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OVERSIGHT OF 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 TENTH CONGRESS

SECOND SESSION

MAY 6, 2008

Printed for the use of the Committee on Commerce, Science, and Transportation

U.S. GOVERNMENT PRINTING OFFICE

75–681 PDF WASHINGTON : 2012

For sale by the Superintendent of Documents, U.S. Government Printing Office
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OVERSIGHT OF THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

TUESDAY, MAY 6, 2008

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

The Subcommittee met, pursuant to notice, at 10 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. Good morning. The Senate Committee on Commerce, Science, and Transportation, Subcommittee on Oceans, Atmosphere, Fisheries, and Coast Guard will come to order.

We have an oversight hearing this morning on the National Oceanic and Atmospheric Administration's budget, and we will hear from Admiral Lautenbacher shortly, but we are going to hear from my colleague Senator Levin, this morning, who wants to testify about legislation that is also on the docket this morning as it relates to marine sanctuaries.

So, welcome, Senator Levin. Thank you for being here this morning to talk about the impacts and expansion of proposed legislation in Michigan in regards to the expansion of the Thunder Bay National Marine Sanctuary.

So, welcome to the Committee.

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

I'd like to welcome you all to today's oversight hearing of the National Oceanic and Atmospheric Administration (NOAA), its Fiscal Year 2009 budget, and issues facing the National Marine Sanctuaries program.

Thank you, Admiral Lautenbacher, for being here today.

I would like to start out today with an important note of congratulations.

NOAA scientists are among the hundreds of researchers across the globe who contributed to the Intergovernmental Panel on Climate Change (IPCC).

Last year, the IPCC was awarded the Nobel Peace Prize, and I was delighted to see that many of NOAA's scientists shared in this prestigious honor.

I have here a list of the NOAA scientists who contributed to this effort, and will be including it in the record.

I congratulate those individuals, and all those in NOAA who work so hard on this vital topic.

Budget Overview

I'm happy to see that for the first time, the President's budget request for NOAA actually exceeds last year's Congressional appropriation.

I am concerned, though, that when we look deeper into the numbers, this budget is not the victory we would like it to be.

NOAA's fiscal year budget request for 2009 of $4.1 billion is 5 percent above Fiscal Year 2008 enacted levels of $3.9 billion.

Almost this entire increase, though, goes toward funding the cost overruns in the troubled weather and climate satellite acquisition program.

Unfortunately, this means that while NOAA's top-line budget request is larger, the President is still proposing cuts for our Nation's ocean programs.

Troubled Satellites Program

Admiral, as you know, there has been a lot of attention of late to the troubles with NOAA's satellite acquisition program.

Our aging fleet of satellites monitors weather, hurricanes, the climate, and the oceans, and desperately needs to be replaced.

But the failures of this acquisition are impossible to ignore.

While cost overruns have driven the price of the National Polar-orbiting Operational Environmental Satellite System from $6.5 billion to $12.5 billion, the lead contractor was awarded $123 million in "award fees."

This is inexcusable.

U.S. Census

I am also concerned about recent revelations over the 2010 Census.

The Census Bureau's handheld census computer acquisition has failed miserably. More than doubling in price, the computers are riddled with so many problems they will not be ready for use during the 2010 census.

To help pay for these troubles, Secretary Gutiérrez has asked Congress to transfer $27 million from NOAA to the Census Bureau during this fiscal year. He has also indicated he will need to move up to $700 million from NOAA and other agencies in Fiscal Year 2009 to make up for the Census shortfall.

As these failures threaten to decimate NOAA's budget, it is once again the oceans that will be asked to suffer.

Cuts to Ocean Programs

Because of the financial demands of the satellite acquisition program and the Census Bureau, we are seeing cuts proposed for many of your most important agencies.

The National Ocean Service, the office of Oceanic and Atmospheric Research, and the National Marine Fisheries Service all see their budgets slashed.

Despite the demands Congress laid out in the Magnuson-Stevens Act reauthorization, and despite ocean acidification and the role the oceans play in global warming, the Administration still feels the need to weaken our ocean programs—in a time when attention to the oceans is needed now more than ever.

In Washington, the Puget Sound Partnership is embarking on a mission to save the Puget Sound's ecosystem—everything from salmon to orca whales. But the Puget Sound Partnership's efforts cannot succeed without strong Federal support—and this budget lacks support for either the orcas or the Puget Sound.

Salmon Recovery Fund

If you recall, last year I told you how disappointed I was to see the President request only $67 million for the Pacific Coastal Salmon Recovery Fund—a program that averaged $87 million in funding per year from 2000 to 2005.

I'm sure you can guess, then, that I and many of my colleagues are even more upset at this year's request of only $35 million—representing a 60 percent cut over the historically-funded level.

This funding goes to those on the front lines of salmon recovery—the states and tribes that do the hard, on-the-ground work to protect our salmon.

In just the past week we have seen:

- the emergency shut-down of West Coast Salmon Fisheries and the declaration of a fisheries disaster,
- the release of new Biological Opinions for Northwest listed Salmon, and
- the further escalation of the controversy over sea lions and salmon at the Bonneville Dam.

In such a critical time for salmon recovery, the Bush Administration's proposed cuts to our salmon recovery funding are unacceptable.

I was also disappointed to see funding for NOAA's Education Program take a 51 percent cut from 2006 levels, from $34 million to $16.5 million.

I look forward to working with you and my colleagues to restore funding to these critical programs.

Doppler Radar Gap

Finally, Admiral, I would like to briefly discuss the Doppler radar gap on the outer coast of Washington State.

I have discussed this issue with you before, and last year I secured funding for a NOAA study on how best to address this gap.

I want to emphasize, though, that Washington State communities were devastated by massive storms and flooding last December.

The urgency for solving this problem is greater now than ever before.

Two months ago today, I held a community meeting on this issue in Grays Harbor, Washington, and the message from my constituents was clear: we need a solution now.

I look forward to working with you to find that solution quickly, and implementing it as soon as possible.

Conclusion

So thank you again, Admiral for your testimony and for appearing here today to discuss NOAA's budget.

At this time I would like to hand it over to my colleagues for their opening remarks.

STATEMENT OF HON. CARL LEVIN, U.S. SENATOR FROM MICHIGAN

Senator LEVIN. Thank you, Madam Chairman. The—I very much appreciate the opportunity to testify in support of my bill, which would expand the boundaries, out into the Great Lakes, of this sanctuary.

This is the only freshwater sanctuary that we have. Our other sanctuaries are all saltwater. And the difference that that makes, in terms of preservation of wrecks is significant. Because it is freshwater and there is no salt in it, the shipwrecks, which are—this area is famous for, are very well preserved, and the expansion of this boundary will actually preserve some of our already best-preserved wrecks, because the waters that we're talking about are deeper waters and colder waters to the ones that already exist.

It would more than double the number of shipwrecks which are protected. The estimate is, now, that there are about 116 shipwrecks inside this Shipwreck Alley, the very famous area in Thunder Bay where so many of the ships which plied the Great Lakes were, in fact, wrecked, usually by weather. It would double that number to over 300 wrecks. These are a huge attraction for us. It's a part of the state which is sometimes overlooked, in terms of tourism and economic development, so there is a real spinoff effect. It's not just that we get divers and people who are into the history of the Great Lakes; this is a major part of the maritime history of the Great Lakes that is actually, just, located right in this area because of the type of ships which went down. So, this is a huge educational attraction, as well as a diving attraction, and that's of significance to a state which is suffering a great deal economically, and when we have an attraction such as this, which has just been there now 8 years, but which has proven to be a huge magnet for people coming to the lakes, personally; but also, interestingly enough, Madam Chairman, this is, because of our telepresence and the connection of this sanctuary to other sanctuaries around the country, what is going on underneath those waters can be seen not only in the visitors center in Alpena, but in a number of sanc-

tuaries around the country, in real-time. This is the new technology, which has been installed there, which means that there can be a connection, educationally, immediately. The curiosity of people around the country—indeed, all the way out to—I believe, to Hawaii; I think it's already connected to the Hawaiian sanctuary—can be met. Educational opportunities can be achieved. The visitors' presence can be increased.

The bottom line is this, Madam Chairman. We've got an area now there, out in the waters—originally, it was supposed to be larger than it is now. It was pared down because of a reasonable determination that we wanted to make sure that the people along those shores wanted, in fact, this kind of protection. So, it was reduced from what it was originally intended to be. Now we want to go back and increase the protection of these ships.

There's no greater cost that is necessary. The only cost issue here is whether or not there might be a need, at some point, or a desirability, for a second NOAA boat. We can do this without a second NOAA boat. We can add protection to an additional 160 or 180 ships without an additional NOAA boat. We have the Coast Guard out there anyway. They're going to expand their station at Alpena anyway. They do the law enforcement there. They're the ones that protect these ships anyway. NOAA does not go out and protect these ships. Their function is a different function.

So, while it may desirable, at some point, that there be a second NOAA boat, we don't have to have a second NOAA boat. There is no additional cost, in other words, to expanding these boundaries.

What is additional will be the protection to more than twice as many shipwrecks, which represent a critical part of the maritime history of these lakes and represent a huge attraction for people, both in person and through this telepresence, to understanding this history, the excitement and the knowledge that it produces.

So, we hope that this committee will approve our bill, which provides for the expansion of these waters. This is not like expanding a national park, where you've got infrastructure, where you've got trails, where you've got things that have a cost to them when you increase the size.

My final point would be this. We recently created—fairly recently—the most recent sanctuary was the one in Hawaii, which is 120,000 square miles of water—120,000 square miles—with one boat that NOAA has, basically, to perform the purpose that would be—is being performed by the NOAA boat that we have. Our increase is a very tiny increase, in terms of square miles, compared to what we just did in Hawaii. In fact, it's, like, one—it's 120,000 square miles to that sanctuary in Hawaii; the number of additional square miles here is a very small percentage, like 3 percent of that area that was just created for Hawaii. So, we hope that we will give this additional protection to this spectacular site that is part of the marine history of the Great Lakes.

We have another Great Lakes Senator which has joined us, who I think has a special appreciation, sensitivity about our history, our maritime history. The Chairman of this committee has her own very special understanding of our coast and the marine sanctuary which is in the State of Washington. And this is a unique sanctuary, because it's freshwater. We hope that——

And, by the way, finally, the people support this. There's no doubt about that. We don't have to go through a long—years-long administrative process to determine whether the people support this. The three counties involved are on record, their resolutions are on record. The townships all support this. There's no doubt about the public support. So, we don't want to wait years, needlessly, for the administrative process here to go through the hearings. The three counties have gone through that process and are on record as supporting this increase in the size.

Thank you for allowing me to testify and for being with you this morning. I'd be happy, obviously, to try to answer a few questions, but there are people here that I know you want to hear from who have firsthand expertise, more than I do. But, again, I'd be happy to try to answer any questions if you have any.

[The prepared statement of Senator Levin follows:]

PREPARED STATEMENT OF HON. CARL LEVIN, U.S. SENATOR FROM MICHIGAN

Thank you Senator Cantwell and thank you Commerce Committee members for allowing me to testify this morning.

The Thunder Bay National Marine Sanctuary, located in Lake Huron near Alpena, Michigan, has been a resounding success since it was created as a unique Federal-state partnership back in October 2000. It has preserved the proud maritime history of the Great Lakes, offered educational opportunities to children, adults, maritime history enthusiasts, and researchers, and provided a fascinating site for divers and snorkelers to explore.

NOAA initially proposed that the sanctuary cover an area twice as big as was established in 2000, but the proposal had to be scaled back to address concerns raised by some in the local community. Now, community leaders and residents agree that it is time to expand the sanctuary; numerous local units of government have expressed their support for an expansion through resolutions.

Last year, I introduced legislation (S. 2281) that would expand the sanctuary, bringing even greater benefits to the local community, historians, and people from across the country who take advantage of the artifacts and educational resources made available there.

The current sanctuary includes 448 square miles of water and 115 miles of shoreline, and the expansion would include 3,722 square miles and include 226 miles of shoreline.

Thunder Bay has been a regular byway for ships traveling on Lake Huron, and it earned the name "Shipwreck Alley" because the geography and weather patterns in the bay led to over 300 shipwrecks. The sanctuary currently protects 116 shipwrecks; the expansion would protect an estimated additional 178 shipwrecks. Additionally, the sanctuary reserves and interprets the remains of commercial fishing sites, historic docks, and other underwater archaeological sites.

This expansion is needed to protect the maritime history of Michigan and the Great Lakes. Historically, this region was influenced by the demand for natural resources. Because local roads were so inadequate, the Great Lakes became an important passageway and trading route for settlement and industrialization.

The expansion would protect a number of historically significant sites that can illuminate the history of commerce on the Great Lakes. For example, it would protect the CORNELIA B. WINDIATE, a three-mast wooden schooner which is one of the Great Lakes' most intact shipwrecks. The ship sank in December 1875 when bound from Milwaukee to Buffalo with a cargo of wheat, and was featured in an episode of *Deep Sea Detectives* on The History Channel.

This and other shipwrecks are not only historically important, they are very popular with divers. Because deep water sites are often well preserved in the cold freshwater, they contain many artifacts and provide a treasure of information about the past. Many of the shallow water wrecks are accessible by snorkelers, boaters and kayakers.

In 2005, NOAA opened the Great Lakes Maritime Heritage Center in Alpena, an educational station and visitors' center that traces maritime history in the Great Lakes. As you know, families, school groups and history buffs can even explore the shipwrecks by live video feeds from divers in the sanctuary, extending the reach of the vast educational opportunities in the sanctuary not only to large numbers of

visitors each year, but to people around the country who visit the other 13 NOAA National Marine Sanctuaries.

Visitors to Thunder Bay can also view artifacts and interpretive exhibits and watch films about Thunder Bay and all of our Nation's Maritime Sanctuaries. Also, scientists from around the world dock their vessels in the Thunder Bay River as they use the facility for their research.

The Sanctuary has also been a real asset for the local community, and the community has responded in kind. Since the establishment of the Sanctuary, local citizens have worked with the sanctuary to improve the Alpena County George N. Fletcher Library, to provide volunteers at festivals and outreach events, and to help digitize the Thunder Bay Sanctuary Research Collection.

Since the time glaciers receded leaving the two pleasant peninsulas that form Michigan, the Great Lakes have shaped my home state. Physical boundaries are only the beginning. From the Native Americans who lived around and explored the lakes and adjacent land, to the European settlers who developed trading routes for furs, then lumber, and eventually automobiles that Michigan shipped around the world, the Great Lakes hold the story of Michigan's history. One part of that story is being preserved at the Thunder Bay National Marine Sanctuary, and that Sanctuary deserves to be expanded.

I hope that the Committee will support this effort, and I appreciate your consideration.

Senator CANTWELL. Well, Senator, let me thank you, again, for being here this morning to talk about this important legislation, the expansion.

It's my understanding that diving and fishing and other recreational activities are permitted within this area.

Senator LEVIN. That is correct.

Senator CANTWELL. And so, that has probably led to an easier management and oversight, given that those activities are allowed?

Senator LEVIN. Not only is that true, but it's also resulted in greater public support. There was some concern about that on the part of the neighboring counties. Two of the three that did not originally—they wanted to wait, see how it worked out—because of those kind of activities being allowed, they are very supportive of this. All three counties that border on this area are supportive of this.

Senator CANTWELL. And, in addition, it—besides the Coast Guard, obviously, doing their day-to-day duties on oversight of our waters and the variety of responsibilities that they have there, it looks like the Michigan State Police and County Sheriff's Office and your State Department of Natural Resources are also involved in policing and enforcing these waters. Is that correct?

Senator LEVIN. They are. There's a—of course, great reliance, more and more, on the Coast Guard, which are—is in those waters anyway, because of the financial—fiscal constraints that the state has, make it even more difficult for our state enforcement folks to be there. But, the Coast Guard is in all those waters, in any event. I wish we could do more, from a D&R perspective, as you point out, but our budget constraints make that, I'm afraid, more difficult, so I can't point to that as being, really, the major source of the enforcement. They're there. There's a presence, but it's not as strong as we'd like.

Senator CANTWELL. Senator Klobuchar, do you have any questions?

STATEMENT OF HON. AMY KLOBUCHAR, U.S. SENATOR FROM MINNESOTA

Senator KLOBUCHAR. Well, I just wanted to say I was enjoying this moment, because, Senator Levin, I'm the only member of the Subcommittee that doesn't have an ocean. And now that you're here, you and I, as Great Lakes Senators, outnumber the ocean Senators here, so—as it should be.

[Laughter.]

Senator LEVIN. First time in—we call this the—we call this the Fourth Coast.

Senator KLOBUCHAR. Exactly.

Senator LEVIN. And we—you and I and the other Great Lakes Senators are all part of a Great Lakes Task Force, which tries to bring to the attention of our colleagues the fact that this is a longer coastline than any other coastline we have.

Senator KLOBUCHAR. And one of the things that I'm going to focus on a little today is just the—what we've seen, the changes to the Great Lakes, in terms of the invasive species and—and I know this wasn't the focus of your testimony today—but also the lowering in—Lake Superior, last year, was at its lowest level in 80 years, because the water has been evaporating with climate change, the ice melting. And I just wondered if you'd seen similar things with Lake Michigan.

Senator LEVIN. I think we have some good news on Lake Michigan this year, although I'm not positive. I think the majority of our lakes actually have seen a slight increase. And I don't know if it's true in Superior, but I think it is true in Michigan.

Senator KLOBUCHAR. Well, there might have been an increase this year. We're just seeing a trend down that——

Senator LEVIN. Yes. Oh, no——

Senator KLOBUCHAR.—has affected our barge traffic.

Senator LEVIN.—oh, our—the dredging problems that we have at all of our ports is huge. We've got a major problem because of the lowering of our waters, even though there may have been a bump-up this year. It's one of the greatest problems we face in Michigan, is in our ports. It's desperate. We have lost—we have lost access to our ports because they cannot be dredged; we don't have the funds to get them dredged.

Senator KLOBUCHAR. Right. And we also—there are some decreases in this budget, that I'm concerned about, for research that was really—been very important to our area. And so, I'm going to voice those concerns when I have an opportunity.

So, thank you very much.

Senator LEVIN. Well, thank you.

And the Great Lakes Task Force thanks you, Madam Chairman, and—for holding these hearings and for your support. I know, even though you're a saltwater state, and we're freshwater states in the Great Lakes, that you have a special understanding of shipping and the history of the waters, whether they be salt or fresh, so that we feel like we're in good hands in this committee.

Thank you.

Senator CANTWELL. Thank you, Senator Levin. And, again, thank you for being here this morning.

Just so people are aware, our second panel will focus on sanctuary expansion issues—this Thunder Bay National Marine Sanctuary issue, as well as another one proposed, expansion in California. So, we will have a second panel on that, but we appreciate Senator Levin coming to be with us this morning.

We'll now turn to Admiral Lautenbacher for your testimony, but I'm going to make an opening statement first. And if my colleague Senator Klobuchar would like to follow with that, we will proceed then with you, Admiral Lautenbacher.

I want to thank everyone for being here today on this oversight hearing of the National Ocean and Atmospheric Administration's Fiscal Year 2009 budget and the issues facing the National Marine Sanctuary Program.

And, Admiral Lautenbacher, again, thank you for your time in being here today to talk about these many important issues within your budget oversight.

I would like to start with a note of congratulations. NOAA scientists are among the hundreds of researchers across the globe who are contributing to the Intergovernmental Panel on Climate Change. And last year the—that same panel was awarded a Nobel Peace Prize, and I'm delighted to see that many of the NOAA scientists shared in this prestigious honor.

I know that we have a list somewhere here of the scientists that were part of that, so we're going to enter that into the record, but we do send our congratulations to those who were involved in this vital topic.

