey plans in 2011 and beyond will be based on available resources and a review of national requirements, but may include additional surveys by both in-house and contract units.

Question 13. What is NOAA's plan to address backlogs of needed survey work?

²Murton, B.J., Parson, L.M., Hunter, P. and Miles, P., *Global non-living resources on the Extended Continental Shelf; Prospects for the year 2000*, International Seabed Authority.

Answer. NOAA is in the process of developing a strategic plan for the Arctic, given the significant environmental and economic impacts that the Arctic and Subarctic regions are already experiencing due to climate change. This includes an Arctic Hydrographic Survey priorities plan based on maritime and other user needs.

Question 14. Coastal inundation and erosion are impacting our rural communities and is well documented through stakeholder activities with the Governor's Sub-cabinet on Climate Change, recommendations of the Alaska Climate Impact Assessment Commission, and two reports by the GAO, yet there is a lack of data to assess changes in the sea level because of limited tide stations and vertical geodetic control. What is budgeted to monitor and model sea-level rise in the Arctic and support communities in adapting to the impacts of climate change in the Arctic's coastal zone?

Answer. NOAA provides the geospatial infrastructure required to baseline and monitor trends in sea level and land motion, primarily through the National Water Level Observation Network (NWLON) and Continuously Operating Reference Stations (CORS). There are presently 24 NWLON and 36 CORS operating in Alaska. In addition to these observing networks, NOAA is working to improve the ability to use GPS to easily and efficiently determine accurate vertical elevations, which is currently not possible. NOAA's FY 2010 President's Request includes an increase of \$4 million for the geospatial infrastructure needed to monitor sea-level trends around the Nation. If appropriated, this increase will enable NOAA to begin collecting data to improve elevation information as a foundation for better commerce, economic efficiencies, and to better protect the public from coastal hazards and flooding. This request supports the NOAA "Gravity for the Redefinition of the American Vertical Datum" (GRAV-D) initiative to improve elevation and height information through the collection of high-resolution gravity data. Once GRAV-D is completed, the new gravity-based vertical datum for the U.S. will, for the first time, provide national elevations with GPS to an accuracy of under one inch. According to the priorities defined in the NOAA GRAV-D plan, gravity collection in littoral regions of Alaska would be completed by FY 2012 and the rest of Alaska by FY 2013.

In addition, NOAA's FY 2010 Budget Request includes support for coastal community adaptation to climate change in the Arctic through scientific research, planning, and mitigation activities. NOAA maintains key observing systems for monitoring the ocean, atmosphere, and climate change. NOAA supports states, as well as local and regional authorities, with atmospheric, terrestrial, water, and ecosystem monitoring, forecasts, predictions and projections, and scientific support for preparedness and decisionmaking. NOAA support for climate adaptation science seeks not only to examine the science of climate change and its impacts, but also to understand the current and historical state of the climate, as well as socioeconomic implications. NOAA's adaptation planning support covers marine fisheries, coastal and ocean habitat, and ecosystems, and also supports and informs coastal planning and development efforts, maritime transportation, water resources and water resources management, and other government and private-sector adaptation issues (e.g., insurance, energy and agriculture).

Through a Federal-state partnership under its Coastal Zone Management program, NOAA provides national leadership, technical assistance, and funding to state and territory coastal management programs to plan for and adapt to climate change. The Alaska Coastal Management Program (ACMP) is using enhancement grant funds provided through Section 309 of the Coastal Zone Management Act to support a hazard grant program, which supports local government projects and coastal management plan development and implementation. Alaska's hazard grant program supports coastal district and state agency efforts to identify and designate new natural hazard areas and establish specific enforceable policies applicable to the hazard. Specifically, the ACMP has set aside \$50,000 of section 309 funds in each Fiscal Year from FY 2006 to FY 2010 to fund activities that address the increasing risk from hazards related to climate change, such as sea-level rise, storm surge, coastal erosion, and subsidence due to permafrost melting. Using FY 2009 Federal coastal zone management grant funds, the ACMP will undertake a natural hazards resiliency effort, coordinated with a working group of agency and coastal district representatives. This project will facilitate dialogue about how to make resiliency a part of district policy, planning, and education efforts, as well as how to increase resiliency in Alaska. The ACMP is expected to fund similar activities with its FY 2010 grant funds, which it will receive in July 2010.

Question 15. Digital mapping of Alaska is a very important basic need for Alaska's economy and managing Alaska's environment. The state has a Statewide Digital Mapping Initiative (SDMI) working through Federal agencies, and NOAA is embarking on national GRAV-D and NGS Height Modernization programs, of which

Alaska is a priority. The importance of vertical data is critical to understanding changes to the permafrost and water levels with climate change as well as more accurate navigational charts for aviators and Alaska communities dependent on air service. Could you discuss NOAA's funding plans for completion of the national GRAV-D proposal as a means to provide critical geoid model data as support to the SDMI and in improving the use of GPS in determining vertical heights?

Answer. The FY 2010 President's Budget includes an increase of \$4 million to improve elevation information as a foundation for better commerce, economic efficiencies, and to better protect the public from coastal hazards and flooding. This requested funding supports the NOAA "Gravity for the Redefinition of the American Vertical Datum" (GRAV-D) initiative, enabling NOAA to finish gravity data collection across the Nation by 2019 and implement a new gravity-based vertical datum in 2020.

The primary goal of Alaska's Statewide Digital Mapping Initiative is to acquire new and better maps for Alaska and make existing map products more easily available and to ultimately produce an accurate and seamless statewide base map. To reach this goal, accurate elevation models are required. The existing vertical datum in Alaska is in error by as much as 6 feet or more and digital imagery and nationally-accepted standard elevation maps are lacking. It is the only state that does not have digital imagery and elevation maps at nationally accepted standards.

NOAA intends to collect airborne gravity measurements in Alaska and across the Nation according to its 2007 Gravity for the Redefinition of the American Vertical Datum (GRAV-D) plan, which laid out an efficient process to acquire gravity measurements across the Nation and redefine the geoid model. According to the priorities defined in the GRAV-D plan and if the requested funds are appropriated by Congress in 2010 and beyond, gravity collection in littoral regions of Alaska would be completed by FY 2012 and the rest of Alaska by FY 2013. Following the establishment of the new vertical datum, NOAA will focus on mapping efforts to update shoreline. These mapping efforts will provide the accurate shoreline necessary for the Statewide Digital Mapping Initiative to provide a seamless base map for the State of Alaska.

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

Question 1. I want to acknowledge the significant achievement of presenting the highest-ever funding request for NOAA. The Fiscal Year 2010 proposed budget of \$4.5 billion is a strong step in the right direction for meeting NOAA's mandated and evolving budget needs, and it sends a critical message to Congress that managing our oceans and studying our atmosphere are going to be key priorities for the Obama Administration. To what extent will the FY 2010 Budget Request enable NOAA to succeed in meeting all its mandated missions? I understand that you cannot officially ask for more funding, but are we likely to see any program performance shortfalls due to insufficient funding?

Answer. NOAA's FY 2010 Budget provides the best balance of investments to meet our mandated mission. NOAA has worked hard to reallocate resources, identify efficiencies, and fund our highest priorities. NOAA does not anticipate any program performance shortfalls as a result of insufficient funding. At the same time, we recognize the growing needs for NOAA mission, especially in climate, fisheries, and weather forecasting. We are working within our planning and budget processes to ensure sufficient resources are provided to address these needs.

Question 2. Given the fact that you have a finite pot of money to allocate among competing programs and line offices, how did you go about setting priorities and determining how much funding to recommend for those priorities?

Answer. NOAA has implemented a planning process entitled, Planning, Programming, Budgeting, and Execution System (PPBES), to help set priorities and develop our budget allocations. The planning system allows NOAA to link its strategic planning and policy priorities with the budget formulation process. Throughout the process, we attempt to balance fiscal realities with our program demands to ensure our budget proposals meet our highest priority needs.

Question 3. I was pleased to hear that, on April 8, 2009, you have pledged to provide \$16 million from this year's budget to help with the transition to sectors in the New England Groundfishery. We understand that \$6 million of that will go toward cooperative research, and \$10 million will be used to develop data reporting and fishery monitoring systems—vital components for facilitating management plan success. Moreover, on May 19, my staff heard you speak in Boston, in which you touted an extra \$18.6 million in your proposed budget to help specifically with the New

England groundfish transition. Today, more than 2 months after you pledged that \$16 million, none of that funding has been released to the region . . . what can you tell me about the status of that money? Exactly when will it be released to the region?

Answer. NOAA has released the funds to the region. The funds are in the process of being distributed. All sectors approved by the New England Fishery Management Council for implementation in fishing year 2010 have received some funding and a contractor has been hired to assist in the preparation of the 19 documents required under the National Environmental Policy Act.

Question 4. Out of the \$16 million, does NOAA still plan to allocate \$6 million to cooperative research and \$10 million to data and monitoring? If not, what changes have you proposed? How does NOAA plan to spend the \$18.6 million for New England groundfish in FY 2010?

Answer. Yes, \$6 million is allocated to Cooperative Research and \$10 million is to support and build the infrastructure to monitor and administer the groundfish fishery.

NOAA FY 2010 request includes \$18.6 million for Northeast catch-share implementation. The \$18.6 million is requested in the following budget lines:

Fisheries Research and Management Programs	\$5.4 million
Economics and Social Sciences	\$1.0 million
Observers/Training	\$3.0 million
Enforcement	\$3.2 million
Cooperative Research	\$6.0 million

Question 5. Because you have been working with the New England Council as they develop and review alternatives for Amendment 16, how much funding—in total—will be required to make this transition successful? How much will start-up and ongoing monitoring activities cost over time?

Answer. The total costs for government and industry to implement the program are dependent upon decisions made by the New England Fishery Management Council, the level of industry participation in sectors, and decisions made by participants about monitoring and reporting alternatives. The \$18.6 million requested for FY 2010 is sufficient for that year based on our estimate that about half of the Northeast groundfish fishing fleet joins sectors for the fishing year starting May 2010.

Question 6. After nearly 10 years of working with NOAA to develop and enact legislation for a sustained ocean and coastal observation system, and working with my colleagues to request sufficient funding for this system, I am troubled to see that NOAA has requested only \$21 million for its Integrated Ocean Observing System. Ocean Commissions and the scientific community recommend hundreds of millions to realize the full potential of such a system, and I think we can't afford to *not* adequately fund ocean observations. After all, ocean data form the very foundation of every single NOAA mission, and they must be transformed into usable products to serve America's economy, protect lives and property, and promote marine and climate science. NOAA is missing the mark.

Ocean observation buoys are being pulled out of the water, technical staff is being fired, and data products are not being delivered to end users—all due to insufficient funding for NOAA's observations office and its partners. What do these data gaps mean for NOAA's ocean and climate science, hazard prediction, and service to the American people?

Answer. The NOAA Integrated Ocean Observing System (IOOS) Program works with other NOAA programs and its external partners to enable the sharing and application of data. The NOAA IOOS Program is responsible for developing the national framework for data integration across NOAA and with the Regional Associations that make up a cohesive, national network of regional coastal ocean-observing systems. By bringing together data in a way that ensures comparability with other data sets, IOOS makes a broader suite of data available to provide the information scientists need to develop a more complete characterization of our ocean and coastal ecosystems.

Under the current budget request, NOAA's IOOS program will continue to provide a robust and consistent data stream for scientists, emergency responders, natural resource managers, mariners, and the American public, and enable informed decision-making to produce economic, environmental, and societal benefits for the Nation.

Question 7. What are the barriers to developing an adequate funding request for NOAA's coastal and ocean observations?

Answer. It is important to balance the Nation's competing priorities for NOAA's diverse services when developing its annual budget request. Funding recommendations are made on an annual basis and submitted to Congress in the President's Budget Request.

Question 8. How do you intend to meet NOAA's missions with an insufficient and underfunded ocean observations system?

Answer. The NOAA Integrated Ocean Observing System (IOOS) Program continues to manage IOOS development in partnership with the national network of regional coastal ocean-observing systems and the Interagency Working Group on Ocean Observations. The IOOS Program has made great progress in enabling the delivery of ocean and coastal observation data through the development of a data integration framework. NOAA will continue to focus on building a national network to improve coordination of observation strategies and systems, identify ways to improve the Nation's ocean observing capacity, and facilitate the exchange of information to help decisionmakers address pressing policy issues.

The FY 2010 President's Budget Request includes \$21 million for IOOS activities. This request includes \$14.5 million to develop the regional component of IOOS through competitively awarded grants and cooperative agreements, and \$6.5 million to guide development of the national network. NOAA must balance many competing priorities within each budget request. The requested funds will enable NOAA to begin implementing new requirements under the Integrated Coastal and Oceans Observation Act.

Question 9. As the guardian and leader of NOAA's scientific integrity, what is your vision for how NOAA should organize and implement its ocean and coastal observation mandate? It must be more than a simple data management system; can you offer a revolutionary new paradigm for elevating and invigorating this program so it can reach its full scientific and economic potential?

Answer. The NOAA Integrated Ocean Observing System (IOOS) Program is actively working with seventeen Federal agency partners through the Interagency Working Group on Ocean Observations to collaborate and develop the IOOS from a shared vision to ensure it responds to a variety of information needs. As a part of the larger effort to develop a Global Earth Observation System of Systems, IOOS contributes valuable coastal information.

The NOAA IOOS Program includes a national network of regional coastal and ocean-observing systems, which share the goal of building and sustaining an IOOS that is focused on interoperable ocean observation data. By bringing together data in a way that ensures comparability with other data sets, IOOS makes a broader suite of data available to provide the information scientists need to develop a more complete characterization of our ocean and coastal ecosystems.