[The information previously referred to follows:]

NOAA Contributors to the IPCC Assessment Reports

Last Name	First Name	Line Office	IPCC Working Group
Contributors to the IPCC Fourth Assessment Report (2007) NOTE: No NOAA personnel are listed as contributors to Working Group 3			
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NOAA Contributors to the IPCC Assessment Reports—Continued

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Free	Melissa	OAR	WG1
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Griffies	S.M.	OAR	WG1
Gutman	G.	NESDIS	WG1
Held	Isaac	OAR	WG1
Karl	Thomas	NESDIS	WG1
Knight	Richard W.	NESDIS	WG1
Knutson	Thomas	OAR	WG1
Landsea	Chris	OAR	WG1
Lawrimore	Jay	NESDIS	WG1
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Montzka	Stephen A.	OAR	WG1
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Norris	J.	OAR	WG1
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* 11/16/2007—only people working NOAA at the time of publication and included in the Reports' Contributing Authors lists are included.
Source: NOAA Personnel contributing to the Four IPCC Assessment Reports—taken from appendices of IPCC Assessment Reports.

Senator CANTWELL. I'm happy to see that, for the first time, the President's budget request for NOAA actually exceeded last year's Congressional appropriation. I'm concerned, though, that, when we look deeper into how we got to that number, and some of the other discussions that are roaming around within the Department of Commerce, that this may not be as big a victory as we would like to see.

The NOAA fiscal budget for 2009, of $4.1 billion, is 5 percent above the 2008 level, and almost this entire increase goes toward funding the cost overruns in the Weather and Climate Satellite Acquisition Program. Unfortunately, though, that means that the NOAA top-line budget request is larger, and that the President is still proposing budget cuts for the Nation's oceans programs.

Admiral, you know that we have seen a lot of attention lately, and a lot of concern from Members of this Committee, about the satellite program. Our aging fleet of satellites which monitor weather, hurricanes, climate, and oceans desperately need to be replaced, but the failures of these acquisitions are impossible to ignore.

The National Polar-orbiting Operational Environmental Satellite System will have cost overruns from $6.5 billion to $12.5 billion,

and the lead contractor, Northrop Grumman, was awarded $123 million in award fees. I think this is inexcusable.

We also have this discussion about what's going to happen within the Department of Commerce as it relates to concerns about the 2010 Census, the fact that the Census Bureau's handling of computer acquisition has failed, more than doubling the price, the computers are riddled with many problems; and, to help pay for this, Secretary Gutiérrez has asked Congress to transfer $27 million from NOAA to the Census Bureau during this fiscal year. He has indicated that he will need to move up $700 million from NOAA and other agencies in Fiscal Year 2009 to make up for the Census shortfall.

As these failures threaten to decimate NOAA's budget, it is, once again, the oceans that will suffer the consequences. Because of the financial demands of the Satellite Acquisition Program and the Census Bureau, we are seeing cuts proposed by many of—to many of these important programs. The National Ocean Service, the Office of Oceanic and Atmospheric Research, the National Marine Fishery Service all see their budgets slashed. And, despite the demands Congress laid out in the Magnuson-Stevens Act reauthorization, and despite ocean acidification, the role that oceans play in global warming, the Administration still sees the need to weaken the oceans program in a time when we need even more attention than ever.

If you recall, last year, I was very disappointed to see the—what had been a budget request in the previous years of $87 million for 2000 to 2005 for our salmon recovery plan only down to $67 million. And I expressed that—disappointed. So, I don't think I'm going to surprise you today by saying that my colleagues are very concerned and upset about the budget request for this year that is only $35 million, which is a 60 percent reduction over the 2000 to 2005 budget level. And I can tell you, with the—all the discussion this week on the buy up and the salmon recovery plan, how essential these funds are. These funds go to the front line of salmon recovery. The states, the tribes, they do their hard work to protect our salmon, but they need the additional support.

And in just this past week, we've seen the emergency shutdown of West Coast salmon fisheries and the declaration of a fishery disaster. I will note that in that request from states we will end up seeing the Administration spend the same amount of money we could have been spending on other programs to help prevent this situation.

We saw the release of a new Biological Opinion and further escalation of other fishing issues in the Northwest.

So, in such a critical time for salmon recovery, the Administration, I believe, has proposed unacceptable levels of salmon funding.

I'm also disappointed to see that NOAA's education program, which is focused on environmental stewardship, takes a 51 percent cut from the 2006 levels, and I look forward to my—working with my colleagues to restore that.

And, finally, Admiral, I'd like to mention a few other issues that are critically important, not just to the Nation, but to the Northwest. We have had an opportunity to discuss, in my office, the need for a Doppler radar system on the coast of Washington. We had

documented hurricane-force winds, according to the Coast Guard, that caused a devastating impact in the Northwest, with floods and devastation last December. And having a better system there for emergency response is critically important.

There are other issues that I would love to discuss here in my opening remarks, but I want to give my colleagues a chance to also make comments. And, Admiral, we have many questions about everything from the salmon recovery plans to the orca population to many other things. So, again, we appreciate you being here to answer these questions.

Senator Klobuchar?

Senator KLOBUCHAR. Thank you very much, Madam Chair. And thank you for holding this hearing.

Thank you, Admiral, for being here. I was reviewing your testimony, and I saw that you have—you mentioned how you've converted a fleet of research vessels from 100 percent—from petroleum-based to 100 percent bio-based fuel, and I wanted to thank you for that. I think it's a good model that we could look at in other areas of the government.

The—as I mentioned before, when Senator Levin was here, NOAA's role is particularly important when it comes to the Great Lakes. And I listed these concerns. I wanted to go through them again. While we may have seen a slight increase in the water levels this year—I'm just guessing, because we had a little more snow—but overall we've seen a downward trend. Lake Superior's water levels are at their lowest point—this was last year—in eight decades, which have reduced the commercial shipping tonnage that can be brought into our harbors. There's a lot of concern in the business community about that. We've had invasive species issues that have done a lot of harm to the lake's ecosystem. We have the concern about the Asian carp coming up, and some other things. And also, the harbor and open water infrastructure used to manage these problems continues to age and deteriorate.

Given these threats to the Great Lakes and other coastal maritime environments, as Senator Cantwell was going through, while I understand that you—there was a funding increase in certain important areas, I'm concerned about other critical programs that are—that have not received that kind of treatment in the President's FY09 budget. For instance, the major research grants of NOAA, the Office of Oceanic and Atmospheric Research, is proposed for a decrease of over $15 million. This may include significant cuts in funding for the ocean, coastal, and Great Lakes research laboratories. Over the past few years, the Great Lakes Environmental Research Laboratory has conducted high-quality research and provided scientific leadership on important issues for the Great Lakes and for other coastal environments. This research has led to innovative solutions to protect these environments, and I'm just particularly concerned, because we're seeing such a change in the Great Lakes environment, which I attribute, in large part, to climate change. But, we're seeing a major change, and I would think it would be—not be a good time to be cutting back on research.

With that, I look forward to hearing your testimony, and I thank you very much for your work and all the work that the people that work with you do.

Thank you very much.

Senator CANTWELL. We've been joined by our Ranking Member, Senator Stevens.

Would you like to make an opening statement?

STATEMENT OF HON. TED STEVENS, U.S. SENATOR FROM ALASKA

Senator STEVENS. Well, thank you very much.

Good morning, Admiral. It's nice to see you here. I know that you realize that our state has half the coastline of the United States, and NOAA is one of our most important agencies. I'm delighted to see that this 2009 budget request is the largest one I've ever seen. I'm disturbed that the fisheries have been reduced. I hope that you can find a way to readjust that as we go along. Very clearly, it's $46 million less for marine fisheries, which the Chairman has mentioned.

We have, a growing problem in our state, as you know, in terms of the IUU fisheries. And they're outside the 200-mile limit, they're coming across our line. We're trying our best to work out, along with the various agencies, some form of monitoring the maritime border, which is really beyond our 200-mile limit, but at least it would give us some understanding who's out there, in terms of these new enormous vessels.

We do not overfish any species. There are no endangered or threatened species that we harvest off of Alaska. And we're very proud of our fisheries. We're very disturbed about the continued increase in the IUU fisheries capability, and really more disturbed than anything over the fact we don't know what they're doing. So, I would urge you to concentrate on that, to find some way to get us the knowledge of what species are these vessels harvesting and where are they taking that catch, and is there any way at all for us to determine what they're catching? Because I think they could. If we don't find some way to regulate them, they could destroy everything we've done and everything the world has done by following our example and having a 200-mile limit within which you can have scientific management. Ours is the best in the world, and we'd like to work with you to continue that.

So, I look forward to your statement. I'm pleased to see you here today.

Thank you very much.

Senator CANTWELL. Thank you, Senator Stevens.

Again, Admiral Lautenbacher, welcome to the Committee, and we look forward to hearing your testimony this morning.

STATEMENT OF VICE ADMIRAL CONRAD C. LAUTENBACHER, JR., (U.S. NAVY, RET.), UNDER SECRETARY FOR OCEANS AND ATMOSPHERE, AND ADMINISTRATOR, NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION, U.S. DEPARTMENT OF COMMERCE

Admiral LAUTENBACHER. Thank you very much, Madam Chair, Senator Klobuchar, Senator Stevens, and distinguished members of the staff. It's a great pleasure to be here with you this morning.

I appreciate the support of this committee over the years and the interest that you have in the number of significant challenges which you've outlined in your opening statements. I thank you for your leadership and help with our people and our programs.

The President's budget this year supports the priority of advancing mission-critical services. The budget request, as mentioned, is $4.1 billion, which represents a $202 million, or 5.2-percent, increase over the enacted level in Fiscal Year 2008. The major increases are in the areas of satellites, facilities, and implementation of the Magnuson-Stevens Act.

For NOAA overall, this is the minimum that we need to maintain our current level of services and to carry out our mission, to understand and predict changes in the Earth's environment, and to conserve and manage coastal, marine, and Great Lakes resources.

NOAA has had many notable accomplishments during the past fiscal year. They're recited in my written testimony, but I want to mention one, which was already mentioned by the Chair.

First of all, I have always mentioned how proud I am of the people who work in NOAA and what they do for the Nation. I'm particularly proud, this year, to make mention of the 120 NOAA scientists that were recognized by the Nobel Prize Committee for their work on the Intergovernmental Panel on Climate Change. Many people in the NOAA family were intimately involved, including numerous lead, review, and contributing authors, as well as line offices, in our observations and modeling, which were critical.

I will move to the 2009 budget request, and I want to highlight just a couple of areas for you so we can get to the questioning.

The budget requests $49 million in increases to support the implementation of the President's Ocean Initiative. This includes $18 million to advance ocean science and research, $5 million to protect and restore marine and coastal areas, and more than $26 million to ensure sustainable use of ocean resources.

The budget also requests $32 million in increases to support the new provisions of the Magnuson-Stevens bill and to provide better management of fisheries harvests. This includes an increase of $8½ million to expand annual stock assessments. Magnuson-Stevens also requires NOAA to establish annual catch limits for all managed fisheries by 2011. To do this effectively, we need sound science to determine appropriate catch levels. We are asking for $5 million in increases to support annual catch limits and stipends, as well as $4 million for a resource survey program to track the abundance of North Atlantic scallops and West Coast groundfish. We are also asking for a $1 million increase to support enforcement against illegal, unregulated, and unreported, or IUU, fishing, which has been an important issue to members of the Committee.

The budget request also includes $21 million for the Integrated Ocean Observing System, or IOOS. Projects to protect and restore valuable marine and coastal areas include funding of $4 million to implement the newly enacted Marine Debris Research, Prevention, and Reduction Act. The budget also provides $1 million to support implementation of the Ocean and Human Health Act through the Oceans and Human Health Initiative.

NOAA views its education mission as one of its top priorities, and has requested more than $15 million in our 2009 budget. We are currently updating our education plan, as required by the America COMPETES Act.

The 2009 budget requests $60 million to support the ongoing construction and relocation efforts to the Pacific Regional Center on Ford Island in Hawaii. We are also asking for $8 million to support management of the national monument in the northwestern Hawaiian Islands, mentioned earlier by Senator Levin.

NOAA also requests funding to restore several of our base programs that were reduced in the 2008 omnibus. The fisheries budget request includes restoration of just over $8 million for fisheries research and monitoring. This will maintain our ability to provide value-added analysis to the Fishery Management Councils.

The Weather Service budget request includes restoration of just over $10 million for local warnings and forecasts. To enhance our weather forecasting abilities, ensure consistency, we are requesting a funding increase of $242 million to continue support of the Next Generation Geostationary Satellite Program, called GOES–R. These unique sentinels in the sky provide the images of severe weather you see on TV. All of the sensors are on contract, and we plan to issue major contracts for space and ground segments in Fiscal Year 2009. This is a critical time for the program, and we must keep it on track.

In 2009, NOAA will invest more than $319 million on climate-related activities. This is an increase of $85 million over the FY08 enacted. We are requesting an increase of $74 million for climate sensors that were removed from the Next Generation Polar Satellite Program, or NPOESS. The money is specifically for instruments called TSIS and CERES, which measure the Earth's radiation budget.

NOAA's 2009 request provides modest new investments in our priority areas, while maintaining critical services. We will build on our successes for last year and stand ready to meet the challenges that will surface in 2009 and beyond.

With regard to the proposed boundary expansion mentioned for Thunder Bay, Cordell Bank, and the Gulf of Farallones National Marine Sanctuaries, under S. 2281 and H.R. 1187 respectively, NOAA generally agrees with the intent of these bills to protect the important marine resources off the Michigan and California coasts. The concepts behind expanding these three sanctuaries have support from the respective advisory councils and many constituents. As a general matter, NOAA prefers to manage sanctuaries through the Federal regulatory process rather than through statutory requirements; therein, including a—robust public processes where stakeholders and other constituents are given multiple opportuni-

ties to provide input. NOAA looks forward to working with the committees—Committee as these bills move forward.

Again, thank you for your—opportunity to present the budget request, and I'm happy to answer the questions you may have.

Thank you.

[The prepared statement of Vice Admiral Lautenbacher follows:]

PREPARED STATEMENT OF VICE ADMIRAL CONRAD C. LAUTENBACHER, JR., (U.S. NAVY, RET.), UNDER SECRETARY FOR OCEANS AND ATMOSPHERE, AND 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 (NOAA). Your continued support for our programs is appreciated as we work to improve our products and services for the American people. Thank you for the opportunity to testify on the President's Fiscal Year (FY) 2009 Budget Request for NOAA.

The FY 2009 President's Budget supports NOAA's priority to advance mission-critical services. The FY 2009 request is $4.1 billion, which represents a $202 million or 5.2 percent increase over the FY 2008 enacted level. This request includes the level of resources necessary to carry out NOAA's mission, which is to understand and predict changes in the Earth's environment, and conserve and manage coastal and marine resources to meet our Nation's economic, social and environmental needs. At NOAA we work to protect the lives and livelihoods of Americans, and provide products and services that benefit the economy, environment, and public safety of the Nation. Before I discuss the details of our FY 2009 budget request, I would like to briefly highlight some of NOAA's notable successes from the past Fiscal Year (2007).

FY 2007 Accomplishments

NOAA Is Major Contributor to Nobel Prize-Winning Intergovernmental Panel on Climate Change Reports

Scientists from NOAA's Earth System Research Laboratory were among those sharing in the 2007 Nobel Peace Prize. The scientists were recognized for their contributions to the Intergovernmental Panel on Climate Change (IPCC). The IPCC was created in 1988 by the World Meteorological Organization and the United Nations Environment Program to provide regular assessments for policymakers of the scientific, technical and socioeconomic aspects of climate change. IPCC has produced its major assessments every five to 6 years since 1990.

NOAA scientists served as contributors to and government reviewers of the Fourth IPCC Assessment Report. NOAA's Geophysical Fluid Dynamics Laboratory provided model runs that enhanced the projections used in the IPCC report.

Magnuson-Stevens Act Implementation

The Magnuson-Stevens Fishery Conservation and Management Reauthorization Act of 2007 was signed into law on January 12, 2007. The reauthorized Act contains significant new provisions to end overfishing, promote market-based approaches to fisheries management, improve the science used in fisheries management, improve recreational data collection, enhance international cooperation in fisheries management, and address illegal, unreported, and unregulated fishing, as well as bycatch of protected living marine resources. Especially notable is the requirement to establish an annual catch limit for each fishery, which for the first time creates a mandate with a timetable to end overfishing.

Progress on Next Generation Geostationary Satellite Program

Geostationary satellites remain the weather sentinels for NOAA. The next-generation geostationary satellite series, GOES–R, will provide new and improved atmospheric, climatic, solar, and space data. In 2007, NOAA revised the management and acquisition strategy for the GOES–R program, partnering more closely with NASA to take advantage of each agency's technical expertise. In February 2007, the Advanced Baseline Imager, the main instrument on GOES–R, completed a key milestone, enabling the contractor to begin building the first instrument. Throughout 2007, NOAA awarded the three remaining instrument contracts for the Solar Ultraviolet Imager, Extreme Ultra Violet and X-Ray Irradiance Sensors, and Geo-

stationary Lightning Mapper. These instruments will help us to understand and forecast solar disturbances as well as track lightning strikes from space.

NOAA's National Weather Service Provides More Specific Warning Information for Severe Weather

NOAA's National Weather Service (NWS) began issuing more geographically specific warnings for tornadoes, severe thunderstorms, floods, and marine hazards on October 1, 2007. The new "storm-based warnings" allow forecasters to pinpoint the specific area where severe weather threats are highest, thereby reducing the area warned by as much as 70 percent when compared to the previously used county-by-county warning system. Storm-based warnings are displayed graphically and are extremely adaptable to cell phones, PDAs, and the Internet. The Emergency Alert System (EAS) is geared toward counties and NOAA Weather Radio (NWR) All Hazards will still sound an alarm if there is a warning anywhere in a county. However, text and audio messages will provide more specific information about the location of the storm in the county, and the direction in which it is moving. Storm-based warnings will reference landmarks such as highways, shopping centers, and parks, and will use directional delimiters to indicate county location.

Fleet Modernization Moves Ahead

In June 2007, NOAA celebrated the keel laying of NOAA ships BELL M. SHIMADA and FERDINAND R. HASSLER in Moss Point, Mississippi. This marked the first time NOAA has celebrated this important construction milestone for two ships simultaneously. HENRY B. BIGELOW, second of the four fisheries survey vessels of the same class being built by VT Halter Marine, was commissioned into the fleet in July before beginning operations in New England. In September, Phase I of conversion of NOAA Ship OKEANOS EXPLORER (formerly USNS CAPABLE) to an ocean exploration ship was completed. NOAA ship PISCES was christened in December and subsequently launched in Moss Point, Mississippi.

New State-of-the-Art Satellite Operations Facility Officially Opened

In June 2007, NOAA and the General Services Administration officially opened the new state-of-the-art NOAA Satellite Operations Facility (NSOF). NSOF is the new home for NOAA's around-the-clock environmental satellite operations, which provides data critical for weather and climate prediction. NSOF supports more than $50 million of high technology equipment, including 16 antennas monitoring the operations of 16 on-orbit satellites.

National Water Level Observation Network Upgraded to Real-time Status

The National Ocean Service (NOS) completed a three-year effort to upgrade the technology of its National Water Level Observation Network (NWLON). NWLON stations provide mariners, first responders, and the public with real-time tide and water-level information. A major benefit of the upgrade is that network stations normally equipped to transmit water-level and other environmental data at hourly increments via NOAA Geostationary Operational Environmental Satellites now transmit data every 6 minutes, thus enabling users to access data more quickly.

NOAA Aids in the Recovery of Fisheries and Fishing Communities Damaged by Hurricanes

NOAA funded and conducted a number of activities aimed at helping Gulf Coast fisheries recover from the devastating impacts of Hurricanes Katrina, Rita, and Wilma, which struck the Gulf Coast in 2005. The states are using these funds to restore and rehabilitate oyster, shrimp, and other marine fishery habitats damaged or destroyed by hurricane events, and to conduct cooperative research and monitoring and other activities designed to recover and rebuild Gulf of Mexico fisheries and fishing communities.

NOAA Weather Radio All Hazards Activities: Meeting the Expectations of the Nation for Weather and All Hazard Warning Information

NOAA's National Weather Service added 16 broadcast stations to the NOAA Weather Radio (NWR) All Hazards network in 2007. In addition to achieving 100 percent coverage of high-risk areas, NOAA refurbished 62 broadcast stations with technology upgrades that significantly improved reliability and availability, while decreasing maintenance costs. This allows the network to meet expectations of availability as the Nation's weather and all hazard warning system.

NWR is a reliable and inexpensive means of communicating weather, hazard, and emergency information directly to the public. The network infrastructure consists of 986 broadcast stations covering 98 percent of the Nation's population and has the ability to deliver messages to individuals monitoring their own receivers as well as

the ability to reach millions of listeners and viewers through the Emergency Alert System, which is monitored by television and radio license holders. The network is required to broadcast to all areas of the United States identified as being at high risk of experiencing severe weather and to sustain a high level of reliability and maintainability in those areas.

Marine Reserves Established in Channel Island National Marine Sanctuary

In 2007, NOS established the Federal portion of the marine reserves and conservation area network within the Channel Islands National Marine Sanctuary. This is the largest network of marine reserves in Federal waters in the continental United States. This action complements the State of California's established network of marine reserves and conservation areas within the state waters of the sanctuary in 2003.

Expanding U.S. Tsunami Preparedness

NOAA's National Weather Service (NWS) is responsible for the expansion of the U.S. network of tsunami detection sensors. During 2007, 14 Deep-ocean Assessment and Reporting of Tsunamis (DART™) buoys were established: four in the Western Pacific Ocean, three off the Pacific Coast of Central America, five in the northwestern Pacific Ocean, and two in the North Atlantic Ocean, bringing the total number of U.S. DART™ stations to 34. The United States, with NOAA as lead agency, is currently working with approximately 70 countries, the European Commission, and over 50 non-governmental agencies in planning and implementing the Global Earth Observation System of Systems (GEOSS), which includes a global tsunami warning system. In addition, NWS works with communities to prepare for tsunamis through the TsunamiReady™ Program. As of December 12, 2007, there are 47 TsunamiReady™ sites in 10 states, Puerto Rico, and Guam. The National Weather Service reached its goal of recognizing 10 new TsunamiReady™ communities in Fiscal Year 2007.

First Buoy to Measure Acidification Launched

The first buoy to directly monitor ocean acidification was launched in the Gulf of Alaska. Ocean acidification is a result of carbon dioxide absorbed by the ocean. The new buoy, part of a National Science Foundation project awarded to PMEL and the University of Washington in Seattle, in collaboration with Fisheries and Oceans Canada and the Institute of Ocean Sciences in British Columbia, measures the air-sea exchange of carbon dioxide, oxygen, and nitrogen gas, in addition to the pH (a measure of ocean acidity) of the surface waters. The buoy is anchored in water nearly 5,000 meters deep and transmits data via satellite. Rising acidity in the ocean could have a detrimental effect on ocean organisms, with resulting impacts on ocean life and the food chain.

NOAA Ships Arrive at New Home Port in Hawaii

NOAA ships OSCAR ELTON SETTE, HI'IALAKAI, and KA'IMIMOANA relocated to their new home port at Ford Island, Pearl Harbor, Hawaii, heralding the permanent presence of NOAA on Ford Island. This was a major milestone in the multi-year, multi-phase construction of the NOAA Pacific Regional Center, a project to consolidate NOAA programs and operations on the island of Oahu into a single facility on Ford Island.

NOAA's Open Rivers Initiative Completes First Projects

In its first year, NOAA's Open Rivers Initiative completed three projects that restored over 30 miles of spawning and rearing habitat for migratory fish. The obsolete Brownsville Dam, located on the Calapooia River in Oregon, was removed in August 2007, effectively eliminating an obstruction to migratory fish and a safety hazard to the local human community. In California, two failing and undersized culverts were removed, allowing endangered salmon to reach their historic spawning and rearing grounds. In collaboration with local communities, NOAA's Open Rivers Initiative will continue to restore free fish passage to historic habitat by removing obsolete dams and barriers that dot the rivers of coastal states.

Delivering Real-Time Data to Help Shellfish Growers

Shellfish growers in the Pacific Northwest can now get near real-time water quality data from the System-wide Monitoring Program operating at National Estuarine Research Reserves in Alaska, Washington, and Oregon. The data are available through telemetering capabilities, which measure, receive, and transmit data automatically from distant sources. Water quality data can be viewed on a website jointly sponsored by NOS and the Northwest Association of Networked Ocean Observing Systems (*http://www.nanoos-shellfish.org/*). Water quality and weather data are

transmitted every 30 minutes via satellite from monitoring stations at all 27 National Estuarine Research Reserves, providing information to the growing Integrated Ocean Observing System (IOOS).

Great Lakes Lab Recognized for 'Green' Research Vessels

NOAA's Great Lakes Environmental Research Laboratory (GLERL) converted a fleet of research vessels from petroleum-based to 100 percent bio-based fuel and lubricants, earning a White House Closing-the-Circle Award in the green purchasing category. GLERL operates research vessels throughout the Great Lakes region as scientific platforms for ecosystems research and other NOAA interests in the area. The conversion was a result of a call for "greening" of Government agencies through waste reduction, recycling, and the use of environmentally friendly and sustainable products including bio-products.

FY 2009 Budget Request Highlights

Supporting the President's Ocean Initiative

Building on last year's investment in Ocean Initiative related activities, the FY 2009 President's Request includes new increases of $49.1 million for NOAA over the FY 2008 President's Request to support the President's Ocean Initiative. This ocean initiative includes more funding to advance ocean science and research; protect and restore marine and coastal areas; and ensure sustainable use of ocean resources.

New investments in ocean science are aimed at monitoring and better understanding marine ecosystems. Increased funding of $7.0 million is included for the Integrated Ocean Observing System (IOOS) to support Data Management and Communications, Regional Observations, and the Data Assembly Center (DAC), which delivers real-time, quality controlled data from NOAA and regional observing systems. An increase of $1 million is requested to manage the escalating size and quantity of hydrographic datasets collected by NOAA and other providers. This increase in funding will help NOAA update the nautical charts provided to mariners navigating on U.S. waters in a more timely fashion. In addition, NOAA is requesting $2 million in increased funding for the PORTS® program, to improve and expand the delivery of real-time and forecasted navigation information. A recent economic benefits study of the Houston/Galveston PORTS® program, released in May 2007, showed that the program brought the Houston/Galveston area significant economic benefits and has helped to achieve a 50 percent reduction in groundings.

Projects to protect and restore valuable marine and coastal areas include funding of $4 million to implement the newly enacted Marine Debris Research, Prevention, and Reduction Act. This funding will allow NOAA to provide competitive grants and to develop the first Federal clearinghouse on marine debris. NOAA also requests increased funding of $5.4 million for the Open Rivers program to restore stream miles of fish habitat through watershed-level projects with multiple fish passage opportunities.

Finally, the budget provides support to ensure sustainable access to seafood through the development of offshore aquaculture and better management of fish harvests. In direct support of new provisions of the MSRA, and to provide better management of fish harvests, NOAA requests increased funding of $31.8 million over the FY 2008 enacted level. Of this amount, $5.1 million is requested to enhance the independent peer-review process for scientific data required to appropriately set the annual catch limits for all managed fisheries; $8.5 million will initiate and expand existing sampling programs and management procedures in order to end overfishing by 2011, as mandated by the MSRA; and $3.0 million will complete the final implementation phase of a new registry system for recreational fishermen and for-hire fishing vehicles. An additional $1.5 million increase is requested in support of deep sea coral research, allowing NOAA to begin identifying, understanding, and providing the information needed in order to protect deep coral habitats.

Sustaining Critical Operations

As always, I support NOAA's employees by requesting adequate funding for our people, infrastructure, and facilities. NOAA's core values are people, integrity, excellence, teamwork, ingenuity, science, service, and stewardship. Our ability to serve the Nation and accomplish the missions outlined below is determined by the quality of our people and the tools they employ. Our facilities, ships, aircraft, environmental satellites, data-processing systems, computing and communications systems, and our approach to management provide the foundation of support for all of our programs. Approximately $42.0 million in net increases will support our workforce inflation factors, including $37.5 million for salaries and benefits and $4.5 million for non-labor-related adjustments, such as fuel costs.

This year we have focused our increases on satellite continuity and operations and maintenance support for our aircraft and NOAA vessels. A funding increase of $242.2 million is requested to continue support of the Geostationary Operational Satellites (GOES–R) program. GOES satellites provide critical atmospheric, oceanic, climatic, and solar products supporting weather forecasting and warnings, climatologic analysis and prediction, ecosystems management, and safe and efficient public and private transportation. This increase will be used for continued systems engineering, development of satellite instruments, risk reduction activities, and transition to the systems-level acquisition and operations phase of the program.

Funding of $6.1 million is also requested in support of a Major Repair Period for the RAINIER, NOAA's most productive hydrographic vessel. At 39 years old, the RAINIER requires a major capital investment in its mechanical and electrical systems in order to maintain its current operational tempo and reduce risks to personnel, property, and mission capability.

Finally, NOAA requests an increase of $4.0 million in support of additional flight hours and operations and maintenance for our aircraft. The requested funds will provide an additional 1,295 flight hours for hurricane research, surveillance, and reconnaissance, as well as for other research and forecasting requirements. NOAA also asks this year for restoration to several of our base programs, most notably in the National Weather Service and the National Marine Fisheries Service. These requested increases in our base accounts will allow NOAA to sustain on-going programs and projects at the levels recommended in the FY 2008 President's Budget.

Improving Weather Warnings and Forecasts

Severe weather events cause $11 billion in damages and approximately 7,000 weather-related fatalities yearly in the United States. Nearly one-third of the U.S. economy is sensitive to weather and climate. Realizing this, NOAA seeks to provide decisionmakers with key observations, analyses, predictions, and warnings for a variety of weather and water conditions to help protect the health, life, and property of the U.S. and its economy. Landfalling hurricanes are one of the most physically destructive and economically disruptive extreme events that impact the United States, often causing billions of dollars of damage in their wake. In FY 2009, NOAA will continue to improve our hurricane research and modeling capabilities with a requested increase of $4.0 million for operational support and maintenance of the next-generation Hurricane Weather Research and Forecasting model and storm surge prediction system, as well as accelerated improvements to that system. Increased funding of $3.0 million will support the operations and maintenance of 15 hurricane data buoys in the Caribbean, Gulf of Mexico, and the Atlantic Ocean, enhancing our real-time hurricane storm monitoring and observations. NOAA also continues to improve and maintain our weather warning infrastructure, with requested funding of $6.6 million to upgrade the Advanced Weather Interactive Processing System, the Nation's weather and flood warning system. Increased funding of $4.8 million will be used to upgrade twelve NOAA Wind Profilers and to perform a tech-refresh on this twenty-year-old radar system. Finally, NOAA is requesting $2.9 million in increased funding for modernization of the NOAA Weather Radio network.

Climate Monitoring and Research

Society exists in a highly variable climate system, and major climatic events can impose serious consequences on society. Preliminary estimates of the impact of the severe drought which affected the Great Plains and the Eastern United States throughout 2007 are in the range of $5 billion, with major reductions in crop yields and low stream and lake levels. Continued drought and high winds in the Western United States in 2007 resulted in numerous wildfires, with 3,000 homes and over 8.9 million acres burned, and at least 12 deaths. The FY 2009 Budget Request contains investments in several programs aimed at increasing our predictive capability, enabling NOAA to provide our customers (farmers, utilities, land managers, weather risk industry, fisheries resource managers and decisionmakers) with assessments of current and future impacts of climate events such as droughts, floods, and trends in extreme climate events. NOAA continues to build a suite of information, products, and services that will enable society to respond to changing climate conditions. In FY 2009, NOAA will support the critical National Integrated Drought Information System with increases of $2 million to develop and bring into operation by FY 2010 the next-generation Climate Forecast System, leading to improved climate forecasting products. An increase of $74 million will be used to develop *Clouds and the Earth's Radiant Energy System* (CERES) and *Total Solar Irradiance Sensor* (TSIS) climate sensors to preserve decades long climate data records. The CERES sensor will measure the Earth's radiation budget, an essential measurement for determining the causes of climate variability and change. The TSIS sensor measures the

total energy of the sun falling on the Earth, a measurement used to identify and isolate natural solar variations that impact climate in contrast to other factors, such as human influences on climate.

Critical Facilities Investments

The FY 2009 President's Budget Request also includes important increases for critical facilities, necessary to provide a safe and effective working environment for NOAA's employees.

For FY 2009, NOAA will concentrate their modernization efforts on three main projects. NOAA requests an increase of $40.2 million for the continued construction of the new Pacific Region Center on Ford Island in Honolulu, Hawaii. This increase in funding will support the continued construction and renovation of two buildings, enabling NOAA to reduce expenditures for rent and relocate operations from their current location in the deteriorating Kewalo Basin and Dole Street Lab Facilities. An increase of $12.1 million will complete the design and initial preparations for a replacement facility for the Southwest Fisheries Science Center. Finally, $11.7 million is requested to support the installation of a semi-permanent replacement structure for the at-risk Operations Complex at the NESDIS Command and Data Acquisition Station in Fairbanks, Alaska. The current facility is at risk to experience a major structural failure in the next 5 years. The requested funding will ensure that NOAA maintains crucial mission operations support for the Polar-orbiting satellites, as well as backup support for others.

Conclusion

NOAA's FY 2009 Budget Request provides essential new investments in our priority areas while maintaining critical services, reflecting NOAA's vision, mission, and core values. The work NOAA accomplished in 2007 impacted every U.S. citizen. We will build on our successes from last year, and stand ready to meet the challenges that will surface in FY 2009 and beyond. NOAA is dedicated to enhancing economic security and national safety through research and accurate prediction of weather and climate-related events, and to providing environmental stewardship of our Nation's coastal and marine resources. That concludes my statement, Madam Chairwoman. Thank you for the opportunity to present NOAA's FY 2009 Budget Request. I am happy to respond to any questions the Committee may have.

Senator CANTWELL. Thank you, Admiral, very much.

And if I could start with something that's a very burning issue in our state, the salmon Biological Opinion issue. Obviously, at the direction of a very frustrated judge, the previous opinion, there was lots of concern. And since what the court has released, what we've just seen is, you know, the work of four states, four Federal agencies, seven tribes, so there is much collaboration. And so, I think that's encouraging, that there is that much collaboration. But, it's going to take a lot of hard work to continue to make this plan a success. And so, what is your plan to make sure that the collaboration and implementation phase goes well?

Admiral LAUTENBACHER. Well, first of all, we're committed to the collaboration. I'm hoping that people have reviewed the Biological Opinion that stated it incorporates much of the public commentary as—and building a general consensus as to where we ought to go.

Our program includes $12.3 million to try to ensure that the implementation is done correctly. This is at a level that allows us to follow the implementation of it and ensure that it is managed correctly. We will continue to support that commitment, and we—as we go forward, and provide the resources and the people necessary to support and monitor the Biological Opinion.

Senator CANTWELL. And how do we look at this issue? I mean, I don't understand—how do you think you're well-positioned to do that, if we see this 60 percent cut in the salmon recovery funds?

Admiral LAUTENBACHER. The Salmon Recovery Fund is—which is—it's all connected. First of all, we have a fairly robust salmon

budget, when you look at the entire picture. From the Salmon Recovery Fund, this is an area where we've invested probably a billion dollars in working in this way. We had, this year, a limited amount of resources and a number of requirements, so this is a matter of priority, it's not a matter that I don't view that that program is worthwhile or that there—or that the funding wouldn't be used—or it's not—it's not—it's not been reduced from our requirements list. But, if you go through the programs that we have to support for the Northwest and for all the fisheries, these are the decisions we made in priority. As I always do when I come here, I'm willing to work and to look for the best program that we can provide for the money that we have to offer.

Senator CANTWELL. But, wouldn't you say—wouldn't you say, on the surface of it, having this biological opinion and all the coordination that it takes, and then seeing that the funds are being cut 60 percent, it's kind of hard to imagine how that's going to support that effort?

Admiral LAUTENBACHER. Well, there is still a considerable amount of effort going on for recovery, the recovery plans. We have the money to support the monitoring and the evolution of the biological opinion, as it pertains to the recovery efforts that are going on in the Columbia River, so we'll be able to tell what's happening and what's not happening and how things are improving. If we need to provide more, those types of results will be shown from the monitoring efforts.

Senator CANTWELL. It's my understanding, though, that some of those same monitoring and mapping efforts are also being curtailed. And so, I look at it as—if someone thinks that somehow that's going to help us in saving budget costs, because now, here we are having a disaster declared, having states, you know, all along the West Coast coming and looking for Federal dollars, and perhaps some of the mapping programs and some of the planning would have detailed some of this. So, I feel like we're still spending the money that—from a disaster-recovery perspective, after-the-fact, after the disaster. So, I look forward to working with you specifically on making sure there is an appropriate amount of money there for salmon recovery and that the biological opinion is able to be carried forward. So, I'll look forward to working with you in detail on that.

Senator Klobuchar?

Senator KLOBUCHAR. Thank you very much, Senator Cantwell.

Admiral in my opening statement I talked about the President's budget, proposed cuts to the Office of Oceanic and Atmospheric Research, and specifically I'm concerned about the impact this may have on the ocean, coastal, and Great Lakes research laboratories, including the work of the Great Lakes Environmental Research Laboratory that I believe is essential to properly maintain the Great Lakes ecosystem.

What impact do you think this is going to have on the laboratory's ability to complete their assigned research projects?

Admiral LAUTENBACHER. Regarding the issue about the overall reduction, there was an overall reduction in OAR from the enacted. That's generally consistent with the pattern of adjusting, as we do year by year for one-time Congressional additions which have

been—which are made to the budget. The good news is, that reduction is less than it was last year. I know that's not much, you know, solace, but it is—we are doing better, I think, in terms of bringing Congress and the Administration together on what that level is. So——

Senator KLOBUCHAR. But, what——

Admiral LAUTENBACHER.—it's not——

Senator KLOBUCHAR.—impact do you think this budget level will have on the research projects that are going on?

Admiral LAUTENBACHER. Let me talk about the Great Lakes. Our budget for the Great Lakes is roughly equal to what it was last year. Some of the money is in a few different places, but we believe that the Great Lakes Environmental Research Laboratory is funded at roughly the same levels as it was last year, so we were able—we will be able to continue with our projects on zebra mussels, our projects on building the Great Lakes Observing System, our work with USGS and EPA on the Great Lakes Task Force to ensure some progress is made in these areas.

Senator KLOBUCHAR. Could I just mention—thank you—and could I just mention a few things, important things——

Admiral LAUTENBACHER. Yes.

Senator KLOBUCHAR.—that—some of the initiatives underway. I just want to make sure you don't foresee cuts to them. The efforts to explain and to predict changes in water resources, lake water levels, and ice cover, do you think there'll be changes to that because of the budget?

Admiral LAUTENBACHER. No.

Senator KLOBUCHAR. OK. The measures to prevent the introduction of aquatic invasive species, that I talked about earlier?

Admiral LAUTENBACHER. With the exception of any changes that were made—last-minute changes made—and I don't have that in front of me—first of all, there is a very small amount of money we devote to that.

Senator KLOBUCHAR. Yes.

Admiral LAUTENBACHER. You know, I think we can probably all agree on that. It's roughly about the same as it was last year. I don't expect that there'll be much of a change——

Senator KLOBUCHAR. But, could we just——

Admiral LAUTENBACHER.—in our level of support for——

Senator KLOBUCHAR.—focus on that a little bit? Is that——

Admiral LAUTENBACHER. Yes.

Senator KLOBUCHAR.—you know, that these species oftentimes enter the lakes through the ballast water. Could you talk a little bit about what you see that—the effect—the impact these species have, or may have, in terms of plagues or what other things they could spread? And, obviously, we're trying to take some action, here in Congress, with ballast water. But, just you—what you see as the threat from the invasive species.