NOAA has made significant progress since first conducting a peer-reviewed, competitive grants process for regional IOOS awards in FY 2007. The passage of the Integrated Coastal and Oceans Observation Act in March 2009, provides NOAA and its Federal and regional partners an important opportunity to advance the development of a national IOOS capability with the support of both Congress and the Administration. NOAA is dedicated to implementing the requirements contained in the Act to continue building a system to enhance Federal agency missions as well as regional priorities and needs, and is actively working with the Interagency Working Group on Ocean Observations, National Federation of Regional Associations for Coastal and Ocean Observing, and others to reach the vision for IOOS established in this important statute. NOAA's IOOS Program is also committed to working across NOAA's line offices and goal teams, to better leverage agency assets.

Question 10. Would you be willing to work with your partners in the Office of Science and Technology Policy, the Office of Management and Budget, and other key White House offices to develop a new ocean observations vision that can be adequately funded in future requests? Can you report back to me on your progress with this effort?

Answer. By establishing the Integrated Ocean Observing System (IOOS) Program in 2007, NOAA has demonstrated a commitment to building a national integrated system for ocean observations. NOAA's IOOS Program was included in the President's Budget for the first time in FY 2008, with a request of \$14 million.

In March 2009, IOOS was given formal authorization through the Integrated Coastal and Ocean Observation System Act of 2009 (P.L. 111-11). NOAA has been named the lead of this interagency effort and is already working with other agency partners to coordinate budgets and leverage each other's assets.

NOAA and the Department of Commerce will work with the Office of Management and Budget, and other key White House offices to develop future budget requests.

Question 11. Today we have a remarkable opportunity for attacking global climate change, but this will require coordinated research from the Department of Commerce, NASA, and the National Science Foundation. Earlier this year, the University of Maine issued a report, "Maine's Climate Future," which assessed the economic and ecosystem implications on Maine and concluded that climate change will have far reaching impacts on our forestry industry, our fishing industry, as well as our ecosystems that support our agricultural products. The report provided policymakers a preview of how to respond to climate changes and should be lauded for its vision. Yet, I am concerned that the report was done without Federal assistance, and the Maine scientists were asked by the Governor to provide this research without compensation. Federal agencies must provide technical support, and financial assistance to support this proactive research. I strongly believe that we must build scientific research at the Department of Commerce, the National Science Foundation, and NASA to provide States that take this project are supported with all pertinent data. Does NOAA's FY10 budget allow for research support at local universities to assess climate change risks and potential adaptation opportunities?

Answer. NOAA's FY 2010 Budget does allow for research support at local universities to assess climate change risks and potential adaptation opportunities. NOAA's Competitive Research Program, within the Office of Oceanic and Atmospheric Research (OAR), sponsors scientific research aimed at improving predictions and assessments of climate variability over a variety of time scales in an effort to better understand how society can best adapt and respond to climate variability and change. Local universities and other institutions can submit proposals for consideration in annual competitions held by the OAR Climate Program Office that include a broad range of research priorities and objectives.

The FY 2010 request for the Climate Competitive Research Program is \$144.2 million, an increase of \$12.1 million over the FY 2009 enacted level. This increase includes:

- \$4.5 million for the National Integrated Drought Information System, to support implementation of the early warning system pilot project and to improve climate forecasts;
- \$2.6 million to support work on decadal climate predictions and abrupt climate change; and
- \$4.0 million to support work on ocean acidification and regional climate impacts on living marine resources.

Question 12. I do agree that it is critical that this Committee also move forward with action on streamlining research at NOAA in order to support local research such as the University of Maine's work over the last year. Do you believe that there should be a specific authorization for support of regional climate change research?

Answer. NOAA currently has authority to support regional climate change research through the National Climate Program Act (15 U.S.C. § 2901 *et seq.*); through this measure, NOAA is granted authority to enter into contracts, grants, or cooperative agreements for climate-related activities.

Question 13. In your official budget request for FY2010, NOAA proposed replacing the Pacific Coastal Salmon Recovery Fund with an alternative program of Species Recovery Grants, which would be funded at \$60 million. Under the new grant program, all entities would be eligible to compete for salmon recovery funding—even those states, tribes, and other groups that previously benefited from the dedicated Pacific salmon funding. However, in the time since the release of the budget, NOAA amended this portion of the budget, indicating that it will severely scale back its new grant system and return to the Pacific Fund as the primary means for funding salmon recovery.

Could you please clarify NOAA's plans on this matter? Why are you willing to abandon the \$60 million request for the Species Recovery Grants? From a policy point of view, do you think that the Pacific Coastal Salmon Recovery Fund was inherently superior as a way to fund species' recovery?

Answer. Although the Pacific Coastal Salmon Recovery Fund is an established and effective program, at the time NOAA believed a nationwide grant program would be the most effective approach for recovering all of the threatened and endangered species managed by NOAA. The amended request includes a significant increase for the Cooperation with States program (to \$11 million). This program has been funded at just under \$1 million since 2003.

An increase of \$3 million is requested for Atlantic Salmon Recovery in the President's FY 2010 Budget Request. In addition, under the American Recovery and Reinvestment Act of 2009, two projects totaling \$7.8 million are being funded for Atlantic Salmon Recovery in Maine. The Great Works Dam Removal (Great Works,

Maine) project will receive \$6.1 million to remove the Great Works Dam, which is part of a greater initiative to eventually restore and open more than 1,000 miles of river for endangered Atlantic salmon and other fish species. The Maine Atlantic Salmon Habitat Restoration (Washington County, Maine) project will receive \$1.7 million to remove fish passage barriers throughout the Machias River watershed, opening 66 miles of habitat for endangered Atlantic salmon and other migratory fish species.

Question 14. I am concerned that Maine cannot benefit from a region-specific program like the Pacific Coastal Salmon Recovery Fund. If NOAA severely cuts its request for the Species Recovery Grants to merely \$11 million, how can you assure me that Atlantic salmon will receive sufficient funding in the FY2010 Budget—assuming that Atlantic salmon will have to compete with proposals to recover other species as well? Even if combined with the \$9 million for Atlantic salmon in the FY10 Budget, the total funding may be insufficient for the potentially expanded endangered listing for Atlantic salmon.

Answer. NOAA's request represents a significant increase in its Conservation and Recovery with States species recovery grant program, and Maine is eligible for funds under the expanded program. Section 6 of the Endangered Species Act envisions that states will be partners with the Federal Government in the conservation of listed species, and it provides a mechanism to assist the states with funding. Unlike the U.S. Fish and Wildlife Service, NOAA did not have a line item in its budgets for cooperation with the States until 2003, when slightly less than \$1 million was added. In response to that funding, NOAA was able to attract interest from additional states, expanding the program from 6 to 14 states and to fund small research and management projects.

Recovery of listed species is dependent on collaboration and cooperation from the states. However most states do not have adequate resources to address necessary recovery actions, and Federal assistance is necessary to ensure their ability to engage in an effective partnership. NOAA's Conservation and Recovery with States Program leverages additional funding in support of listed species recovery. NOAA's budget request focuses on strategically leveraging funding for the recovery of protected species by working with the widest possible range of partners with interests in species and ecosystem health.

Question 15. Currently, decisions about the status of Atlantic salmon under the Endangered Species Act are made jointly between NOAA and the U.S. Fish and Wildlife Service. Yet, in similar decisions about Pacific salmon, NOAA is clearly established as the lead agency. This seems incongruous, and with Atlantic salmon in three Maine rivers—the Penobscot, Kennebec, and Androscoggin, with watersheds encompassing two-thirds of Maine's land area—on the cusp of possibly being listed as endangered or threatened, perhaps as soon as next week, this issue becomes significant. Industries will need to have timely access to permitting decisions that will affect literally tens of thousands of jobs in Maine, and it seems that for this reason alone, a single agency must have the clear lead in such permitting decisions.

Why is jurisdiction shared among NOAA and the U.S. Fish and Wildlife Service regarding Atlantic salmon, when no such shared jurisdiction exists on the West Coast? Do you agree that this responsibility should be so bifurcated?

Answer. When NOAA and the U.S. Fish and Wildlife Service (USFWS) were first petitioned to list Atlantic salmon under the Endangered Species Act (ESA) in the early 1990s, both agencies had programs addressing aspects of Atlantic salmon conservation and recovery. NOAA was working internationally and focusing on the marine environment and USFWS had an active conservation hatchery program underway for the species. Because Atlantic salmon are anadromous and were caught commercially when more abundant, jurisdiction would have fallen under NOAA per Reorganization Plan No. 4 of 1970. However, the decision was made at the time to take advantage of the resources available in both agencies, work cooperatively to conduct a status review, and consider whether ESA protection was warranted for the species.

While joint jurisdiction worked very well initially, it has become more difficult in recent years due to a number of new or changed conditions including an expanded geographic range of the listing. Time delays and lack of clarity on some positions resulted due to the need to have two Federal agencies agree on such issues. To resolve these issues but maintain the strength of cooperative jurisdiction, in 2006, the agencies entered into a Statement of Cooperation to attempt to more cleanly define roles. Additionally, a new Statement of Cooperation was signed March 2009, which goes a step further to separate roles and responsibilities between the two agencies in order to increase efficiency and effectiveness. Our goal is to significantly reduce the number of joint activities, particularly in light of the expanded geographic range

of the listing, in order to ensure we could be as responsive to the affected public as possible. For section 7 consultations and permitting activities, this new Statement of Cooperation assigns one agency jurisdiction by issue so there is a clear lead and no obligation for joint review or signature.

The new Statement of Cooperation reinforces our belief that it is critical to the successful recovery of the species that the expertise and knowledge of staff from both agencies continue to be made available. The USFWS conservation hatchery program is providing a critical service to ensure persistence of the species and conservation of genes. NOAA research and management activities are providing insights into the threats affecting the species, and tools to avoid and reduce identified threats. The cooperative work involving the State of Maine, NOAA, and the USFWS is improving our understanding of hatchery product success as well as freshwater survival.

Question 16. If this system remains in place, how will you ensure that the agencies will be able to work together in a timely, accurate fashion to prevent undue restrictions on industrial activities?

Answer. The 2009 Statement of Cooperation between USFWS and NOAA significantly reduces the number of potentially overlapping joint activities. Recovery planning and oversight is identified as a joint activity moving forward, but USFWS is designated as the administrative lead for this activity. A single lead agency is designated for section 7 consultations and section 10 permits depending on where these activities occur or what area they cover. For activities with a single lead agency, the responsible agency has control over all aspects of the action and is the sole signatory. We believe this change will avoid duplication in the consultation and permitting processes by providing a single point of contact for other Federal agencies and private individuals, and the review and approval of those activities stays within a single agency.

Question 17. The economic impacts of endangered species listing can exacerbate an already fragile economy and has the potential to have a drastic impact in rural economies. This is especially true with our country's businesses located adjacent to our river ecosystems, where a substantial amount of country's industry is centered. Clearly, we must protect our endangered species and live up to the intent of the landmark Endangered Species Act, at the same time I think we can all agree that it is incumbent on Federal agencies that they provide the resources to implement the species recovery plans. Yet, I am very concerned that NOAA and the U.S. Fish and Wildlife Service are not preparing for the potential endangered listing and add the three largest rivers in the State of Maine—the Penobscot, the Kennebec, and the Androscoggin Rivers. By adding the three largest rivers in the State of Maine this would encompass nearly two-thirds of the State, changing the geographic scope from its current 2,000 square miles to 19,000 square miles. Is NOAA planning on expanding their budget by the same magnitude? If not, how do you justify the increased regulatory burden and economic impacts the people of Maine and local industries will incur?

Answer. There is a \$3 million increase for Atlantic salmon in the FY 2010 President's request. This would increase NOAA's direct Atlantic salmon funding from \$6 million to \$9 million. In addition to these Atlantic salmon specific funds, NOAA has been able to direct other funding to the conservation and recovery of Atlantic salmon and their ecosystems through other programs including habitat restoration granting programs. The additional funds in the President's Budget Request would provide support for conducting critical research to improve our understanding of habitat needs and salmon survival at sea.

Question 18. As you know, NOAA is currently managing a budget of \$5.2 billion—the sum of the FY09 enacted levels plus the \$860 million in stimulus funding from the American Recovery and Reinvestment Act. At the same time, we can see that the FY2010 Budget Request, if fully funded, will be—in effect—a \$700 million cut from total NOAA funding for this current Fiscal Year. While we can appreciate the temporary and one-time funding boost that comes from the stimulus bill, what steps are you taking to prepare for a significant budget cut for FY2010, should the enacted levels be similar to the requested levels?

Answer. The FY 2010 requested level is an increase of \$110 million over the FY 2009 enacted level (excluding one-time American Recovery and Reinvestment Act (ARRA) funds). The total appropriation for NOAA in ARRA was \$830 million. NOAA has utilized the funding consistent with the intent of the ARRA to “preserve and create jobs and promote economic recovery” while “commencing expenditures and activities as quickly as possible consistent with prudent management”. ARRA funds are being expended as quickly as possible as stipulated in the bill and not utilized on long-term projects and investments that required increased capacity at NOAA in

future years. Many of the projects NOAA has chosen to fund use stimulus money to accelerate the project to completion earlier than originally planned. Other projects are ongoing and essential to NOAA's mission and would continue to receive regular appropriations.

Question 19. While the stimulus funding is intended for "shovel ready" projects, NOAA is using it to address a backlog of research, restoration, navigation, conservation, and management activities—including Endangered Species Act consultations, vessel maintenance, and climate modeling. . . since so many internal NOAA functions are benefiting from the stimulus funds, is that not a clear message that NOAA's budget has been woefully inadequate in the past? And that at least \$5 billion—perhaps much more—is a justifiable request?