Admiral LAUTENBACHER. The invasive species are an enormous threat to all of our coasts and the Great Lakes, as has been documented. In many places, once invasive species gain a hold, they're very difficult or impossible to remove. They require a great deal of effort and a lot of resources to contain them and to mitigate some

of the effects. So, they're—it is something that we need to work on and to prevent.

The best way is to prevent them from coming in, which is education and barriers and ways to deal with it preemptively, because once they get a foothold, then it's very difficult, as you know from the zebra mussel issue that we have——

So, we support—we've worked on education programs, we've worked on research projects, we have supported the ballast water bill to improve the "no ballast on board"—the "BOB ships" that come in—to improve our ability to reduce the levels of risk involved with having any kinds of invasive species in the Great Lakes and to strengthen the requirements for that—for the water coming into the Great Lakes—ballast water coming into the Great Lakes.

Senator KLOBUCHAR. And one last thing, I mentioned, in my opening, about how you converted the fleet of research vessels from petroleum-based to 100 percent bio-based fuel. Do you see this as a future model for NOAA, for other vessels, and for the government as a whole? And are there other similar green programs that NOAA is conducting elsewhere?

Admiral LAUTENBACHER. I do. We have a staff that's very interested in green projects. The facilities that we've worked on are all green facilities, and we've won prizes for the buildings that we've put up. They're very energy efficient and in line with the latest technology. We are looking at the experimental or research conversions of the ships on the Great Lakes as a model for the rest of NOAA boats that will be, you know, compatible will that kind of conversion. It is—it's an important example, and we're very proud of the work we've done there, and we're going to advertise and try to expand it.

Senator KLOBUCHAR. Well, thank you very much. And if I have some follow up questions on the budget, we'll put them in writing. Appreciate it.

Admiral LAUTENBACHER. I'd be happy to respond. Thank you.

Senator KLOBUCHAR. Thank you.

Senator CANTWELL. Senator Stevens?

Senator STEVENS. Thank you very much.

Admiral I note that there is $1 million that's earmarked for fisheries enforcement, and I question whether this is enough to deal with the law enforcement in the fisheries area, particularly in view of this expanding threat from the IUU fisheries. Where are you going to get the money for law enforcement?

Admiral LAUTENBACHER. We—the law enforcement's a—an issue that's handled both by our fisheries marshals, the Coast Guard, and the local port authorities for entry into the United States. Our increases for IUU—we've basically doubled the amount of money against it. Now, it's not a lot of money, I agree, but it—but it's put in very—some very critical areas.

We have two major thrusts that we're trying to work on. First of all is to, as you've said, find out what's going on, on the high seas. We're working, you know, intently through the regional fisheries management organizations, the international organizations. In fact, there is even a new one in the Pacific that we're now supporting. So, those are organizations that have regulations and have visibility into what's going on in the various parts of our oceans.

So, we are putting more effort into trying to ensure we understand what's coming out of those organizations and so that we can have the enforcement so that the products that are illegally taken are not—do not enter this country, and that we can stand up and make a case in the world court of opinion to ensure that they are not being marketed in other places, as well. So, the other half of the increase is designed to improve our ability to be able enforce those regulations at our ports of entry, that we will not tolerate that, and we will then, through the—as I said, through the international organizations, push them to accept the same kinds of limitations on buying illegally caught fish.

Senator STEVENS. Well, I've been in hopes that NOAA, working with the Coast Guard, would be able to give the State Department the information it needs to go to the U.N. to try and start an initiative to bring about U.N. recognition of the problem and action to deal with the IUU fisheries. It doesn't seem to me that this million dollars is going to go that far. I would hope, at the very least, that you would agree that you could start a task force with the Coast Guard, working with the State Department, to find money within the three agencies to deal with this.

Now, in my opinion, the IUU fisheries are growing so large that they're going to monopolize the high seas, they're going to attack the species that go beyond the 200 mile limits, and they're going to destroy the reproductive capability, particularly of the North Pacific, if we don't get on them. Now, I don't see that, sense of emergency in this budget, and I certainly don't see it as far as the cooperation between your agency, the State Department, and the Coast Guard.

Now, the Coast Guard, is more aware of the presence of the emergency. But if I'm informed correctly, this IUU fleet is expanding exponentially, it's almost doubling every 2 years. Now, we've just got to get a handle on that or there are not going to be fisheries of the world left. There is no regulation, no science, and no reporting at all.

And, Admiral, with your background, I'm sure you could get the cooperation of the Coast Guard, but I would hope you'd commit yourself to really getting this initiated. There's going to be a change of Administration. God knows who's going to be in charge of the next Administration in your area. But, in any event, we've got to have something that's nonpartisan, that is directed toward ending IUU fisheries. And if we don't, the fish that we get and we harvest for our Nation off Alaska are going to be gone.

Already, we're seeing runs completely disappear, as you know. We've had areas that have produced salmon for years and years and years, all of a sudden, bam, they're closed, there are no fish there at all. That's only coming about because of these IUU fisheries.

Now, I don't see a sense of urgency coming out of this plan, and I would hope that you'd take that on. I really do. You've got the capability to do it, and I really think that somehow or other we have to find a way to take this to the U.N. before the meeting next year. And I've been talking to some people about that. They all say you have to have some facts and figures to deal with the U.N. We

don't have them. But, it's your responsibility, Admiral, to get them for us. I hope you'll find some way to do that.

And I'd like to have a meeting, a bipartisan meeting with members of this committee and with representatives of your agency, the Coast Guard, and the State Department to see what we're going to do about this. Because unless we wake up, there is not going to be a fishery in the North Pacific of any anadromous fish. It's very, very serious, in my opinion.

And look what's happened to California. A lot of people have blamed the California orca. In Washington, the salmon have disappeared. They didn't disappear because of overfishing from the American side. There has been very little salmon fishing from vessels that are associated with the harbors along the West Coast. That is the result of IUU fisheries, in my opinion. And it's got to stop. Because if it hits our fish, the last remaining sound salmon fishing in the world, because it's scientifically managed and it's really increasing, still increasing every year, the returns in our state are, as you know. I hope, I just pray that you'll find some way to put this task force together and get active on it, because I don't see a sense of urgency in this budget.

You have, in this budget, reduced the funds for fishery surveys to $15 million from $25 million. That's cancellation of many of the surveys, in my state, of the populations. How are we going to know when they hit—this reduction hits our state, unless you have those surveys?

Admiral LAUTENBACHER. Yes, sir. There are two issues here. There's the 2008 budget, which Congress gave us with a reduction, and we are working through that. There will be impact, as you've suggested, to some surveys all around, including ones in Alaska.

In 2009, we're asking for that money back. So, this—the new budget that we're asking for, if we can get those funds, we'll be able to do all the surveys that we have projected as being needed for Alaska and for the other regions.

Senator STEVENS. Well, that was going to be——

Admiral LAUTENBACHER. So, I ask for your support——

Senator STEVENS.—my next question——

Admiral LAUTENBACHER.—on that.

Senator STEVENS.—is whether or not the 2009 budget really restores that.

Admiral LAUTENBACHER. Yes, sir.

Senator STEVENS. You're saying the cut that took place, of $10 million, is replaced in 2009?

Admiral LAUTENBACHER. Yes, sir.

Senator STEVENS. When will you start those surveys, then?

Admiral LAUTENBACHER. If we have approval from Congress for the money, we will begin them right away. And obviously we have a problem with the CR. If we end up with a CR that locks in some of last year's limits without some help, then we won't be able to do that.

Senator STEVENS. Well, have you had any meetings yet with the State Department and others on the IUU problem?

Admiral LAUTENBACHER. I have talked to the Commandant of the Coast Guard. I've not talked to the State Department. I will get with the Commandant of the Coast Guard again. And remember

that part of what we're using this money for is to try to get the facts and figures you're talking about. They're—that's not an easy project, as you've suggested, but I will—I take this just as seriously as you do, Senator, and I will work with the State Department and the Coast Guard to see what more we can do, sir.

Senator STEVENS. Well, thank you. I'd like to visit with you later this year about that.

Admiral LAUTENBACHER. Yes, sir.

Senator STEVENS. I am disturbed about the COBB. Now, this looks like provincial concepts, but I understand that you're going to retire the COBB, which has been the vessel that has been doing the surveys in southeastern Alaska, which is the most threatened area of our state. And it is not going to be replaced at all. How are you going to do the surveys if the COBB just disappears from our waters?

Admiral LAUTENBACHER. We have a plan—or, we're working on a comprehensive plan, but we have—you know, we have an outline of how we would do this. Part of it would be done by the DYSON, and the other part will be done by shallow-draft vessels that we're going to charter.

Senator STEVENS. DYSON works north of Juneau, doesn't it? It's out of Kodiak. I'm talking about southeastern Alaska now.

Admiral LAUTENBACHER. Yes, sir. We have a plan to fill in all—all of the surveys that the COBB does will be taken care of, either——

Senator STEVENS. By whom?

Admiral LAUTENBACHER.—as I said, some of them can be handled—a few of them can be handled by the DYSON, and the rest will be handled by shallow-draft charter vessels or, potentially, other NOAA vessels. We're working on a full-course program. But, you remember, the COBB is 59 years old. It is—it's a museum piece, at this point.

Senator STEVENS. Well, I'm almost 85, and I'm still going. That boat can keep up.

[Laughter.]

Admiral LAUTENBACHER. Yes, sir. You've been much better taken care of, though.

Senator CANTWELL. I might add, you're going very well this morning, as well.

[Laughter.]

Senator STEVENS. Well, I've got to tell you that I understand what you're saying, but it does look to me like you're robbing Peter to pay Paul; you're taking it out of the largest area that we have to cover, which is the Kodiak area, that's an enormous area; the southeastern is the smallest area, but, I agree, it's most pressured. But, to have the DYSON come down from Kodiak to operate out of Juneau is wrong. You need more help up there, too. The species that are up north are even more threatened than those down south.

I really think the threat is there now, and it's not from pollution, it's not from changes in any circumstances on land, it's at sea. And unless people get that message, I think we're going to be in real trouble. The chairperson right now, with the Seattle interests, has as much or greater interests in what goes on in southeastern Alas-

ka than we do. That's most fished by boats from the Seattle region. But, the impact of these IUU fisheries are greater there, as they come out of the Gulf of Alaska, more than anywhere in our state. I'm worried about them getting into the area—but, they don't really get too far up there, where we have the closure and there is no open ocean between the Russian zone and ours. I'm not as worried about that as I am down south, where there is no active border patrol, "maritime boundary patrol," I should say, rather than "border."

But, I hope we can find some replacement for COBB. And I am disturbed; before 9/11, we had double the amount of boats we've got there now in the Coast Guard and national marine fisheries. They've been cut in half. And that's what's happening to the protection of the fisheries. And the United States is going to wake up some day, half of the fish consumed by the United States comes from the waters I'm talking about. Half of it. And we're increasingly relying on fish products in our market, daily purchasing from markets. It's not going to be there, because the IUU fisheries are not dumping their stuff in the United States, we know that. I think we've really got to wake up.

Last, we have some necessity to look at the concept of expanding some sanctuaries for fisheries off our shores. Are you looking at that?

Admiral LAUTENBACHER. Yes, sir. I was asked to comment in my testimony, which I did earlier, to talk about boundary expansions for the Thunder Bay and the Gulf of Farallones and one other California——

Senator STEVENS. I didn't read that in connection with my state. Where are you talking about?

Admiral LAUTENBACHER.—we were talking about one that's in the Great Lakes, and we're talking about two that are basically in the San Francisco area, off——

Senator STEVENS. You're not talking about looking at protecting the area of the Aleutian chain that goes out there 2,000 miles.

Admiral LAUTENBACHER.—no, sir, we're not talking—I'm not talking about any of that. This—the comments on this hearing have been directed toward expansion of the National Marine Sanctuaries, two of them off the coast of California, and one of them—I think it's in——

Senator STEVENS. Well, most people don't realize that it's 2,000 miles. You go out that chain, all the way out, and south of that we have 200 miles, but that abuts the great Gulf of Alaska. And that's where they are now, that's where those vessels are coming now. I don't think we've apprehended but one in this whole period. Now, I do think that we have to find some way to form an alliance. I'm getting redundant. But IUU fisheries are the greatest threat to our fisheries in the North Pacific today.

Admiral LAUTENBACHER.—yes, sir.

Senator STEVENS. And we can't manage them through our regional council. We can't even affect what they do outside that line. So, I hope you'll help us.

Thank you very much.

Senator CANTWELL. Thank you, Senator Stevens. And thank you for your comments, both from the perspective of Alaska and cer-

tainly the Northwest overall. And we certainly agree that a lot more attention needs to be paid both on the analysis and on the planning side.

And I don't know, Admiral Lautenbacher, if you wanted to comment right now on what you think NOAA science is telling us about this drastic situation in the West Coast.

Admiral LAUTENBACHER. Well, there are a number of issues that go with this. First of all, we've talked about the water conditions, so the general—generally, anadromous fish depend on water conditions and upwelling of nutrients and, basically, the food chain that's out there. They also depend upon the Pacific Decadal Oscillation and the general—what I would call climate change variables that you look at. So, there are a lot of factors at play.

But, from an international perspective, the best—we don't have enough—when I talk to the Coast Guard—we don't have enough resources to go out and surveil the whole ocean to find everyone that's doing something wrong. The best chance that we have is to ensure that there is no market for those products. So, if there is no market for them, we're—we shut them down, basically. We're trying to work on ways to get inventories of what's coming into the various ports around the Pacific—and the Atlantic, for that matter—with—through these regional fisheries management organizations that are multinational agreements under the FAO and part of international agreements to stop IUU. I mean, it's a—that's the principle of the organizations that work in these areas. So, if we can—we can get more information on what ships are doing this, where they're making the transfers, and what ports they're coming into, we can, you know, gradually, hopefully—more than gradually—eventually shut them down. But, that's the task that we're on now.

But, as I said, I will talk to the Commandant of the Coast Guard and get his current wisdom on it at this point.

Senator CANTWELL. Well, I join Senator Stevens in saying that we have to be aggressive about the programs that you run, and have the resources to do so. So, we certainly will be looking at this budget perspective and making sure that we actually have the planning and dollars. No one expects you to map the entire ocean, but we do expect to have a rigorous program on this issue, and we certainly think that coming behind the problem after a disaster is declared, and having the Federal Government pay out resources, rightly so, is coming behind the problem, and so, we certainly will want to see that this budget reflects what we expect it will take to protect salmon on the West Coast.

I'd like to turn to a couple of other issues, if I could, Admiral, particularly the NOAA satellite system. And obviously we have a lot of concern about schedule delays in that program. I think, last time the Commerce Committee had a hearing on this, in 2007, we were talking about various documents and reports that were part of where we were—the Acquisition Program Baseline, the Acquisition Strategy Report, the Award Fee Plan, all of this, because it obviously is a very complicated acquisition program, with problems in it, Tri-Agency Memorandum of Agreement, Test Evaluation and Master Plan, all those were reports that were part of this process. And we asked then when we could see those documents and when

they would be completed. And at the time, they weren't completed, and I don't know if they're completed yet. Can you give us an update on that?

Admiral LAUTENBACHER. We have made great progress in completing the documents. I think we're down to five, at this point, which I expect to be done with in the next month. And I have brought it up——

Senator CANTWELL. Those five that I just mentioned?

Admiral LAUTENBACHER.—they include the Acquisition Program Baseline, the Tri-Agency MOA, the Strategy Report, and the TEMP, which I think is signed, or close to it.

But, there are more programs than the ones you mentioned that had not been signed, so they are—there progress has been made.

First of all, those documents are all at a place where they're not interfering, or not detracting from our ability to manage the program, because they are completed to the point—with the exception of final review by principals in the Department of Defense. And I'm optimistic that they'll all be signed within 4 or 5 weeks. But, they're not hindering progress on our ability to manage the program. They are essentially done, with the exception of——

Senator CANTWELL. Well, we've had—but, we have had cost overruns, we've had concerns—obviously, our—this is a multi-agency—we've had a whole committee hearing on this, and obviously many of my colleagues showed up to express their concern and frustration about the multi-agency approach and the cost overruns and——

Admiral LAUTENBACHER.—we have put in a completely different management system. This program is still a tri-agency program, because there is no real option to changing that at this point. We have put in the management—a new set of management controls. We have new people in this process. We are—we can measure every time a pin drops in this. We have provided briefings to the staff and any members who wish to have them. The government oversight of this program, starting 2 years ago—two and a half years ago—has been improved well beyond what anybody ever expected when they created the program. It is on cost. It is on cost, and the schedule was created after that review, which showed that the initial estimates were well below anybody's likely—likely costs. The current schedule is being maintained, and the current costs are being maintained.

Senator CANTWELL.—we've seen the NPOESS satellites fire out of control, though, from $6.5 billion to $12.5 billion.

Admiral LAUTENBACHER. Six point five billion dollars, that was a number that was created from a baseline in the late 1990s. This is 10 years later. It was created before anybody had any experience in building the instruments or in the acquisition system that was installed at that point to manage it. It proved that that estimate was not correct, because they could not—the contractors could not build the instrument in accordance with the schedule and the contract that they signed. You go back to the contractor's making money. We have reduced the contractor's fees, and we have put the contractor under a much stronger leash than was in place at the time this program was started, in the middle nineties, basically. There's been significant change in the way it's being managed, and

the price, we believe—this independent cost-reviewed, based on experience, is the right cost. We are maintaining that schedule and that cost at this point.

Senator CANTWELL. Am I not correct, Admiral, that, even with those problems, that the contractor, Northrop Grumman, received $123 million in award fees, even though they had cost overruns?

Admiral LAUTENBACHER. The process that was built into the original contract was a process that allowed them to get profit. And it was—I can't verify that number, but they did receive profit. We have changed their structure——

Senator CANTWELL. We're not talking about profit, we're talking about award fees, which are usually associated with good performance.

Admiral LAUTENBACHER.—the way that program was set up was, there was a series of milestones and achievements that they had to reach, which they did. So, those awards were legitimate under the contract. And remember, these—there is only, really, one thing wrong with this program; it's the VIIRS instruments. Everything else is working fine. So, it's one instrument that is the problem. But, other parts of that contract were being met on time and on schedule. The contract said they get an award for doing—for meeting those milestones on time. We have since changed that so it's a much stricter system and pays more attention to the areas where they're behind, which obviously are the ones that we should be more concerned about than where they're on schedule.

Senator CANTWELL. So, are you saying, Admiral, that there will be no cost overruns in the future?

Admiral LAUTENBACHER. I wish I could sit here and guarantee there wouldn't be any cost overruns in the future. I believe we're as protected as we possibly can be. We have applied every convention that I know of in my 40 years, or that—the independent cost reviews and management experts that we've had look at the program; and, as of right now, we are within what—the government estimates; we are still maintaining course and speed on this program.

Senator CANTWELL. So, you think the NPOESS number, that has moved from $6.5 to $12.5 billion—you think $12.5 billion is the right number.

Admiral LAUTENBACHER. I think $12.5 billion is the right number.

Senator CANTWELL. And what happens if we're back here in another year and we find out that it's much greater than that? What will you say now—then about the process?

Admiral LAUTENBACHER. Well, I will have to know what—I can't think of anything now that would change this. I mean, I—there is—you know, there would have to be some kind of a catastrophe or something that was not—I don't know. I was going to say, I can't guarantee the future. I can tell you what happened in the past, and I can tell you what we've done to improve it. And I've watched these acquisition programs for years and years, I've been an independent cost analyst in the Department of Defense, I've managed programs, I've been a budget analyst—I'm not going to sit here and tell you that this is the end of the cost.

Generally speaking, our satellite programs have cost at least twice as much as the original estimate. That's been the track record since the beginning of the satellite programs in 1970. So, the initial estimates are always optimistic, if you want to put it that way. We were always betting that we can deliver something with a minimum amount of fuss in the shortest period of time, we're going to have technology that shows up at the right point. And they are so complicated that that has rarely proven to be the case. And I don't see any—I see that we're in the same situation right now.