Answer. NOAA has selected its projects based on several factors: Congressional intent, job creation, "shovel readiness", and those that address NOAA's needs of long-term infrastructure. Many of these projects already existed and therefore have been accelerated to meet the intent of the American Recovery and Reinvestment Act. With the stimulus funds, several of the internal projects will be completed earlier than originally planned.

Question 20. As you know, since April, the lobster industry has been operating under new rules mandating that they use sinking rope to connect their strings of pots rather than the floating rope they have used for generations, in order to reduce the likelihood of entangling large whales. The Maine Lobstermen's Association has estimated that our fishermen will each have to pay \$10,000–\$15,000 to swap out their gear, and it remains to be seen how significant annual replacement costs will be. And yet, according to a GAO study I commissioned in 2007, NMFS cannot estimate the benefit that these new regulations will provide. The Large Whale Take Reduction Team has already begun meeting to determine what additional restrictions may need to be imposed for the next round of regulations in 2014. I will vociferously oppose any new restrictions on our fishing industry unless NMFS can provide incontrovertible evidence that such rules will provide a measurable benefit to endangered whale populations. With that in mind, can you shed any light on your agency's financial commitment to this work?

Answer. We recognize that information on entanglements and large whales is limited; however, we do know that entanglements occur and they result in serious injuries and mortalities of large whales, including endangered North Atlantic right whales. Under the Endangered Species Act (ESA), we are required to ensure that commercial fishery operations we authorize are not likely to jeopardize listed whales. In addition, under the Marine Mammal Protection Act (MMPA), we are charged with reducing injuries or mortalities in commercial fishing gear to levels below the potential biological removal, which in the case of the North Atlantic right whale is zero. Therefore, we have a clear mandate under both the ESA and MMPA to reduce interactions. Reducing the amount of line in the water column, by requiring the use of sinking instead of floating groundline, reduces the opportunity for entanglement and therefore reduces the likelihood of takes in support of our mandates under the ESA and MMPA. NOAA has an extensive history of seeking additional information for management purposes by providing funding to researchers, academia, state agencies, and fishermen to support large whale conservation efforts. In FY 2009, NOAA is providing approximately \$972,000 for gear research projects designed to reduce entanglement risk associated with vertical lines. The projects funded are consistent with the research needs discussed with the Atlantic Large Whale Take Reduction Team at its April 2009 meetings. These projects include:

1. Examining the feasibility of fishing without vertical lines using trap/pot fishing gear. This project will take place in both the Mid-Atlantic region (off the coast of Maryland) and the Gulf of Maine (Jeffrey's Ledge area). The gear without vertical lines will be fished similarly and compared to traditional fishing gear (with vertical lines). Information will be collected and recorded on data logs, including, but not limited to, bottom type, temperature, depth, setting and hauling duration, position of the gear, and gear loss/conflicts (project cost: approximately \$150,000).
2. Conducting a study in the Gulf of Maine to examine the operability of a device that allows gear to switch from a weak mode to a strong mode (project cost: approximately \$128,000). If a whale were to encounter this weak line, they would be less likely to suffer serious injury or mortality and more likely to escape the gear without major injury. The gear must, however, be strong enough to allow it to be hauled to the surface without breaking. This device is placed at the bottom of the vertical line, and while fishing is in a weak link mode to reduce entanglement risk to a large whale should it encounter the line. When

it is time to haul the gear, an acoustic deck unit is used to switch the bottom link to the strong link mode to allow for hauling of the gear.

3. Investigating methods to mark fixed fishing gear to help identify the gear that is recovered from entangled whales. NOAA is working with manufacturers to develop an adhesive tape that can be placed on fishing lines that contains information on the origin and type of fishing gear (project cost: \$100,000). Increasing the amount of information we can obtain from gear taken off entangled whales is significant because it can help us understand where, when, and how entanglements occur, which can inform future management actions to increase the likelihood of their success.

4. Assessing the risks of entanglement through an assessment of entanglement injuries (project cost: \$150,000).

5. Collecting data on large-whale distribution and fixed-gear densities in the Mid-Atlantic region (project cost: up to \$300,000); and examination of how whales become entangled in fixed fishing gear through the use of models (project cost: \$144,000).

In addition to supporting research designed to reduce entanglement risk associated with vertical lines, NOAA FY 2009 funding will also support several gear buyback programs to help offset the cost associated with converting from floating groundline to sinking groundline. Approximately \$4.8 million in FY 2009 funds were allocated for gear buyback programs from Maine through New Jersey.

Question 21. This budget requests \$47 million for marine mammals. How much of that funding will go to whale research in the Gulf of Maine, and what specific work will be funded?

Answer. Of the \$47 million for marine mammals included in the President's FY 2010 Budget Request, approximately \$8.2 million or 17.4 percent, is dedicated to right whale funding initiatives. \$1.5 million of the right whale funding is for cooperative state funding. The \$8.2 million includes funding for several whale research initiatives that will provide a better understanding of the relationship between fixed-gear fisheries and large whales throughout the range of the species, including in the Gulf of Maine. Specifically, NOAA will continue to support right whale scarification analysis; aerial survey efforts, joint enforcement agreements; gear research; and continued development of a vertical line analysis model to support NOAA's Vertical Line Reduction Strategy for the Atlantic Large Whale Take Reduction Plan. The goal of the scarification analysis is to understand how frequently whales are encountering gear and the effects of those entanglements on individuals and the population overall. The vertical line analysis model is designed to address spatial questions fundamental to species conservation and fisheries management. The continued development of this model will help NOAA answer specific management questions such as:

- Where do particular fisheries operate?
- Where are concentrations of vertical line the greatest?
- Which areas have the highest concentration of vertical lines and the greatest concentration of whales?

These questions are critical in developing meaningful conservation measures that focus on vertical line measures in areas of highest co-occurrence between fixed gear and right whales.

Question 22. In recent years, the lobster fishery has landed nearly \$300 million worth of lobster, and while 2007 saw an increase of nearly 5 million pounds over 2007, the value of that catch declined by over \$50 million due to dockside prices which fell to levels not seen since the 1980s. On top of this, our lobster dealers are soon to be hit with an additional cost from NOAA—a fee for certificates required by the European Union for exported fishery products. Recently the program for issuing EU export certificates for live lobster was transferred from the FDA to NMFS and I have heard a number of complaints about this transfer. The primary issue is now exporters must pay for these paper certificates where the FDA provided them for free. I am concerned that the cost of these certificates will add costs to our lobster exports and that we will lose market share to Canada. I understand that NOAA's seafood inspection program is based on a fee-for-service model, however, these EU export certificates are not required by U.S. law, but rather a financial burden placed on our lobster industry by the EU. How can we offset this cost so that the entire burden doesn't rest on the lobster industry? Is there any money in this budget to alleviate these concerns?