What I'm trying to do is make sure we have the right costs in place. I believe, based on everything we know today, that that's the right number and we can deliver it for that cost. And I also am trying to do that on the GOES–R program, so there is a cost in the GOES–R program which I believe we're ahead of the problem, we're putting the right cost in, at this point, so there won't be this tendency for year-by-year cost overruns to occur in the GOES–R program. And we've taken every possible lesson learned from GOES–R—or from NPOESS, and put it into GOES–R in the way the management structure is set up. And, again, it's transparent—we're making it transparent to the oversight committees, to ensure that everyone has the information they need as we move along.

Senator CANTWELL. Well, I would certainly say that having a track record of having an original estimate, and then having the cost to the taxpayer be twice that amount, is not a good example to continue to follow. I think it points to problems with the acquisition process for these resources, and I certainly plan to look into making changes in that process.

But, since you mentioned the geostationary satellites, what's going to happen if Congress pursues a continuing resolution and we don't carve out something? What's—what could be the delay in the program? What actually would be the impact?

Admiral LAUTENBACHER. We believe that, at this point, it would be at least a year delay, because this is the time when we need to sign the contracts and start work on the—from the prime contractor for both the space segment and the ground segment. The contracts have already been let for the instruments. This is a lesson we learned from NPOESS. So, the contract for the instruments have been working—been working on them to make sure that they're ready for the satellite. So, if we—if we have to stay at the same levels, we will have to slow down, substantially, either the instruments or the space segment. And we believe that would delay, probably, a year—more than a year in the—being able to launch the satellite. And then, that would be a risk that we'd go below—we like to have a risk of no greater than—or, no less than 80 percent, that we're—we'll—that we'll have our two satellites in orbit to—as warning sentinels against severe weather and other disasters. We do not like to drop below 80 percent. If we have this delay, caused by not being able to increase the funding, as we've proposed, that is a strong possibility.

Senator CANTWELL. Well, I'm sure my colleagues, from other parts of the country who have that kind of weather conditions much more frequently than we do in the Northwest, would be very concerned about that. So, we certainly want to make sure that

we're doing all that we can to improve the delivery on this program.

Let me turn to another technology question, as it relates to a specific issue that you and I have discussed as—it's particular to Washington State—I brought it up in my opening statement—about the extreme damage done to the State of Washington from hurricane-force winds that we definitely weren't anticipating or expected. We certainly get 100-mile-and-hour winds from time to time—or quite frequently, in the fall and winter of the year, 70- to 80-mile-an-hour winds, but this was something even above what has been our historical trends. And we have discussed the fact that the West Coast, in this particular area of Washington State, probably has some of the worst radar coverage in the U.S. Would you agree with that, Admiral, that we are less resourced there than probably anybody else?

Admiral LAUTENBACHER. I would agree that the radar coverage is blocked in certain areas. We put resources into Northwest Washington as well as we do around the country. We try to spread our resources where it makes sense and to provide uniform kinds of coverage. So, I don't—I—we are not shorting, basically, resources for the Northwest. I want to make that clear.

Now, I agree that we have some issues there. We've worked on it. We appreciate your help in supporting the meeting that we had, on March 6th, where we got together with all of the constituents, emergency managers, everyone who was involved in, basically, dealing with this very severe winter storm, and I think we have a much better understanding of what the constituents need and what we need. So, we're working on improving the observations. We're improving forecasts. And better communication and dissemination came out as an issue. So, we're working across the entire Weather Service to deal with that. The warning—our forecast office out there is working to make sure that they have the right kinds of connections with the emergency managers, radio stations, people who can effect an understanding for the public as to what's happening, and provide direct support.

We are doing a full assessment of all of the services out there, from the headquarters perspective, as to what we delivered and can we improve on it. We expect that to be done by end of the month.

We are working with the FAA to incorporate the—as I mentioned to you earlier—the data from its air route surveillance radar at McChord Field, Washington, because that's a place where you can see down the coast with some information. So, we believe that can be finished—we can do that by the end of 2008, and have that in place, have that connection made and have that data input into the weather systems. So, that will make a—that will make a significant difference in radar coverage.

Senator CANTWELL. But, Admiral, could you—beyond that, do you support improved technology solutions for that area?

Admiral LAUTENBACHER. Oh, yes. Yes. And we are working with the University of Massachusetts and the Collaborative Adaptive Sensing—CASA program—to determine the feasibility of the smaller radars to see what makes sense. And, in the end, we are looking at a—I would say, a full-court press, as I mentioned, a mixed—I've

asked—directed the head of the Weather Service to look at the full array of sensors so we can provide the right information—buoys that are far enough off the coast, increasing radar coverage, that we've talked about, other types of ground sensors.

And another issue that doesn't come up real often in most other parts of the country is the need for localized models. That's a very specialized terrain area. And so, when you look at the large-scale generalized models, where you have a grid size that's 10 kilometers, that doesn't detail what happens in that specialized area, with this rugged geometric. So, those are—those are—we are looking at a full-court press on trying to deal with the issues that resulted from that storm.

Senator CANTWELL. Well, certainly this storm hit in a most vulnerable spot, from a technology perspective. I mean, the least amount of information ended up being the eye of the storm. What funds are included in the FY09 budget to address this gap?

Admiral LAUTENBACHER. We have the money in there for the studies, for the radars, and we will have to use Fiscal Year 2009 funds to look at modernizing if we have the results from the studies that tell us what to do. We could provide buoys, and we can provide modeling, and we'll have to look at the cost of the small radars, which—we haven't completed the study yet, so I can't tell you what that is.

Senator CANTWELL. And you think that can be done within the FY09 budget, those kinds of——

Admiral LAUTENBACHER. I think that some of it can be done. I don't think that all of it can be done. I think that this will take time. This is not—this is not an instantaneous fix. There's—it's not—there is nothing on the shelf, other than the things I've mentioned. We have a National Data Buoy Center, and we can—and we can schedule installations of buoys and hook them up to the Net. We can schedule some sensors. We can look at changes to models. In terms of building radars and putting in modernized radars, that takes, normally, several years to do that and complete it. It's not something that can be done very quickly. But, we will start on it. We are committed to start on it and provide the funding when it's—when we have a program that meets a sensible cost-benefit analysis that you would agree to.

Senator CANTWELL.—well, we appreciate you continuing to work on this very important issue. And I can't explain to those who are in attendance today how devastating that was to a particular area of our state, the flooding. The Coast Guard rescued hundreds of people off of rooftops and everything else. But, no one expected 150-mile-an-hour winds. And with the shadow of the Olympic Mountain Range, it does cause quite a bit of problem in getting good weather and forecast data into that region.

A related issue—I'm sticking on a technology trend here for a second—on the Unmanned Aerial Vehicles, I know that your 2009 request includes $6.3 million to conduct UAV tests in four different regions: the Pacific, the Arctic, West Coast, East Coast. So, what type of—will those be ready for the 2008 hurricane season? What is your anticipation?

Admiral LAUTENBACHER. We plan to—if the tracks are such that are amenable to where we have asset stationed, we plan to test it

again in the 2008 hurricane season, yes. So, one of the tests will be for hurricanes and the others we plan for the Pacific and for the Arctic area, both West Coast and Hawaii or the Central Pacific. Those tests are more amenable to scheduling. And that's part of the budget, and we will—you know, we will conduct them for 2009, and we have some money in 2008 that we'll continue to expand on our ability to use unmanned aerial systems.

I think they're essential for the future. They allow us to see in places that are remote. Satellites can't see the detail; they're not low enough or have enough fidelity. Manned aircraft are dangerous; you can't maintain the mission profiles for very long without incurring a huge expense because of the cost of manned aircraft. And particularly for looking at weather systems that come into the western part of the United States, I think that UAVs offer a great benefit, and, potentially, leap forward for us to be able to provide better weather forecasting along the West Coast. So, we are very interested in making these tests.

Senator CANTWELL. Has the FAA given you approval to do so, particularly as it relates to, you know, mainland or adjacency to international waters?

Admiral LAUTENBACHER. This is—if—the technology is fairly proven, it's—it really is the operational issues that we have with using manned airspace and unmanned air vehicles in that airspace. We are working with the FAA. We've been able to get approval to do the tests, so far. We would like to be able to get more—I don't want to say "blanket authority," but more rapid response for areas that are not conflicting with manned aircraft. We think that's possible off the coasts, in areas away from, obviously, airports and——

Senator CANTWELL. So, you have got—you have gotten authority for——

Admiral LAUTENBACHER.—I don't have "blanket authority," but we have——

Senator CANTWELL.—no, but——

Admiral LAUTENBACHER.—been able to do it for tests, yes. We have been able—but, it requires you to work closely with—well, NASA helps us with the FAA, to get permission to fly these routes.

Senator CANTWELL.—and so, have they given you specific restrictions? Is that what happens——

Admiral LAUTENBACHER. They give you restrictions, and it has to fit in with the—with their operations. So, there are restrictions. There are time and airspace restrictions that are placed on us.

Senator CANTWELL.—well, this is an issue for the larger committee as a whole, but we certainly—we'd like to see those restrictions, and we'd like to see NOAA continue to push forward on getting a broader authority. We think it is critical, both for weather and information, that the unmanned vehicle technology be used in helping gather and getting us more consistent and timely information.

Admiral LAUTENBACHER. I agree, and I will keep pressing on it.

Senator CANTWELL. I'd like to turn to a couple of other issues, if I could. I want to make sure this—in your proposed budget, the educational—NOAA education has been cut $34 million, and many of the programs are directed at scholarships and education and—how does cutting that budget sync up with Congress's focus on

science and education and the COMPETES Act and everything that we're trying to do, and yet we're cutting this vital element? And, as you were saying in answer to Senator Stevens' question, getting to the bottom of mapping and science and—we need these individuals, as it relates to better science, to guide our decisions in management of fisheries. So, how is—cutting that program help us attain those goals?

Admiral LAUTENBACHER. Obviously it doesn't. I'm a big supporter of education programs, and I have spent a lot of time trying to reinstall them in the NOAA budget and in our planning.

What happens if the education budget—first of all, it has grown over the years, both in terms of what NOAA has been able to provide in its initial submission to Congress and in what Congress has eventually appropriated for us and that the President has agreed. What we have each year is a series of educational programs which are, from the viewpoint of our leadership, one-time programs that are directed toward very specific items. The general intent—directions that I'm given when—to build a budget, is to ensure that we have competitive processes and that we have national programs, and so that there is a broader coverage applied to it.

To the extent that I've been able to get those programs through, that's where we are today. And those include the scholarship programs that we have, which I think are very, very vital, and several other open grant programs that are there. I'm looking for a way to try to convert most of what happens into those kinds of systems.

Now, to help support building better agreement on it, I would say, between the Administration and Congress, we have asked the National Academies to help us with a plan, and give us priority, so that we can have some—what I would say, outside legitimate assurance that what we're doing makes sense, and that it's cost-effective, and that this is a—the right place to spend resources for education. When that—hopefully, that'll be done this year—we'll be able to have—I would like to have a better agreement on the amount of resources that we provide for education, between Congress and the Administration. I believe this foundation will help us with that discussion.

Senator CANTWELL. Could you talk a little bit about the Office of Response and Restoration, as it relates to oil spill capacities and the budget?

Admiral LAUTENBACHER. Yes. OR&R, as we call it, is an important responsibility of NOAA. We are the trustee for Federal resources in the marine environment. This is a group of experts that helps with major disasters, such as oil spills, chemical spills, and other types of environmental issues that come up. They have experts that help determine the spread of oil or the currents, the waves; they work hand-in-hand with the Coast Guard and the State cleanup responding parties to ensure that it's done correctly, that it's done efficiently, and it's an important service that's been termed very valuable by everyone who uses it.

We had, last year, a reduction in the—what we call the base funding for that program, and so, we have asked to restore that that this year in our program. We're—we had about $11 million last year, and we're asking for $17 million this year. This will allow us to be responsive to more than one event at a time, basically. Ob-

viously, the oil spill in the San Francisco Bay that happened this year is an example of why we need this kind of capability, and I think it's very important for the country. And I ask for support for the full amount for OR&R.

Senator CANTWELL. Thank you. Thank you. And one last question. Believe it or not, I have several others, but I want to get on to our second panel, and I'll submit those——

Admiral LAUTENBACHER. Yes, ma'am.

Senator CANTWELL.—in writing. And if you could be as—help from your staff to answer those and get back to the Committee, that would be very helpful to members.

But, the orca recovery funding is of—something that—unique concern to us. The recovery plan released by NOAA this year says that the cost to actually delist them from a recovery plan would be somewhere in the $50 million range over 28 years. And so, right now the budget includes, I think, a million dollars for these—so, if you're talking that size and scale, you know, over a 20-plus-year period of time, how are we going to—how are we going to make progress?

Admiral LAUTENBACHER. Well, this is a—an initial downpayment, obviously. When you look at those plans, they are—we generally work with partnerships. So, in the areas where we need to look at recovering habitat and that sort of things, it becomes State, local, NGO. There are other ways and other parts of our general system to help support that. Obviously, we don't have in our budget anywhere near the number that's talked about there, but we do have enough to get started. I believe, with the million dollars that we have in here, as we move ahead we'll be able to have a better handle on this rough estimate of $50 million and what it would take to do it. And our plan is to continue to work on this program and ensure that we put absolutely as much as we can against the recovery plan.

Senator CANTWELL. And so, you would think—I mean, certainly—I don't think the orca population can tolerate a 50-year recovery plan. I'm not even sure it can sustain the 28 years that we're looking at. So, you're saying that this initial $1 million is more a reflection of the need to get your arms around the various aspects of the program, and that next year we might see a more robust number.

Admiral LAUTENBACHER. I'm—that is our plan. Our plan is to try to learn more about what we can do with a million, what it takes, and see if there are other options, other ways to get the resources, and more definitive—more definition of what those resources are and who might provide them, or when they need to be, you know, enacted or in——

Senator CANTWELL. But, given——

Admiral LAUTENBACHER.—in play.

Senator CANTWELL.—I don't know who came up with the initial $50 million in costs, but you would agree that having $50 million over 28 years, and starting with $1 million this year, might not get us to——

Admiral LAUTENBACHER. It—you have to have a pretty steep profile to take care of that; I do agree with that.

Senator CANTWELL. Thank you.

Thank you, Admiral Lautenbacher, for being here this morning and for answering all of these questions. We appreciate you answering additional ones that might be submitted, not only by the Chair, but by other members of the Committee.

But, we, as you can see from my colleagues who did attend, have great concern about the budget impacts, from a fisheries management perspective, as well as some of the other resources that we count on from NOAA to maintain a pristine maritime environment in the various regions of our country, and to continue to manage the resources of the habitats that are there. So, we'll look forward to continuing to work with you on those particular problems, and to try to drive these numbers to actually meet the goals that NOAA has set.

So, we thank you, again, for being here today.

Admiral LAUTENBACHER. And thank you, Madam Chair. I appreciate your support. Thank you.

Senator CANTWELL. So, we'll turn now to the second panel that we have this morning, which is—if they could make their way to the front table—we have with us Mr. Jefferson Gray, who is the Superintendent of the Thunder Bay National Marine Sanctuary; Dr. Susan Williams, who is the Director of the Bodega Bay Marine Laboratory, University of California; and Ms. Kathy Fosmark, who is Co-Chair of the Alliance of Communities for Sustainable Fisheries.

So, welcome, to all. Thank you for being here today to talk about marine sanctuary expansion issues, these specific proposals.

So, Mr. Gray, I think I'm going to start with you. And if you can—turn on your microphones, pull them up close, and we would appreciate it if you could keep your comments to 5 minutes, and we'll go down the line. And then, after the end of each—after the end of all presentations, then we'll have some questions.

But, again, thank you for being here, and welcome.

STATEMENT OF JEFFERSON GRAY, SUPERINTENDENT, THUNDER BAY NATIONAL MARINE SANCTUARY AND UNDERWATER PRESERVE

Mr. GRAY. Good morning. And, Madam Chairman, thank you for having us here—and the distinguished members of the Subcommittee staff.

My name is Jefferson Gray. I am the Superintendent of the Thunder Bay National Marine Sanctuary and Underwater Preserve located in Alpena, Michigan. Thank you for the opportunity to testify on Senate bill 2281, the Thunder Bay National Marine Sanctuary and Underwater Preserve Boundary Modification Act.

Designated in 2000, the sanctuary provides long-term protection and management to a nationally significant collection of shipwrecks and other maritime heritage resources. NOAA agrees with the underlying purpose of the bill, which is to provide Federal protection to the maritime heritage resources located off of Michigan's Presque Isle and Alcona Counties by incorporating them into the existing sanctuary.

The proposal has widespread support in the local communities. In May of 2000, the Thunder Bay Sanctuary Advisory Council recommended expending the sanctuary 3,662 square miles to an area

extending between those two counties and all the way to the international border with Canada.

Formal support for sanctuary expansion has been received from seven local units of government. This is not surprising, given the success we'd had matching the sanctuary, building strong partnerships in Michigan, and the sanctuary's positive influence on local communities. One example of that positive influence is the opening of the Great Lakes Maritime Heritage Center, which is our visitor center and research center, by converting a brownfield site into a green building, which was recently certified gold by the LEED® certification, as well as the biodiesel vessels, that we mentioned earlier, operate out of Alpena.

The bill would expand the sanctuary approximately eight times from its current size, of 448 square miles. The sanctuary shoreline would increase from 95 to 225 miles, and would include the cities of Alpena, Harrisville, and Rogers City.

Under this proposal, five State parks, seven lighthouses, and a lifesaving station would be adjacent to the expanded sanctuary. More than 200 shipwrecks rest within this proposed area. Magnificently preserved by Lake Huron's cold freshwater, these archaeological sites are one of the Nation's best-preserved and historically significant collection of shipwrecks. From pioneer steamers to majestic schooners to modern freighters, these sites represent a microcosm of maritime heritage on the Great Lakes. Memorials to the men and women that worked and died on the inland seas, these unique sites have a tremendous historical, archaeological, and recreational value. They not only connect us with the past, but they connect us to the Great Lakes, one of the Nation's most precious natural resources.

The bill would add important protection to a nationally significant collection of maritime heritage resources that are vulnerable to human and natural impacts. This proposal has received widespread support in the communities, as it would highlight these resources and provide additional opportunities for tourism and economic growth.

It's important to note that NOAA's currently undergoing management plan review for the existing sanctuary. During the initial scoping conducted as part of this process, significant public comment was received in support of expansion. As noted earlier, the Advisory Council, which advises the sanctuary superintendent during management plan, passed a resolution recommending that the sanctuary be expanded as soon as feasible. While there is public support for expansion, as a general matter, NOAA prefers to see significant actions such as these vetted through public management and regulatory processes rather than legislatively. Again, NOAA supports the intent of the bill and looks forward to working with the Committee as the bill moves forward.

Thank you, again, for this opportunity.

[The prepared statement of Mr. Gray follows:]

PREPARED STATEMENT OF JEFFERSON GRAY, SUPERINTENDENT, THUNDER BAY NATIONAL MARINE SANCTUARY AND UNDERWATER PRESERVE

Good morning, Mr. Chairman and members of the Committee. I am Jefferson Gray, the Superintendent of the National Oceanic and Atmospheric Administration's

(NOAA) Thunder Bay National Marine Sanctuary and Underwater Preserve (Sanctuary). Thank you for the opportunity to testify on S. 2281, the Thunder Bay National Marine Sanctuary and Underwater Preserve Boundary Modification Act.

The Sanctuary was designated in October 2000 for the purposes of providing long-term protection and management to the conservation, recreational, research, educational, and historical resources and qualities of a nationally significant collection of shipwrecks and other maritime heritage resources in the area. Along the lines of the maritime heritage resource protection goals of the Sanctuary, NOAA agrees with the underlying purpose of S. 2281, which is to provide Federal protection to the shipwrecks, and other maritime heritage resources, located off Michigan's Presque Isle and Alcona Counties by incorporating them into the Sanctuary.

This proposal has widespread support in the local communities. On May 22, 2007, the Thunder Bay Sanctuary Advisory Council (SAC) recommended expanding the Sanctuary to a 3,662-square-mile area extending from Alcona County to Presque Isle County, east to the international border with Canada. Formal support for sanctuary expansion has been received from the City of Alpena, Alpena County, Alpena Township, Sanborn Township, Presque Isle Township, the City of Rogers City, Alcona County, Michigan Sunrise Side Travel Association, and the Sunrise Side Coastal Highway Management Council.

Support for Sanctuary expansion should not be surprising given the success we have had in managing the Sanctuary, building a strong partnership with the State of Michigan, and having a positive influence on the local community. Here are just a few of NOAA's recent accomplishments:

The ribbon cutting for the Great Lakes Maritime Heritage Trail took place at the seventh annual Thunder Bay Maritime Festival in July 2007. The trail offered dockage for visiting tall ships and allowed visitors to the festival to tour the tall ship HIGHLANDER SEA. As part of the Sanctuary's education mission, twenty full-color historic markers are being developed to interpret shipwrecks, lumber mills, dock remnants, historic waterfront buildings and Great Lakes shipping to create a broader maritime heritage context for the sanctuary's shipwrecks.

NOAA sponsored the Great Lakes Regional Remotely Operated Vehicle (ROV) building competition in April 2007. The contest featured 12 teams of high school students vying for a spot at the Marine Advanced Technology Education Center's international ROV competition in St. John, Newfoundland. The Great Lakes Home School—first time competitors from Wolverine, Michigan—took first place at the regional event, and finished sixth overall. The competition is designed to inspire the next generation of underwater scientists and explorers to pursue careers in marine fields.

Sanctuary staff recently finished digitizing one of the Nation's largest archives of 19th-century Great Lakes vessel data and maritime history documents. Volunteers contributed 3,500 hours to digitizing 15,000 Great Lakes vessel files. Digitization is the first step toward making the information searchable and useful for research and conservation purposes. The files are housed in Alpena County's George N. Fletcher Public Library, where staff are developing a searchable interface for the collection that will allow users to retrieve information using the Michigan Electronic Library or Internet search engines.

In 2007, the Sanctuary's Great Lakes Maritime Heritage Center in Alpena, Michigan, was presented with the Department of Energy's Federal Energy Saver Award. The purpose of the award is to promote wise energy and water use throughout the Federal Government by recognizing agencies that showcase cost-effective, energy-efficient, water-conserving and renewable energy technologies in their facilities. The center is on track to becoming a Gold Certified Leadership in Energy and Environmental Design building. This is only the fifth time NOAA has received the award since 1995. The Center not only serves to educate the public about the significance of shipwrecks and maritime heritage though exhibits, but it is also the headquarters for NOAA's Thunder Bay National Marine Sanctuary. The Center also won a Department of Energy "You Have the Power" award for energy conservation in 2006.

Senate bill S. 2281 would expand the sanctuary's boundaries to approximately eight times its current size of 448 square miles. The sanctuary's shoreline would also increase from 95 to 225 miles and subsequently include the cities of Alpena, Harrisville and Rogers City. Under this proposal an additional five state park properties, seven historic lighthouses and one lifesaving station would also be adjacent to the expanded boundaries.

More than 200 shipwrecks rest within the proposed expansion area. Magnificently preserved by the cold freshwater of Lake Huron, these archeological sites are one of the Nation's best-preserved and historically-significant collections of shipwrecks. From pioneer steamers to majestic schooners to modern freighters, these sites represent a microcosm of maritime commerce on the Great Lakes. Memorials to the

men and women that worked the inland seas, these unique sites have tremendous historical, archaeological, and recreational value. They not only connect us to the past, but they also connect us to the Great Lakes—one of our most precious natural resources.

NOAA agrees that S. 2281 would add important protection to nationally and internationally significant maritime heritage resources that are vulnerable to human impacts and invasive species. This proposal has also received widespread support in local communities, as it would highlight these resources and provide additional opportunities for tourism and economic growth in Northeastern Michigan.

It is also important to note that NOAA is currently undergoing a management plan review for the existing Sanctuary. During the initial public scoping that was conducted as part of this process, significant public comment was received in favor of sanctuary boundary expansion. As noted above, the Thunder Bay SAC, which advises the Sanctuary Superintendent during management plan review, passed a resolution that recommended the sanctuary be expanded as soon as feasible. While there is public support for such an expansion, as a general matter NOAA prefers to see that significant actions such as these be vetted through public management plan and regulatory development processes rather than legislatively, as S. 2281 would do.

Again, NOAA supports the intent of S. 2281 and looks forward to working with the Committee as the bill moves forward.

Thank you for this opportunity to testify before the Subcommittee.

Senator CANTWELL. Thank you, Mr. Gray.

Dr. Williams, welcome to the Committee. Thank you for being here.

STATEMENT DR. SUSAN L. WILLIAMS, PROFESSOR OF EVOLUTION AND ECOLOGY; DIRECTOR, BODEGA MARINE LABORATORY, UNIVERSITY OF CALIFORNIA, DAVIS

Dr. WILLIAMS. Thank you, Madam Chair. I am Professor at the University of California at Davis, and I am the Director of the Bodega Marine Laboratory. I appear before you as an independent marine scientist with over 30 years of experience.

Senator CANTWELL. You might pull that just a little bit closer.

Dr. WILLIAMS. It should——

Senator CANTWELL. There you go. There you go. Now you're——

Dr. WILLIAMS.—hello?

Senator CANTWELL.—perfect.

Dr. WILLIAMS. OK, thank you.

I have been involved in the review—public review process for the proposed sanctuary expansion since 2002.

I wish to emphasize three points in my remarks. First, the Gulf of the Farallones and the Cordell Bank National Marine Sanctuaries lie within one of the most productive and unique marine ecosystems on Earth, the California Current Upwelling Ecosystem. It's one of only four coastal upwelling ecosystems on Earth, and the only one of its kind in the United States. These upwelling ecosystems cover only 1 percent of the ocean's surface, but are responsible for 20 percent of the world's fish catch.

Second, an integral piece of this unique ecosystem lies unprotected outside the existing boundaries, and this area includes the wellspring for life in the downstream sanctuaries. And without protecting this expansion area, the marine life in the existing sanctuaries is put at risk. The rich food produced in this upwelling ecosystem supports a diverse assemblage of local and migratory life in the sanctuaries and in the expansion area. For example, one-third of the world's whale and dolphin species, including the highest concentration of endangered blue whales on Earth; the largest concentration of breeding seabirds in the continental U.S.; over 200

species of fishes, including threatened rockfish and salmon; commercial seafood species such as Dungeness crab and abalone; bamboo corals, which provide invaluable record of climate change. Scientific research has demonstrated that the expansion area from Point Arena to Bodega Bay is consistently the most productive region in the entire ecosystem, and thus, is vital to protect.

New research has demonstrated that the expansion area is the wellspring for the sanctuaries. It generates their source waters, nutrients, and food. And this computer simulation demonstrates that the area in Point Arena provides the source water nutrients and food for the areas downstream, which include the sanctuaries. These data come from the Bodega Marine Lab's Coastal Ocean Observing System.

So, this expansion area is also a documented hotspot of fish and bird diversity and abundance, and a critical habitat for endangered whales, threatened sea lions, vulnerable fur seals, and fishery species such as the Dungeness crab, rockfish, and sole. In fact, biological resources in certain areas in the expansion area are richer than in the sanctuaries themselves. H.R. 1187 will protect the source waters for this phenomenal marine life downstream in the sanctuaries. The public review process has been exceptionally thorough, starting in 2001 and before, and the Act has broad support.

The threats are real. Oil spills have occurred; most notably, the COSCO BUSAN spill in November 2007. Importantly, this bill protects fishes and does not change existing fishery regulations, so it has received the support of the Pacific Coast Federation of Fishermen's Associations and the Local Bodega Bay Fishermen's Marketing Association.

In conclusion, the whole is only as good as the sum of the parts. H.R. 1187 will protect the breadbasket, the food pipeline, which I attempted to show in the computer simulation, and the biological hotspots in the expansion area, as well as the downstream sanctuaries. Without this protection, the life in the sanctuaries is at risk.

I thank the Committee, and I would be happy to provide any further assistance in your deliberations.

[The prepared statement of Dr. Williams follows:]

PREPARED STATEMENT OF DR. SUSAN L. WILLIAMS, PROFESSOR OF EVOLUTION AND ECOLOGY, DIRECTOR OF THE BODEGA MARINE LABORATORY, UNIVERSITY OF CALIFORNIA, DAVIS

As a marine scientist with over 30 years of experience, I have a special interest in preserving the cleanest, most pristine and bountiful waters of our planet. It is important for researchers like me to be able to observe marine life in healthy and intact ecosystems. As a scientist, I know that the healthiest ecosystems need to be protected to ensure the survival of threatened and endangered marine species and commercially valuable species. As a Professor who teaches Marine Biology to non-science majors, it is equally important to be able to show students living examples of magnificent species such as blue whales. The Sanctuary expansion areas in H.R. 1187 serve these purposes, and in my testimony I wish to mainly address the science behind the need to include these areas in the Marine Sanctuary system.

I wish to emphasize three points in my remarks:

1. The existing Gulf of the Farallones and the Cordell Bank National Marine Sanctuaries lie within one of only four coastal upwelling ecosystems on Earth, and the only one in the United States (the California Current Upwelling Ecosystem); upwelling ecosystems are the most productive ocean ecosystems.

2. H.R. 1187 will protect the source of the water, nutrients, and food and critical habitats for the exceptionally diverse marine life that resides in or utilizes the Sanctuaries, including fisheries species, endangered or threatened species, species important to understanding global climate change, and the oceanographic processes that influence the weather. Without protection for the northern half of the California Current Upwelling Ecosystem, marine life within the existing Sanctuaries is placed at risk.

3. Public support for the Sanctuaries boundary modification has been exceptional over the lengthy review process.

Below, I will address each point in detail.

1. *The Gulf of the Farallones and Cordell Bank National Marine Sanctuaries lie within one of the most productive ocean ecosystems on Earth: the California Current Upwelling Ecosystem.* The California Current Upwelling System is one of only four coastal upwelling ecosystems on Earth and it is the only coastal upwelling ecosystem in the United States. Upwelling systems are collectively responsible for 20 percent of the total world fish catch, even though they occupy less than 1 percent of the total area of the world's oceans (Cushing 1969, Bakun and Parrish 1982, Botsford *et al.,* 2003).

Upwelling ecosystems worldwide are defined by special oceanographic processes that lead to exceptional biological productivity. In response to winds blowing over the ocean, shallow sunlit waters are fertilized with nutrients welled up from deeper colder waters. The nutrients stimulate the growth of the microscopic marine plants (phytoplankton) at the base of open ocean food webs, resulting in dense concentrations of food for marine animals. The upwelling in the area from Point Arena to Bodega Bay to be included in the modified boundary is known to be the most intense upwelling in North America (see below).

2. *H.R. 1187 will protect the source of the water, nutrients, and food and critical habitats for the exceptionally diverse marine life that resides in or utilizes the Sanctuaries, including fisheries species, endangered or threatened species, species important to understanding global climate change, and the oceanographic processes that influence weather.*

The scientific justification for the expansion is well-founded and summarized below.

A critical center of upwelling—providing the source waters for the Gulf of the Farallones and Cordell Bank National Marine Sanctuaries downstream—lies outside of the existing boundaries. The proposed 2093 square nautical mile expansion from Point Arena to Bodega Bay includes this critical upwelling center. Deep, cold, nutrient-rich water wells up to the ocean's surface at Point Arena and flows to the south and into the existing National Marine Sanctuaries (Largier *et al.* 1993, Kaplan and Largier 2006, Kuebel-Cervantes and Allen 2006), initiating and fertilizing blooms of the marine plants along the way and supporting organisms at all higher levels of the food web. Figure 1 shows ocean currents moving downstream from Point Arena south to the present Gulf of the Farallones and Cordell Bank National Marine Sanctuaries. The upwelling leads to such a great abundance of food that many top predators, including marine mammals and great white sharks, can thrive in the region.

The area to be included within the modified boundary (Point Arena to Bodega Bay) is not only the source of water, nutrients, and food for the existing Sanctuaries, but it also consistently generates the most intense upwelling in North America. Ocean production is positively correlated with upwelling intensity: the more intense the upwelling, the more productive the ocean. The intensity of the upwelling from Point Arena to Bodega Bay is characterized according to NOAA's upwelling index: *http//www.pfeg.noaa.gov/products/PFEL/modeled/indices/upwelling/NA/daily_upwell-graphs.html#p09daily.gif.* Cold water is also an indication of upwelling strength. Figure 2 shows water temperatures are coldest around Point Arena, also signifying the intensity of the upwelling.

The rich food generated by the upwelling provides a feast for a diverse assemblage of local and migratory marine life in the Gulf of the Farallones and Cordell Bank National Marine Sanctuaries. Overall, the California Current Upwelling Ecosystem supports more than one-third of the world's whale and dolphin species in the region between Bodega Bay and Monterey Bay (Keiper *et al.,* 2005). The Gulf of the Farallones has the largest concentration of breeding seabirds in the continental U.S. (12 species) and is home to five species of seals and sea lions. Thirty-six species of marine mammals migrate through the Sanctuary where they feed on the rich food, as do 163 species of birds. The Cordell Bank National Marine Sanctuary is home to at least 240 fish species, 69 species of seabirds, and 28 marine mammal species, with other species migrating through. The nearshore fish community includes many

commercially valuable, but also threatened, species of rockfish, lingcod, and greenling.

In the fall, a species of seabird (sooty shearwater) migrates from the north to the south through the Sanctuaries en route to South America and to New Zealand, which protects the shearwaters as important elements of indigenous Maori culture. The shearwaters are so numerous that the flocks resemble smoke over the ocean's surface.

Black-footed albatross migrate between their feeding ground on Cordell Bank and their nesting sites on Midway Atoll in the central Pacific.

Humpback and blue whales, both endangered with extinction, feed on the rich abundant food in the Sanctuary waters, generated by the upwelling. The blue whales utilizing these waters represent the largest concentration of this species on Earth.

This highly productive marine ecosystem also gave rise to the oldest known coastal human settlement in northern California (at Duncan's Landing), which was dated at 8,600 years (Kennedy *et al.,* 2005).

Mobile marine species cross over from the Sanctuaries to utilize critical habitat that lies unprotected in the expansion area. The expansion area hosts diverse populations of local and migratory fishes, birds, and marine mammals, which are attracted to the rich food, in a very similar manner to the areas protected in the existing Sanctuaries.

NOAA's Biogeography Program (NOAA 2003) revealed that the area to be included in the modified boundary in fact has in some cases even richer biological resources. 'Hotspots' for high species diversity and high abundances of fishes and birds were identified within the expansion area. Some of the highest habitat suitability for the following species extends north of the boundary: commercial fish species (juvenile bocaccio, dover sole adults and juveniles, rockfish, Dungeness crab), harbor seals, Risso's dolphin (seasonally). Two sites near Point Arena remain major winter haul out areas for the diminishing population of Steller sea lions (threatened). The area visited most by gray whales occurred between Fort Ross and Point Arena, outside the existing boundaries. Similarly, the seasonal high use area for the northern fur seal (conservation status: vulnerable) was just to the north and west of the Sanctuaries.

Resident species in the expansion area include rockfish, lingcod, flatfish, Dungeness crab, sea lions, seals, and seabirds. Coastal seabirds and migratory shorebirds using the Pacific flyway frequent this stretch of coast. Secluded stretches of coast offer haul out areas for harbor seals and Steller sea lions (threatened) as well as nesting sites for many species of local seabirds. Gray whales pass through this corridor during their annual migration between breeding areas in Mexico and feeding grounds in Alaska. Other migratory species visiting the area seasonally to forage in the food-rich waters include endangered and threatened species such as humpback and blue whales, northern fur seals, coho salmon, black-footed albatross and leatherback sea turtles. Chinook or king salmon from northern California watersheds also frequent this area in spring and summer to feed on shrimp-like krill, anchovies, and sardines.

In addition to fishes, birds, and marine mammals, extensive underwater forests of kelp (a giant seaweed) grow close to shore in the expansion area, where they serve as a critical nursery grounds for rockfishes. The kelp forests also support thriving populations of commercially valuable red sea urchins and red abalone (Karpov 2001, Rogers-Bennett 2003). The red abalone are abundant enough for an active recreational fishery, the only remaining abalone fishery on the west coast.

Species of ancient deep-sea corals (bamboo corals) also live throughout the region and provide scientists with clues to climate change. The corals lay down growth rings like trees, providing incomparable records of past climate conditions (Roark *et al.,* 2005). In addition these corals provide important habitat for deep-sea fishes. These corals are structurally fragile and susceptible to disturbance from oil and mineral exploration and extraction.

The Bodega Canyon lies within the modified boundary of the Cordell Bank National Marine Sanctuary and is a specialized habitat for a variety of species. The Bodega Canyon is one of several submarine canyons along the west coast. Cutting into the continental shelf, these canyons are critical conduits for transporting organic matter that provisions deep-sea animals (Vetter 1995). The steep walls of the canyons support a diverse assemblage of marine species including deep-water corals. Small shrimp-like animals ('zooplankton', especially the type know as 'krill') emerge from Bodega Canyon every night, attracting predators that aggregate on the down current side of submarine canyons to feed (Chess 1989). Krill is an important link in the Cordell Bank food web. Krill is the primary diet for blue whales and a seabird species (Cassin's auklet) and a dietary staple for rockfishes, coho and king salmon.

Endangered blue whales are the largest animals ever known and each day they must consume two tons of food largely in the form of krill. To maintain this consumption rate, they seek dense krill aggregations. The krill in turn depend on the algal blooms sustained by upwelling. Krill concentrate downstream of intense upwelling centers, such as Point Arena, and at the edges of submarine canyons, including Bodega Canyon. California blue whales predictably can be found foraging at the edge of submarine canyons (Croll *et al.,* 2005). Protecting these critical foraging areas is important to securing the continued survival of these magnificent whales.

Expanding the boundary for the Sanctuaries is crucial to achieving their management goal of protecting the *ecosystem* for the marine life within, as stated in the Draft Joint Management Plan. *The expansion area is an integral part of the California Current Upwelling Ecosystem which also encompasses the existing Sanctuaries.* The abundant food for the species living in the Sanctuaries is produced upstream of the existing boundaries. And, many of the larger and mobile species travel outside of the Sanctuaries to utilize habitats in the expansion area. Critical parts of the ecosystem, such as the upwelling center at Point Arena and Bodega Canyon, are not protected in the existing Sanctuaries. Ecosystem-based management has strong support from both scientists and the public in recognition that species do not live in isolation of their environment or other species, including humans.

The California Current Upwelling Ecosystem not only sustains phenomenal biological productivity, it also generates weather patterns along the west coast. The thick cloud cover over the ocean and coast—the 'marine layer' noted by Pacific coast weathermen—results from the cold surface waters of the upwelling, in conjunction with the summer Pacific High Pressure System. Such clouds are known to have an important influence on the heat budget of Earth (Rogers *et al.,* 1995, Faloona *et al.,* 2005, Wen *et al.,* 2006). This thick cloud layer can be strongly altered by pollution and by disruption to the upwelling system.

3. Public support for the Sanctuaries boundary modification has been exceptional over the lengthy review process.

Since my appointment as the Director of the University of California's Bodega Marine Laboratory, I have personally witnessed overwhelming support for the Sanctuaries and the expansion. I have been involved in the Gulf of the Farallones, Cordell Bank, and the Monterey Bay National Marine Sanctuaries due to common research and education interests. The Sanctuaries and the Bodega Marine Laboratory collaborate on public education efforts. The Laboratory provides a neutral venue for public meetings, including fishermen's associations and scoping meetings for the Joint Draft Management Plan, and hosts Sanctuary-sponsored lectures and Sanctuary Advisory Council meetings. I attend Sanctuary volunteer celebration events. In addition, I participate in public forums and workshops dedicated to the science-based management of California's ocean resources, as a charter member of the University of California's Marine Council and until recently, a member of the California Resources Agency Sea Grant Advisory Panel. I interact frequently with the public through these activities, the students I teach and their parents, and Bodega Marine Laboratory's public education program, which reaches up to 12,000 visitors yearly. The public I have met who know about the Sanctuaries consider them a national treasure and are pleased that Congress is considering an expansion.