Answer. NOAA is making every effort to keep the costs of the export certificate as low as possible. We have developed several pricing options that can significantly

reduce the cost of an EU health certificate below the \$69 price for non-participants. Firms willing to enter into a formal contract may be able to obtain certificates for about the same price as charged by the Canadian government. If a seafood producer has regular and recurring inspection needs from NOAA, they can work with NOAA to develop a contract for a specified amount of hourly service at a less expensive rate. This allows NOAA to better plan the use of inspection resources. NOAA is aware of the industry's concerns and has been working with them collaboratively to discuss their concerns and identify a resolution. Since January 17, 2009, NOAA has held seven public meetings and worked with many firms individually to better understand their business needs in shipping live and fresh product to Europe. Firms who are concerned about cost should contact the NOAA Fisheries Service Seafood Inspection Program directly so we can determine how best to deliver this service as economically as possible.

NOAA does not provide funding to offset fees charged to administer its programs.

Question 23. NOAA is preparing to take over this program on June 17, 2009, but as with any transition to a new system, there are likely to be snags, delays, and kinks that need to be worked out. Will NOAA compensate the lobster industry for any loss of business caused by an inability to access certificates?

Answer. NOAA adopted most of the methodology the Food and Drug Administration employed to provide EU health certificates to the industry in a timely manner, consistent with our regulations. So far, there have not been any significant problems getting certificates to the applicant before airplane shipments depart. NOAA is committed to understanding industry's needs and business practices so trade to Europe continues in an unfettered fashion. We will continue to closely monitor our EU health certificate program over the next few months and will modify our practices as we learn more. It is not anticipated NOAA will compensate the industry for any loss of business and so far there has not been any significant problems.

Question 24. The International Convention on the Conservation of Atlantic Tunas, or ICCAT, is an international body responsible for managing highly migratory fish species that cross national boundaries, and in many cases, migrate throughout the Atlantic Ocean. In recent years, the United States has been a global leader in conservation of these fish, including swordfish and bluefin tuna. But our fishermen have consistently been unable to land their allocated quota of these species. In 2008, we caught just 24 percent of our bluefin quota and just 36 percent of our swordfish quota despite the fact that the swordfish stock is now healthy. If we do not show legitimate attempts to bolster these figures, the U.S. will almost certainly lose some of its hard-earned ICCAT quota to other fishing nations which do not impose similar conservation requirements. This would be a lose-lose proposition: a loss for the U.S. economy, and a loss for the fish. I understand that earlier this month NMFS issued an advance notice of proposed rulemaking to adjust swordfish regulations. Do you anticipate that this will ultimately result in increased landings of domestic, sustainably caught fish?

Answer. NOAA expects that sustainable landings of domestic swordfish and bluefin tuna may increase as a result of the rulemaking process. The purpose of the advanced notice of proposed rulemaking is to inform the public of industry requests for regulatory changes for Atlantic swordfish and bluefin tuna fisheries and to obtain broad public comment on those requests and their potential impacts. Consistent with the objectives of ending overfishing, rebuilding overfished stocks, and minimizing bycatch to the extent practicable, NOAA will evaluate industry requests as well as other potential changes and intends to pursue additional rulemaking as appropriate in an effort to increase domestic landings of bluefin tuna and swordfish in a sustainable manner.

Question 25. NOAA has been on the forefront of recognizing widespread benefits of environmental restoration on our fisheries habitat and has pursued large-scale environmental restoration. In addition, the vibrancy of our wetlands, river watersheds and coast lines has long-term economic benefits to tourist industries and expanded recreational use. Furthermore, North America's fisheries stocks developed from a symbiotic relationship with our river systems. Our coastal regions have experienced the detrimental effects of mismanaged river systems, and we must provide resources to correct this. I commend NOAA for its past leadership in supporting the Penobscot River Restoration Project, which will provide a restored river to more than 10,000 adult salmon and millions of other sea-run fish. This project will certainly be a tremendous boon to New England's fisheries and illustrates the ability of NOAA to provide the expertise to restore essential habitat and the environment, including Atlantic salmon. Do you believe in large-scale environmental restoration projects, like the Penobscot River Restoration project? Will you continue to make this project a priority for NOAA's habitat restoration program?

Answer. NOAA is supportive of large-scale restoration projects that can have watershed or regional benefits for coastal and marine resources, such as endangered species, and commercial and recreational fisheries. NOAA received \$167 million in funding through the American Recovery and Reinvestment Act (ARRA) to direct toward restoration efforts. The projects selected after a competitive solicitation process focus on efforts with regional and ecosystem level benefits, as well as creating jobs. One example is the Great Works Dam Removal Project, through which NOAA is funding the removal of the Great Works dam on the Penobscot River. This project is one step in the effort to remove barriers in the Penobscot watershed for the recovery of Atlantic salmon and open more than 1,000 miles of habitat. ARRA has allowed NOAA to make investments in these types of large-scale projects, which allow us to maximize the amount of habitat restored to benefit coastal and marine ecosystems. In addition to projects funded through the ARRA, NOAA's habitat restoration programs (e.g., Community-based Restoration Program, Open Rivers Initiative) have contributed smaller amounts of funding and technical assistance to larger-scale restoration efforts. For example, these programs have participated in the Bahia Grande restoration project in Corpus Christi, TX, which re-opened thousands of acres to natural tidal flow; and the Elwha River restoration in Washington State, which will open spawning habitat to Pacific salmon and other anadromous fish.

Question 26. I have worked with the Coastal States Organization and other constituencies to evaluate strategies for reauthorizing the Coastal Zone Management Act. The CZMA is vital for enabling coastal states to manage and fund coastal conservation activities, and it provides them with a critical tool for weighing in on Federal actions that affect their coastal waters. To be effective, however, we must adequately fund the grant programs at the same time that we consider legislation to renew and improve NOAA's oversight function. I am concerned that the FY 2010 Budget Request, with flat funding of \$66 million to states, will not be sufficient to facilitate success with our state partners. Does the FY 2010 Budget Request suggest that NOAA thinks current grants to states are adequate? Has NOAA been working with its state partners to evaluate the impacts of recent funding shortfalls?

Answer. The Coastal Zone Management Act (CZMA) is a vital tool for dealing with the pressing issues such as sea-level rise and climate change facing our Nation's oceans and coasts. NOAA looks forward to working with you to revitalize the CZMA and strengthen state and Federal capabilities.

NOAA's FY 2010 Budget Request strives to balance the Nation's competing priorities for NOAA's diverse services within available funds, and includes \$66.1 million for state coastal zone management grants to enable coastal states to manage and fund coastal conservation activities.

Question 27. How does NOAA intend to meet the Nation's need for coastal management activities at the state and local level with this funding level, considering the increasing needs for climate change adaptation and offshore energy development?