Specifically, my direct involvement with the public review process for the expansion is as follows:

- January 2002—Bodega Marine Laboratory hosted public scoping hearing on Joint Management Plan (attended by over 120 people).
- August 2004—Testified at a public scoping hearing for Congresswoman Woolsey. Provided new scientific information that inextricably linked the expansion area to the current NMS through providing food and habitat for the organisms that depend on the NMS.
- December 2004—Testified before the Sonoma County Board of Supervisors, who unanimously approved of the expansion.
- August 2005—Participated in an informational conference on the proposed expansion at Sanctuary Headquarters in San Francisco in 2005 on behalf of Senator Boxer and Congresswoman Woolsey.
- January 2006—Provided scientific briefing for the proposed expansion for California's Secretary to Resources, Mr. Mike Chrisman. The California Coastal Commission approved of the proposed legislation for the expansion.
- November 2007—Testified on H.R. 1187 before the House Subcommittee on Fisheries, Wildlife, and the Ocean.

- Attended public scoping and informational meetings for the Sanctuaries and the expansion.
- Attended meetings of the Sanctuary Advisory Councils, often hosted by the Bodega Marine Laboratory.
- Supervise faculty who serve on the Sanctuary Advisory Councils and conduct research in the Sanctuaries and expansion area.
- Provide scientific advice on areas within my expertise.

This legislation has been in the making for a long time. As early as 2001 the expansion was considered in public scoping hearings for the Joint Draft Management Plan for the three Sanctuaries. The 2003 release of the NOAA's Biogeographic Assessment (see bibliography provided at the end of the written testimony) provided impetus for this legislation. The assessment revealed the inextricable ecological linkages between the current Sanctuaries and the expansion area and that biological resources were in some cases richer in the expansion area. The bill was first introduced in the House by Congresswoman Woolsey in 2004 and reintroduced with a companion bill by Senator Boxer in 2005. Congresswoman Woolsey reintroduced a modified bipartisan bill with Congressman Gilchrist in 2007 and Senator Boxer introduced the Senate bill in 2008. A revised version of H.R. 1187—the same bill that this subcommittee is now considering—passed the House in March 2008.

Along the way, public review and comment on the proposed expansion has been exceptionally thorough. The bill was launched with a capacity crowd public hearing attended by scientists, fishermen, environmentalists, and members of the general public at the Sonoma County Board of Supervisors Chambers in 2004. The bill has also been reviewed several times by the Gulf of the Farallones NMS and Cordell Bank NMS Advisory Councils, the groups that under administrative procedures, begin the designation process. The bill has been endorsed by both Advisory Councils. Additionally, the bill had a House Oceans Subcommittee informational hearing in October 2007 and markups by the Subcommittee and the full House Natural Resource Committee in March 2008.

Additionally, the legislation has been reviewed and endorsed by the California Coastal Commission, the California State Lands Commission, the Boards of Supervisors of Marin, Sonoma, San Francisco and Mendocino Counties, the City of San Francisco, and the Port of Oakland. All these meetings were noticed and the public was given the opportunity to comment. If the expansion is authorized, the public will again have ample opportunity to participate in the details of the expansion as the regulations will be developed through the administrative process.

The members of the California State Lands Commission include the Lieutenant Governor, the State Controller and the State Director of Finance. The Commission has broad authority to protect lands including the state's waterways, tidelands, and submerged lands. As part of its responsibilities, the Commission regulates and permits oil and gas leases and has comprehensive oil spill prevention programs. In its endorsement resolution, it noted the need to protect "these currently unprotected but biologically significant ocean areas in the Sanctuaries."

At least 36 local, state, and national organizations supported H.R. 1187, including the state, county, and city governments listed above and

- *California State legislators* representing Mendocino and Sonoma County, including Assemblywomen Patricia Berg and Noreen Evans, Assemblyman Jared Huffman, State Senator Pat Wiggins and former State Senator Wes Chesbro while in office.
- *distinguished scientists* (letters from 25 scientists from the University of California and other research institutions),
- *businesses* (the Russian River Chamber of Commerce, Sonoma County Economic and Development Board, Mendocino Sea Vegetable Company),
- *fishermen* (the Pacific Coast Federation of Fishermen's Association; Bodega Bay Fishermen's Marketing Association),
- *environmental groups* (individual and joint letters of support from Natural Resources Defense Council, Ocean Conservancy, Sierra Club, Marine Conservation Biology Institute, Conservation Law Foundation, U.S. Public Interest Research Group, Cook Inletkeeper, Planning and Conservation League, The Marine Mammal Center, Surfrider Foundation, Farallones Marine Sanctuary Association, Environmental Action Committee of West Marin, Pacific Environment, Mendocino Sea Vegetable Company, California Coastal Protection Network, Environment California, Environment America, National Marine Sanctuary Foundation).

Notably, there is wide support from the fishing community for the expansion. These fishermen recognize that protecting the quality of the source waters and the food pipeline for the Sanctuaries and critical fishery habitat that is currently unprotected is important for sustainable fisheries in the area. In addition, California State Senator Pat Wiggins, the Chairwoman of the Joint Legislative Committee on Fisheries and Aquaculture having oversight over the State Department of Fish and Game, stated in her endorsement letter for H.R. 1187: "This bill places no additional restrictions on the fishing community, so does not conflict with existing or future regulations from our State Department of Fish and Game." The Sanctuary designation protects fisheries while allowing fishing and does not change existing authorities for fisheries.

This great public interest is attracted fundamentally by the diverse marine life of the region (including iconic species such as the California sea lion), which also generates an important tourism economy and serves as a hook for science education. The Gulf of the Farallones National Marine Sanctuary has attracted over 100 dedicated volunteers a year in its beach watch program alone. The volunteer contributions have been estimated at over $200,000 worth of effort annually. The beach watch program has been sustained for 10 years, with more than 90 percent of the volunteers returning each year. The interpretive center in San Francisco for the Gulf of the Farallones National Marine Sanctuary hosts over 40,000 visitors yearly.

The expanded boundary would bring the superb public education programs of the National Marine Sanctuaries farther north along the Pacific coast to reach rural and disadvantaged children. The Sanctuaries work closely with local schools and provide teacher training for activities such as monitoring tideline and beach communities and building a new curriculum that integrates geography and marine science through tracking tagged migratory animals online. They also have been exceptional research and education partners for institutions of higher education in the region.

The public is concerned that the expansion be authorized now because the threats have been realized and will continue.

The expansion area and the California Current Upwelling Ecosystem have been threatened by pollution historically and recently.

The most environmental impact on the Sanctuaries and unprotected adjacent waters occurred on November 7, 2007, when 58,000 gallons of bunker oil spilled from the COSCO BUSAN and were dispersed into the Gulf of the Farallones and Monterey Bay Sanctuaries. At first count, 2,200 birds were oiled or killed. The research of the environmental impacts of this spill will only add to a solid base of knowledge about the effects of hydrocarbons on marine life built upon by scientists in NOAA, universities, and private institutes after similar incidents such as the EXXON VALDEZ oil spill.

The COSCO BUSAN spill was presaged in the Gulf of the Farallones Draft Management Plan, which cited the evident risks from commercial vessels like the COSCO BUSAN that draw greater than 50 feet of water and are fueled with bunker oil, which is similar to crude oil. Additional risks were cited from the movement of oil tankers carrying an estimated 544 million gallons annually along the California coast. In addition to the COSCO BUSAN spill, there have been 10 vessel oil spills in the Gulf of the Farallones National Marine Sanctuary since 1971 (tallied in the Gulf of the Farallones Draft Management Plan), which killed tens of thousands of seabirds. The debilitating effects of oiling sea birds and marine mammals are well known by the public.

In the late 1970s and 1980s there were attempts to lease oil tracts off the counties of Sonoma and Mendocino. Congress and past Republican and Democratic Administrations have already recognized that oil drilling is inappropriate in this area and have placed them under moratoriums. However, the current moratorium will expire in 2012 and there have been efforts to erode it in the meantime. Exploration and extraction activities disturb the sea floor and even minute concentrations of chemicals from oil and mineral extraction (in the 'production water') are toxic to sea life including economically valuable marine species (herring, sea urchins, Pacific oysters) that live in the Sanctuaries and expansion area (Garman *et al.,* 1994, Krause 1984).

Sewage pollution is another type of pollution that threatens the Sanctuaries and the area to be included in the modified boundary. In 1986, 1995, and as recently as 2003, there were proposals to build ocean sewage outfalls along the Sonoma Coast, and there was a massive raw sewage spill in the Russian River in 1985, all just north of the existing boundary.

More generally, the reports of the recent Pew and U.S. Ocean Commissions reflect broad public sentiment that our oceans are under incredible environmental stress and rapid and substantive action is required to redress the perils facing our oceans. Given that the Pew and U.S. Ocean Commissions agree that it is a priority to pro-

tect biologically important areas and that there is ample scientific evidence of the value of the resources within the proposed expansion area, sound economic reasons, and broad public support for the expansions, it is important that Congress pass this legislation, rather than wait on the uncertainties of a lengthy administrative designation process. Congress previously created three Marine Sanctuaries. Congress also directed the Secretary of Commerce to administratively designate four National Marine Sanctuaries by specific dates. In 1996, Congress expanded the Flower Garden Bank NMS by adding Stetson Bank, a direct precedent to H.R. 1187/S. 2635. In sum, Congress has had direct involvement in the designation of seven of thirteen National Marine Sanctuaries and expanded one National Marine Sanctuary.

Giving the Sanctuary program authority to address these threats and realities will help ensure that these ecologically unique waters remain clean and abundant with marine life. The Sanctuary would be able to collect penalties and settlements after spills and dedicate them to restoration projects in the expansion area, as it has in the existing Sanctuaries.

The expansion will also better enable the Sanctuaries to carry out their management goal of protecting the ecosystem for the marine life within by including the critical parts currently unprotected, such as Bodega Canyon and the upwelling center at Point Arena. The expansion thus also addresses the U.S. and Pew Ocean Commissions conclusion that the ocean management must be based around ecosystems, rather than traditional jurisdictional boundaries; the legislation would adjust the jurisdictional boundary to better match the ecosystem.

In the invitation letter, the Committee asked me to address the resources necessary to carry out the expansion. It is important to fully fund the National Marine Sanctuaries to further protect one of the richest marine ecosystems on Earth. However, funding should not stand in the way of passing the legislation because it provides in itself important protection for nationally valuable marine resources. As stated earlier in my testimony, the designation alone allows the Sanctuaries to collect fines. Potential polluters might think twice. The designation would attract competitive research grants. Although it was a hardship, the Cordell Bank NMS operated without funding in the first few years of its designation. The Sanctuary programs have achieved admirable success in partnering within the region, using volunteers, and attracting private donations to leverage their limited resources. However, additional funding is important for the Sanctuaries to fully expand its program and activities into new areas.

H.R. 1187 authorizes an appropriation of $6,500,000 for implementation of the boundary modification and such sums as necessary for construction and acquisition projects for the Sanctuaries. The Congressional Budget Office, as ordered by the House Committee on Natural Resources, reported on March 12, 2008 that "enacting the bill would have no effect on revenues or direct spending." The CBO estimated that "assuming appropriation of the amounts specified by the bill for sanctuary management or estimated to be necessary for authorized construction and acquisition activities", implementation would cost $20 million over the 2009–2013 period. The average annual appropriations to manage the two marine Sanctuaries currently are approximately $2 million. This small amount supports an exceptional Sanctuary program in management, public education, and research.

In summary: Expanding the Gulf of the Farallones and Cordell Bank National Marine Sanctuaries to include the Point Arena upwelling center is necessary to protect and study the source water for these two existing Sanctuaries. Nutrients and food produced in the Point Arena upwelling center are delivered by water currents moving south to the Gulf of the Farallones and Cordell Bank. By expanding the Gulf of the Farallones and the Cordell Bank National Marine Sanctuaries north to Point Arena, the wellspring for the biological productivity, the food pipeline, hotspots of biological diversity, and critical habitat for seabirds, marine mammals, and fisheries species that range northward from the existing Sanctuaries will be protected. Expanding the two Sanctuaries in H.R. 1187 will help achieve the goal of ecosystem-based management on a regional scale.

As a marine scientist and educator, and as Director of one of the Nation's oldest marine laboratories (Bodega Marine Laboratory) situated within the proposed boundary modification, I find the ecological uniqueness of the region a compelling reason to protect the source waters and critical habitat for the marine life that frequents the Gulf of the Farallones and Cordell Bank National Marine Sanctuaries. Together, the area encompasses a major portion of the only coastal upwelling ecosystem in the United States, which is one of only four on Earth. As a citizen and a resident of this exceptional and unique stretch of the Nation's coast, I find the diversity and abundance of marine life and the high productivity that puts food on the table very valuable to protect now and for future generations.

I thank the Subcommittee for the opportunity to share this information and offer any assistance I can provide in the next stages of its actions concerning H.R. 1187.

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Figure 1. The source waters for the Gulf of the Farallones and the Cordell Bank National Marine Sanctuaries lie in the expansion area from Point Arena to Bodega Bay. Point Arena is an important center of ocean upwelling, providing nutrients and food. Surface currents are shown flowing southward from Point Arena, California. 'BML' refers to Bodega Marine Laboratory, situated just north of the existing Sanctuary boundary. Arrows point in the direction of the surface currents. Color indicates the speed of the current (red = faster).

Data from the coastal radar of the Bodega Ocean Observing Node at the Bodega Marine Laboratory, University of California at Davis. Funding was provided by the Bodega Marine Laboratory and the State of California's Coastal Ocean Currents Monitoring Program.

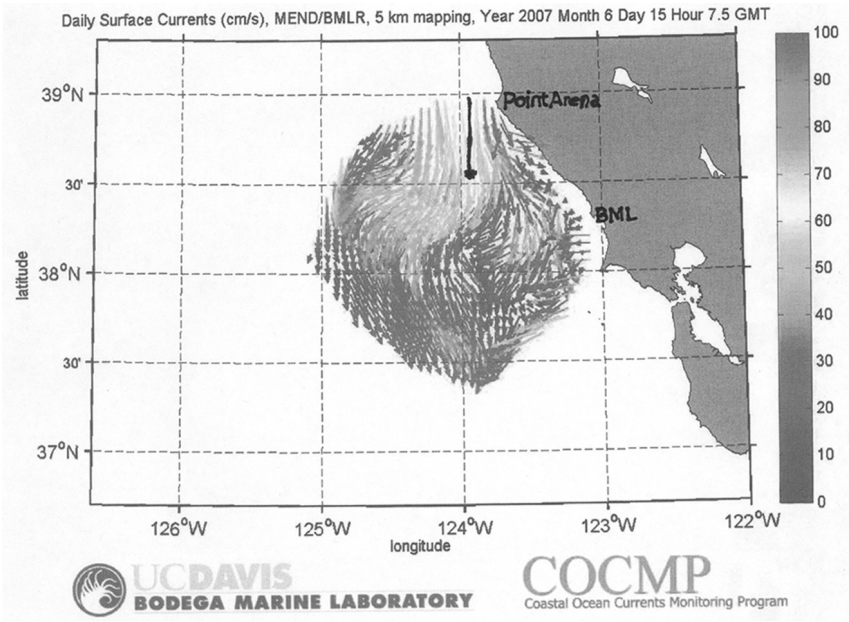
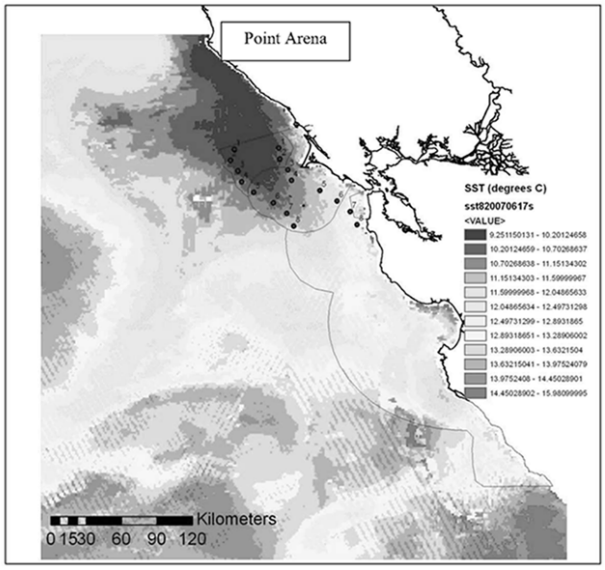


Figure 2. Sea Surface Temperatures (SST) for the northern half of the California Current Upwelling Ecosystem. Data from the National Marine Fisheries Service. The darker the blue, the colder the water, indicating the strength of the upwelling. The expansion area from Point Arena to Bodega Bay is the area of strongest upwelling.

June 17 2007, SST, 8 day average



Senator CANTWELL. Thank you, Dr. Williams. Thank you for your testimony and for the demonstration—the interactive demonstration.

Ms. Fosmark, thank you for being here.

STATEMENT OF KATHY FOSMARK, CO-CHAIR, ALLIANCE OF COMMUNITIES FOR SUSTAINABLE FISHERIES

Ms. FOSMARK. Thank you.

Madam Chair, members of the Subcommittee, for the record, my name is Kathy Fosmark, and I'm appearing today to present the views of the Alliance of Communities for Sustainable Fisheries on H.R. 1187, the Gulf of Farallones and Cordell Bank Marine Sanctuaries Modification Act.

The Alliance is a nonprofit organization, and we represent 18 subgroups that range throughout the West Coast. We are basically representing waterfront communities, and we work constructively with agencies and individuals and other marine protection organizations in order to ascertain the—and guarantee—that the best and current science is used. And we are here to promote public policy and linkage between healthy, sustainable fisheries and marine conservation.

The Alliance and its members have extensive experience in dealing with National Marine Sanctuary Program over the last 15 years.

On a personal level, I am part of a multigenerational fishing family that first settled in California in the 1800s. I fished commercially with my father and my husband over the course of 30 years, and our eldest son has recently entered the fishery. Our family has fished the Pacific Ocean in the area covered by these sanctuaries,

for tuna, salmon, swordfish, crab, Pacific halibut, shrimp, and groundfish, using a variety of gears.

I am a member of the Pacific Fishery Management Council, although I am not here representing the members—the other members' views. I am here representing the Alliance.

Fishermen don't oppose marine sanctuaries. Fishermen are conservationists, and need to depend on good science-based management in order to supply healthy seafood to the American consumer. California fishermen were responsible for the creation of these sanctuaries, but only in the condition of a promise made to the fishermen.

I will read a small excerpt from the designation document. "Fishing is not being regulated as part of the sanctuary regime and is not included in the designation document as an activity subject to future regulation. Fisheries management will remain under the existing jurisdiction of the State of California National Marine Fishery Service and the Pacific Fishery Management Council."

Fishermen have come to distrust the sanctuary program. It appears their decisionmaking is political instead of science-based. Recently, the Magnuson-Stevens Act was amended to ensure the councils used good science. Sanctuaries need to meet the same scientific standards as the Councils. Fishermen need to be protected as much as resources.

I appreciate the Committee considering the House-passed version of H.R. 1187, as there have been some important changes, but we have concerns about the bill, based on the promise. It doesn't make it clear who controls fishing, gives sanctuary authority over living marine resources, and it also mandates zoning, which is a particular concern of ours, as you have heard earlier, with the Thunder Bay testimony, that that is not a situation of concern.

Note that concerns have been realized from testimony of Bill Douros before the House and the Monterey National Marine Sanctuary need-decision paper that was issued, decision on marine protected areas without talking to the Council. The Pacific Fishery Management Council was not consulted before the need-decision was made. This is why fishermen want to have the promise kept. We cannot support the bill unless these concerns are addressed.