Answer. NOAA alone cannot meet all of the needs expressed at the state and local levels, but we are working to ensure state funding required by the Coastal Zone Management Act is maintained. In addition, NOAA is working on ways to provide improved, non-monetary support to coastal managers. Within NOAA we are continuing to look at ways to better integrate our programs and abilities to deliver needed products, services, and assistance to our state partners.

Question 28. What is the Coastal Communities Task Force, which would receive \$2 million in your budget? NOAA has just emerged from a coastal communities scoping and visioning initiative with the Coastal States Organization, so how would this differ?

Answer. The Coastal Communities Task Force (CCTF) will be composed of leaders from around the country who are actively engaged in issues related to coastal communities and the coastal economy. The CCTF will help communities manage the use of land and water resources, expand economic opportunities, and protect and improve the quality of life, resulting in a more resilient and vibrant future for our Nation's coasts. The CCTF, in partnership with NOAA, will assist communities as they improve their environmental and economic health by working across governmental jurisdictions and at the appropriate scale to address community problems. Through direct technical and management assistance, training and collaboration, the CCTF will help to assess coastal resource conditions and economic health, identify key issues and goals, establish coordination mechanisms, collect and integrate locally relevant information into decision-making processes, and develop recommendations on planning and implementation strategies.

The CCTF differs significantly from the coastal management scoping and visioning effort done in partnership with the Coastal States Organization. The "En-

visioning the Future of Coastal Management” effort was designed to identify shortcomings with existing coastal planning and management efforts and to learn of techniques that had been used successfully to resolve coastal and ocean resource use conflicts. The result was a set of principles to be used as the basis for Coastal Zone Management Act reauthorization. The CCTF is an implementation tool to provide specific assistance to communities in regions around the Nation’s coasts to resolve these and similar conflicts. Because the vast majority of land-use decisions in the U.S. are made by local governments, the CCTF has been designed to build capacity with state and local decisionmakers.

Question 29. I am now considering alternative proposals for language to reauthorize the Coastal Zone Management Act, and I would like to know NOAA’s position as soon as possible. When can you provide Congress with proposed legislation?

Answer. Drawing on the set of principles developed through the “Envisioning the Future of Coastal Management” effort, NOAA’s Office of Ocean and Coastal Resource Management has drafted a proposal to reauthorize the Coastal Zone Management Act. NOAA leadership has not yet had the opportunity to review this proposal and make a determination as to whether the Administration will submit legislation.

Question 30. For more than a decade, I have authored and overseen the implementation of NOAA’s programs for addressing harmful algal blooms and hypoxia research and control. On May 1 of this year, I introduced S. 952, the second reauthorization of the original Snowe-Breaux Act of 1998. My goal is to continue to promote vital research into these outbreaks, but to also equip regions with rapid response plans to minimize economic and ecological impacts. I also want to promote inter-agency efforts to further develop methods for preventing algae blooms and hypoxia. But for any legislation to work, it must be adequately funded, and I again am concerned about the numbers in the FY2010 Budget Request for this issue.

The last reauthorization bill authorized up to \$28 million annually to carry out research and projects under the Act, but NOAA’s actual request and spending has traditionally fallen quite short of that. Exactly how much is NOAA requesting to implement the Act in FY2010? Under what accounts and line items?

Answer. The FY 2010 President Budget Request includes support for implementation of the reauthorized Snowe-Breaux Act of 1998 (Harmful Algal Bloom and Hypoxia Research and Control Act) within the funds requested for the National Centers for Coastal Ocean Science (NCCOS) and Competitive Research under the NCCOS line item in the National Ocean Service request in the operations, research, and facilities account.

The request for NCCOS (\$36.2 million) includes support for internal NOAA research on harmful algal blooms (HABs), as well as a \$2.7 million increase dedicated to expanding NOAA’s HAB forecasting capabilities on the west coast of Florida into a national system of operational forecasts with an event response capability. A portion of the Competitive Research request (approximately \$8.9 million of the \$15.8 million request) is used to fund the five national competitive programs authorized by the Snowe-Breaux Act and administered by the NCCOS Center for Sponsored Coastal Ocean Research:

- Ecology and Oceanography of Harmful Algal Blooms
- Monitoring and Event Response for Harmful Algal Blooms
- Prevention, Control, and Mitigation of Harmful Algal Blooms
- Coastal Hypoxia Research Program, and
- Gulf of Mexico Ecosystems and Hypoxia Assessment

Question 31. Since the frequency and severity of algal blooms and hypoxia are increasing, will this funding level enable NOAA to adequately meet this critical mission? What research and control needs would most likely be shortchanged?

Answer. In coordination with our Federal partners, NOAA has made considerable progress in the ability to detect, monitor, assess, and predict harmful algal blooms and hypoxia in coastal ecosystems. This progress has been accomplished through a mix of extramural and intramural research, long-term regional ecosystem-scale studies supported by short-term targeted studies, collaborations between academic and Federal scientists, and multiple partnerships with Federal, state, and tribal managers. These advances are helping coastal managers undertake short- and long-term efforts to reduce, and ultimately to prevent, the detrimental effects of these phenomena on human health and valuable coastal resources. The FY 2010 request will enable NOAA to continue successful programs supporting ongoing and future advances in this field. It will also support the initiation of the Prevention, Control, and Mitigation of Harmful Algal Blooms program, and the national system of operational harmful algal bloom forecasts.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. ROGER F. WICKER TO
DR. JANE LUBCHENCO

Question 1. I am pleased that VT Halter Marine shipyard of Moss Point, MS, is building a number of NOAA fisheries research and mapping vessels. In December 2008, NOAA launched the fisheries research vessel PISCES, with a planned homeport of Pascagoula, MS. When is the planned commissioning and activation date of PISCES and how many permanent crewmembers will it have?

Answer. NOAA took delivery of *Pisces* on June 8, 2009. NOAA plans to have this new fisheries vessel activated by the end of Fiscal Year 2009, after all testing is complete. The planned commissioning date for *Pisces* is October 30, 2009. Once fully operational, *Pisces* will have a crew compliment of 24 crew and officers with space for 15 scientists. Total complement will be a maximum of 39.

Question 2. The Gulf of Mexico Alliance is a partnership among state and Federal agencies across the states of Mississippi, Alabama, Louisiana, Texas and Florida with the goal of significantly increasing regional collaboration to enhance the environmental and economic health of the Gulf of Mexico. I'm pleased to see a \$1M increase in the budget request for this important collaboration from \$4 to \$5 million. What specific environmental or economic programs will this increased funding support?

Answer. The Gulf of Mexico Alliance established six Priority Issue Teams to work toward implementing the Governors' Action Plan for a Healthy and Resilient Coasts with each of the five Gulf states serving as the lead for at least one issue. The State of Mississippi is serving as lead on two Priority Issue Teams: Nutrient Reduction and Coastal Community Resilience. The remaining four teams are: Water Quality for Healthy Beaches and Shellfish (Florida lead), Environmental Education (Alabama lead), Habitat Conservation and Restoration (Louisiana lead), and Ecosystem Integration and Assessment (Texas lead). The increased funding will go toward providing additional competitive grants to support each team as they work to implement the recently updated Governors' Action Plan.

Question 3. What are some of the benefits funding for the Gulf of Mexico Alliance has brought about so far?

Answer. Year one of the NOAA grants to the Gulf of Mexico Alliance Priority Issue Teams began on October 1, 2008. During these first 9 months, the Alliance has benefited from increased coordination and collaboration within and between the different priority issue teams. For example, the Water Quality and Nutrient Reduction teams held joint meetings in April of 2009 to develop strategies for improving water quality, monitoring information collection, and sharing. Additionally, the Coastal Community Resilience Team developed the "Storm Smart Coast Network." This website is a place for coastal decisionmakers to find and share the latest information on protecting communities from storms, floods, sea-level rise, and climate change. The State of Mississippi's page is the first to be posted on the network (ms.stormsmartcoasts.org). The Dauphin Island Sea Lab is representing the State of Alabama as the Lead for Environmental Education Priority Issue Team activities. During the first 6 months, the Dauphin Island Sea Lab issued twenty sub-awards to support education and outreach activities. From these twenty, two represent regional activities: the Gulf of Mexico Foundation Science and Spanish Club Network and the National Estuarine Research Reserve Coastal Training Program facilitated through the Mississippi Department of Marine Resources Grand Bay Reserve. An additional award went to the Florida Department of Environmental Protection Office of Education and their Learning in Florida's Environments program.

Question 4. The University of Mississippi and University of Southern Mississippi are pleased to be members of the National Sea Grant College Program. I understand the FY 2010 President's Budget Request has an increase of \$88,000 for this valuable college grant program. What are some of NOAA's research or educational outreach priorities for this increased funding?

Answer. The President's Fiscal Year (FY) 2010 Budget requests approximately \$55 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, addressing issues from local to global concerns.

The \$88,000 increase is an Adjustment to Base (ATB) for Sea Grant, and is part of a larger NOAA ATB request within the President's Budget Request for FY 2010. Across NOAA, increases for ATBs will enable NOAA to fund the estimated FY 2010 Federal pay raise of 2.0 percent and annualize the FY 2009 pay raise of 3.9 percent. This request is critical to sustain the current operations level and support the esti-

mated number of full-time employees in 2010. Without these funds, NOAA will not be able to support inflation for labor and non-labor activities including service contracts, utilities, field office leases and rent charges from the General Services Administration.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. DAVID VITTER TO
DR. JANE LUBCHENCO

Question 1. How much of NOAA's budget is annually allocated toward recreational fisheries?

Answer.

Line Item Name	FY 2007	FY 2008	FY 2009	Estimated FY 2010
Fisheries Research and Management Programs	\$700	\$4,200	\$4,200	\$4,200
RecFIN	\$2,900	\$2,900	\$2,900	\$2,900
Gulf FIN	\$2,600	\$2,600	\$2,600	\$2,600
Fishery Statistics	\$700	\$500	\$3,200	\$5,700
Fish Stats—Atlantic States Marine Fisheries Commission	[\$700]	[\$500]	[\$500]	[\$500]
Stock Assessments	\$3,000	\$3,000	\$3,000	\$3,000
Total	\$9,900	\$13,200	\$15,900	\$18,400

The budget support for marine recreational fisheries surveys of fishing effort and catch is about \$15.9 million in FY 2009. The FY 2010 President's Budget Request includes a proposed increase of \$2.5 million for a total of \$18.4 million. If appropriated, this funding will greatly improve marine recreational fisheries data collections.

As noted in the table above, NOAA has been directing additional funding toward marine recreational surveys for several years. The increases provided in FY 2008 and FY 2009 are being used to support a substantial re-design of NOAA recreational fisheries surveys to incorporate more efficient and statistically valid sampling and estimation methods. A significant amount of those funds are being invested in the development and implementation of a National Saltwater Angler Registry Program. The Registry Program is a cooperative state-Federal program for the registration of recreational fishing participants that will build angler and for-hire vessel operator phone/address directories needed to support more efficient and cost-effective surveys of fishing effort. The re-design work has included investments in expert evaluations of possible sampling and estimation improvements, well-designed pilot studies to test those improvements, and phased implementation of improved survey designs that will allow evaluation of possible biases in current and past surveys. As more statistically sound and cost-effective components of a new survey program are developed and implemented, the overall costs of the redesign work will be directed to increase sample sizes for the surveys of fishing effort and catch. Such increases allow NOAA to provide the higher levels of statistical precision and spatio-temporal resolution required for accurate stock assessments and effective fisheries management.

An additional \$2.5 million is requested in FY 2010 to support the development of state registration and/or licensing programs that will meet the requirements for development and maintenance of a complete and regularly updated National Registry of marine recreational fishing participants. Some states already have licensing or registration programs in place that exempt some participants, and several of those states do not have registry information management systems that would meet all of the requirements for supporting the National Registry. Many additional states are working to implement registration or licensing programs that will obtain the telephone numbers and mailing addresses needed for more efficient surveys of all recreational fishing participants. Funding will be allocated to the states to develop and maintain registry information management systems that will be compatible with the National Registry system and will deliver updated information on all anglers and for-hire boat operators within the timeframe required for use in improved telephone surveys of fishing effort.

NOAA currently collaborates with state agencies and interstate commission partners to conduct the surveys needed to monitor marine recreational fishing catch and effort. NOAA currently supports four survey programs:

- Marine Recreational Fishery Statistics Survey in the Atlantic, Gulf of Mexico, Caribbean, and Hawaii. This is a survey program to monitor shore and private/rental boat fishing effort and catch.

- For-Hire Survey in the Atlantic, Gulf of Mexico, and California. This is a survey program to monitor fishing effort and catch on for-hire vessels.
- Large Pelagic Survey in the Atlantic from ME to VA. This is a specialized survey program for monitoring offshore fishing effort and catch of large pelagic species.
- Pacific Coast Surveys on the coasts of Oregon, Washington, and California. These are telephone and on-site surveys of shore, private/rental boat, and for-hire boat fishing that are run by state agencies, with NOAA support.

Question 2. Please elaborate on why recreational fishermen are not considered in ITQ decisions.

Answer. To date, most catch-share programs, including Individual Transferable Quota (ITQ) programs, have been developed for commercial fisheries. The primary reason is that participation in commercial fisheries has already been limited through a limited access permit system, so allocating shares of the overall commercial sector quota to those participants is relatively straightforward. There has been consideration of a program for the guided sport sector in the Alaska halibut fishery, and NOAA expects there will be additional interest in catch-share programs, including ITQs, for recreational fisheries in the future. Because of the nature of the fisheries, a catch-share program for guided sport (charter) fishing seems more likely than one for individual recreational anglers. Support for catch-share programs by the affected participants is essential, and NOAA believes the fishery planning process, involving the Regional Fishery Management Councils, will be responsive to interest in catch-share programs by the recreational sector.