Attached is suggested language, and we're happy to work with the Subcommittee to refine and improve the bill.

Thank you.

[The prepared statement of Ms. Fosmark follows:]

PREPARED STATEMENT OF KATHY FOSMARK, CO-CHAIR, ALLIANCE OF COMMUNITIES FOR SUSTAINABLE FISHERIES

Madame Chair, members of the Subcommittee, for the record my name is Kathy Fosmark and I am appearing today to present the views of the Alliance of Communities for Sustainable Fisheries on H.R. 1187, the "Gulf of the Farallones and Cordell Bank National Marine Sanctuaries Boundary Modification and Protection Act."

The Alliance is a nonprofit organization representing eighteen commercial and recreational fishing organizations, ports, and harbors along the California Coast. Based in Monterey, California, the Alliance advocates for the heritage and economic value of fishing to California coastal communities by offering a broadly representative educational and promotional voice for waterfront communities to work constructively with interested agencies, individuals, and other marine protection organizations in order to ascertain and guarantee that: the best and most current oceano-

graphic, socio-economic and fisheries science is accurately compiled; that science is readily available to the public for use in crafting and promoting public policy; and that the linkage between healthy sustainable fisheries, marine conservation, and coastal communities is firmly established in the public mind. The Alliance and its members have extensive experience in dealing with the National Marine Sanctuary Program over the past 15 years.

On a personal level, I am part of a multi-generation fishing family that first settled in California in the 1800s. I fished commercially with my father and my husband over the course of 30 years and our eldest son now has entered the fishery. Our family has fished in the Pacific Ocean, including in the area covered by these Sanctuaries, for tuna, salmon, swordfish, crab, halibut, shrimp, and groundfish using a variety of gear types. I am also a member of the Pacific Fishery Management Council, although the views I am presenting today do not necessarily reflect those of the Council or its other members. However, I have attached to my testimony a letter from the Council to Senator Smith which provides the Council's views on the bill and ask that it be included in the record.

My comments will address H.R. 1187 as passed by the House, as it is my understanding that this is the language the Subcommittee is considering. While not perfect—as noted below—we believe that substantial progress has been made on the bill and that it more generally addresses many of our concerns than the companion Senate bill, S. 2635.

Fishermen do not oppose the concept of National Marine Sanctuaries. In fact, it was California fishermen who worked hard to have both of these Sanctuaries created. We recognize that Sanctuaries are designed to conserve special areas in the ocean and prevent damage to sensitive resources and habitats.

However, when California fishermen supported creation of these Sanctuaries, they did so under a condition that has become popularly known as the "promise to fishermen": the Sanctuaries would not manage or otherwise regulate fisheries and fishing activities. Fisheries management in the ocean waters off California is in the hands of the Pacific Fishery Management Council. Fishermen are familiar and comfortable with the Council's system of management, which is an open and transparent process that is based on the best scientific information available and that solicits and respects diverse views. Without that promise, fishermen would not have supported creation of the Sanctuaries.

This is the focus of our concerns regarding the language of H.R. 1187. We appreciate the statement up front in the bill (section 3(c)) that nothing is intended to "alter any existing authorities" regarding fishing. Those existing authorities rest on the weak foundation of the Sanctuaries' respective designation documents. They are regulations, not law. And as such, they can be changed virtually at any time, as we saw happen over the last few years with the Channel Islands National Marine Sanctuary—an area where the promise to fishermen was broken.

Further reinforcing our concern is the language in sections 5(a)(2)(A)(i) and 5(b)(2)(A) which includes "living marine and other resources within" the expanded boundaries of the Sanctuaries. Fish are living marine resources and these sections give the Sanctuaries clear authority over fish. Because the language regarding fishing in section 3 is not clear, the Sanctuaries could easily change their designation documents during a future management plan review such as the one required under section 7(b).

We believe that our fears of the Sanctuary program taking a bigger role in fisheries management are well founded. For example, last year Mr. William Douros, West Coast Regional Director for the National Marine Sanctuary Program, testified before the House Committee on Natural Resources on reauthorization of the National Marine Sanctuaries Act and emphasized the program's role in resource management, stating that "the System is continually on the cutting edge of resource management." In February of this year, the Monterey Bay Sanctuary announced it was moving forward with designing marine protected areas "in which the removal or alteration of marine life is prohibited or restricted"; in other words a marine reserve. No discussion on this issue was held with the Pacific Fishery Management Council until April, in spite of the fact that designation of marine reserves in ocean waters could have a profound affect on the fisheries managed by the Council. We are not opposed to fisheries conservation and management, or even to time and area closures that are scientifically based and designed to protect important fish stocks and habitat. We are opposed to more and more Federal agencies arbitrarily deciding that they don't want anyone to catch fish.

Given this background, we are opposed to the language in section 7(e)(2) that mandates establishment of zones "if necessary to ensure protection of sanctuary resources." While we can understand the need for zoning to protect important historical artifacts such as the wreck of the S.S. MONITOR off North Carolina, adding

this mandate here reinforces the concern about Sanctuary intrusion into the realm of fisheries management through the use of marine protected areas.

In the area of sport fishing, we have been concerned about prohibiting the "deposit or discharge of any introduced species" into Sanctuary waters. The Sanctuaries themselves recognize that there is a thriving catch and release fishery for striped bass (*Morone saxitilis*) within the Sanctuaries and the proposed management plan changes published by the Sanctuaries last October make a clear exception for that fishery. H.R. 1187 acknowledges this by providing simply for appropriate regulations in section 7(d)(2).

Similarly, sport fishermen are concerned about regulation of marine sanitation devices. While they agree with—and already meet—the requirements to use Type I or II devices, they are afraid that having language in a statute governing Sanctuaries will mean that Sanctuary enforcement officers, along with the Coast Guard, will be stopping their fishing operations and boarding their boats to inspect marine sanitation devices. We note that the House removed specific language on marine sanitation devices from H.R. 1187.

California ports are worried about the effect of extending the Sanctuary boundaries to the mean high water line as described in section 5. The dynamic nature of our west coast currents requires frequent dredging of navigation channels and berthing areas to accommodate commercial and recreational vessel traffic. Prohibitions on discharge in Sanctuaries could effectively override the authority and scientific standards of the Environmental Protection Agency and the Corps of Engineers, making it difficult to keep our ports open. The House removed such language from H.R. 1187 during Committee mark-up and we believe this to be the best approach.

Madame Chair, we appreciate the Congress's efforts to expedite changes in the Sanctuary boundaries through legislation and that some of our suggestions for changes in the original version of the bill have been adopted by the House. But unless our concerns about keeping the promise to fishermen are met, we cannot support the bill. We would rather take our chances with the existing administrative process; even the proposed regulations changing the management plans for these Sanctuaries are explicit in protecting our commercial and recreational fisheries.

I have attached to my written testimony some suggested changes to H.R. 1187 that we think would provide continued protection for our fisheries. We would be happy to work with you and your staff to further refine the language in the bill.

Again, thank you for the opportunity to present the Alliance's views on H.R. 1187. I would be happy to answer any questions.

Proposed Changes to H.R. 1187 (as Passed by the House) Offered by the Alliance of Communities for Sustainable Fisheries

1. Strike subsection 3(c)
2. Redesignate sections 6 through 8 as sections 7 through 9
3. Insert a new section 6 as follows:

"**SEC.6.REGULATION OF FISHING**—The regulation of commercial and sport fishing within the Sanctuaries shall be exclusively under the jurisdiction of the Pacific Fishery Management Council established under section 302(a)(1)(F) of the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. 1852(a)(1)(F)) and for those portions within State waters the applicable laws and regulations of the State of California."

4. In the first sentence of subsection 8(e) as redesignated, strike "shall" and insert "may"
5. Strike paragraph 8(e)(2) as redesignated and renumber the following paragraphs appropriately.

PACIFIC FISHERY MANAGEMENT COUNCIL
Portland, OR, April 24, 2008

Senator GORDON H. SMITH,
404 Russell Building,
Washington, DC.

RE: PACIFIC FISHERY MANAGEMENT COUNCIL COMMENTS ON S. 2635

Dear Senator Smith:

Thank you for your continued interest in west coast fishery issues and your request for Pacific Fishery Management Council (Pacific Council) comments on legislative matters of interest to the Pacific Council.

At its April 2008 meeting, the Pacific Council and its Legislative Committee reviewed a variety of legislative matters including H.R. 1187, the Gulf of the Farallones and Cordell Bank National Marine Sanctuaries Boundary Modification and Protection Act, as passed by the U.S. House of Representatives on March 31, 2008 and referred to the U.S. Senate. Additionally, on February 13, 2008, U.S. Senator Barbara Boxer (D–CA) introduced the bill in the U.S. Senate as S. 2635. Given these bills are now matters for U.S. Senate consideration, the Pacific Council requested I reiterate the following comments of the Pacific Council on H.R. 1187 originally conveyed to you in my letter of October 9, 2007.

- It is unclear why these proposed boundary expansions and protective measures were not adopted and implemented under the recently completed Joint Management Plan Review (JMPR) process for the Monterey Bay, Gulf of the Farallones, and Cordell Bank National Marine Sanctuaries. The Pacific Council believes some of the expansion alternatives and prohibitions may have been considered and rejected during the JMPR, and questions why these provisions are being proposed for implementation through legislation rather than the public JMPR process.
- Section 2 of H.R. 1187 and S. 2635 find the areas within these sanctuaries "include some of the Nation's richest fishing grounds" and that "Cordell Bank is at the nexus of an ocean upwelling system, which produces the highest biomass concentrations on the west coast of the United States." While the Pacific Council agrees these areas are productive and are likely to be ecologically important to the west coast, these findings would benefit from independent verification.
- Section 3 of H.R. 1187 and S. 2635 states that "nothing in this Act is intended to alter any existing authorities regarding the conduct and location of fishing activities in the Sanctuaries." The Pacific Council recommends this stated intent be accompanied by a statutory mandate that fishery management authority in Federal waters of the Sanctuaries is retained by the Pacific Council and the National Marine Fisheries Service.
- Section 6 of H.R. 1187 and S. 2635 further clarifies that these bills do not intend to prohibit the discharge of biodegradable effluents or the discharge of fish, fish parts, and chumming materials while legally fishing. The Pacific Council is concerned about the regulation of waste water discharges and would like to confirm that the United States Coast Guard retains its current level of authority on these matters.

Perhaps central to the Pacific Council's interest in these matters is achieving legislative clarity on the authority to regulate fishing within National Marine Sanctuaries. The Pacific Council is in the early stages of initiating an Ecosystem Fishery Management Plan (EFMP) that is intended to serve as an "umbrella" plan that would advance fishery management under our four existing fishery management plans by introducing new science and new authorities to the current Pacific Council process. The Pacific Council has successfully employed spatial management concepts for years and has recommended closed areas to rebuild overfished species, minimize bycatch, and preserve essential fish habitat. The Pacific Council believes an EFMP will be an effective tool in achieving shared ecosystem-based management goals and objectives of the Pacific Council, National Marine Fisheries Service and the National Ocean Service within and outside National Marine Sanctuaries.

Thank you again for providing the Pacific Council an opportunity to provide comments on H.R. 1187 and S. 2635.

Sincerely,

D.O. McIsaac, Ph.D.,
Executive Director.

MDB:kam

cc: U.S. Senator Barbara Boxer, (D–CA)
U.S. Senator Maria Cantwell, (D–WA)
U.S. Senator Larry Craig (R–ID)
U.S. Senator Mike Crapo (R–ID)
U.S. Senator Dianne Feinstein, (D–CA)
U.S. Senator Patty Murray, (D–WA)
U.S. Senator Ron Wyden, (D–OR)
Pacific Fishery Management Council Members

Senator CANTWELL. Thank you very much for your testimony.

I'm going to start with Mr. Gray, on the Thunder Bay Sanctuary and its origins. Originally, when that was proposed, it was proposed as a much larger sanctuary, is that correct—originally?

Mr. GRAY. Yes, ma'am, it was proposed to be about twice the size of the current boundaries. In the negotiations with the State of Michigan, entire sanctuaries within State waters, as all the Great Lakes bottom lines, belong to the states. Due to concerns about the sanctuary, it was negotiated to about half the size of the current proposed—current sanctuary.

Senator CANTWELL. And has that been effective at meeting its original goals and protecting the historic shipwrecks and everything within the sanctuary?

Mr. GRAY. I believe it has. The communities that were opposed to joining the sanctuary at the beginning have all passed formal resolutions at the county level and the city level and township level asking to be brought into the sanctuary.

Senator CANTWELL. So, you think the differences from where we were on the original proposal to now, today, in expansion, is just that people have gotten more comfortable with the result of the sanctuary creation and now are back to where the original proposal was. Is that——

Mr. GRAY. It's actually back, and expanded beyond that, is what this proposal and our Advisory Council have proposed—beyond the original scope. I believe a big part of that success is NOAA being in the community and part of the community. We work very closely with all of our community partners from the State level down to the local community, local businesses. And I believe that's the strongest change. Prior to designation, there wasn't the same presence in the community.

Senator CANTWELL.—okay. And Senator Levin mentioned that there was a lot of discussion from community leaders, and you just mentioned the county, so is there—were those public forums—how did they reach their——

Mr. GRAY. During—we held scoping meetings at the beginning of our boundary—or at the beginning of our management plan review process throughout the three counties. We received comment at those. The local governments, they all passed their resolutions as part of their formal meetings, so those—yes, they were all public forums.

Senator CANTWELL. OK. Thank you.

Mr. GRAY. Thank you.

Senator CANTWELL. And so, you don't know of any local opposition, is what you're saying. Is——

Mr. GRAY. No, ma'am.

Senator CANTWELL. Right. And I didn't ask Admiral Lautenbacher about this in his testimony, but obviously they have been supportive of this expansion, as well.

Mr. GRAY. The local communities or——

Senator CANTWELL. NOAA. NOAA has been supportive of this expansion, as well.

Mr. GRAY.—the underlying goals of it is to protect these shipwrecks. Yes, they are.

Senator CANTWELL. OK, thank you.

Dr. Williams, Ms. Fosmark talked about the large support from the fishing industry, in general. What do we—what else do we know about local support of this expansion? And what has the process been to actually ascertain that local support?

Dr. WILLIAMS. The formal process for the local support and broader support started when Congresswomen Woolsey introduced the bill in 2004. Thereafter, four county boards of supervisors—Sonoma, Marin, San Francisco, and Mendocino—called for a public meeting, a hearing. They passed a resolution endorsing the bill. All of those meetings were publicly noticed, and public comment, oral and written, were encouraged.

In addition, the Gulf of the Farallones and the Cordell Bank Sanctuaries Advisory Council had meetings that were noticed, and they ended up endorsing the Act, the legislation.

In addition, the City of San Francisco and the Port of Oakland also endorsed the bill. And before 2004, there was public scoping processes going on in regards to the proposed legislation, but the proposal for the expansion was brought up originally by the public, and that started, in part, as part of the joint draft management scoping plan, and even before that. For example, the fishermen in—associated with the largest fishing group on the West Coast, the Pacific Coast Federation of Fishermen's Association, had requested that the Cordell Bank boundary, when it was designated, include part of the expansion area. So, public support has really been overwhelming. Since 2002, I've attended, that I can recall and have on record, at least seven public scoping meetings where public comments, written and oral, have been encouraged. Some of these scoping meetings were done at the request of the sanctuary managers. For example, there was one in 2006, held at Bodega Marine Laboratory, where, as part of the agenda, the Modified Boundary Act was considered. At that time, it was H.R. 1712 and Senate bill 880, I believe.

So, I have heard no local opposition; in fact, what I hear is overwhelming support for this expansion; in particular, because people recognize the economic importance of the marine resources in the sanctuary, both the fishes, but also the tourism industry is very important along the coast.

Senator CANTWELL. Ms. Fosmark, you talked about the fishing issues. And obviously the Sanctuaries Act requires cooperation with appropriate fisheries management authorities. And so, doesn't the Pacific Council get their say in the expansion? I mean, won't they have their input as it relates to fisheries management?

Ms. FOSMARK. Yes. Actually, there is a letter that was sent by the Pacific Fishery Management Council—it should be attached to my written testimony—from the Pacific Council regarding this bill. They're—the Alliance is also—the Pacific Fishery Management Council did comment on the need question for marine protected areas, and the issue here is, in 2004, there wasn't that risk of zoning, and this particular issue came up later. However, PCFFA, Pacific Coast Federation of Fishermen's Association, is a subgroup of the Alliance, and did separately write a letter supporting some language, the same exact language that we have in our testimony here today.

Senator CANTWELL. I guess my question is, if this is a concern, then why are organizations like the Pacific Coast Federation of Fishermen and the Association of Bodega Bay Fishermen endorsing the proposal? I mean, they're local fishermen that are supporting it. So, I think of the council management as, you know, a coordinating agency, but I would think that they would take their cues from local fishermen, whether they—there were—they were concerned. And if local fishermen weren't concerned, how is that—you know, how are those two things not being represented?

Ms. FOSMARK. Local fishermen, which, I may say, I am one of those local fishermen, they did have a concern, but they were reassured there was language in the bill that would protect them. However, it doesn't make it totally clear about fisheries management in the bill. It only says that fishermen—that fishing—it's a very vague version, it just doesn't clarify who has the authority to manage fish. The difference between the Sanctuary and the Pacific Council is, the Pacific Council is a very open process, it's based on subcommittees, science and statistical committees. It has a checks-and-balance system, and it regulates fisheries very well. That is not the case in the Sanctuary——

Senator CANTWELL. Well, I think—I think the point is, is that—while I'm not sure if you're referring to the House bill, but H.R. 1187 may not have that language clarified as to the point you're making, but certainly the National Marine Sanctuary Act does. And it requires that they—there be cooperation with other appropriate fishery management authorities in drafting any fishing regulations in the sanctuary. So, that authority is there in the original Act. So, you may not—you're not seeing that coordination in the language of this proposed bill, but it's certainly there in current law, so you would have that coordination.

Ms. FOSMARK. Yes. And we do understand—I do understand that there is that coordination and that they must come to the council to find a proper course of action. It says that, as well. Our problem is that, rather than come to the council, they're announcing that marine protected areas and zoning closures in marine reserves are necessary in other sanctuaries south of there, and the fear that fishermen have is that they will lose fishing grounds. And if they don't have access to their fishing grounds, including crab and salmon, which is a very important fishery to those regions, they will suffer, and those communities will suffer. And this is the main problem we're having, is that zoning is not being considered a fishing regulation.

Senator CANTWELL. Dr. Williams, would you like to comment on that?

Dr. WILLIAMS. H.R. 1187 addresses Cordell Bank and Gulf of the Farallones National Marine Sanctuaries, and these sanctuaries have forged a very cooperative and responsive relationship with the fishermen. This—examples of this are on the record of the House subcommittee consideration of this legislation. And there has never been a problem in those sanctuaries with cooperating and being responsive to the fishermen's needs.

Zeke Grader, who is the Executive Director of the Pacific Coast Federation of Fishing Associations, which is the largest on the West Coast, submitted a written statement that stated, "The lan-

guage, as it exists in 1187, was a model for the rest of the Nation." Other sanctuaries have different relationships with the fisheries. We are talking about the Gulf of the Farallones and Cordell Bank managers, and they have excellent relations. They have included fishermen, and they have—if you read the notes in the fisheries—Pacific Fisheries Management Council and the Sanctuary Advisory Council, you can see that over the past few years there has been exchange about fishing in these sanctuaries. Also, the issue here is not the designation of marine protected areas, it's expansion of the boundaries of the Cordell Bank and Gulf of the Farallones National Marine Sanctuaries.

Senator CANTWELL. Thank you.

Well, we've been joined by my colleague Senator Boxer. Thank you very much for being here. And I obviously—know you have great interest in at least one of these two areas——

Senator BOXER. Yes.

Senator CANTWELL.—we're hearing about this morning. So, I'm going to turn the questioning over to you.

STATEMENT OF HON. BARBARA BOXER, U.S. SENATOR FROM CALIFORNIA

Senator BOXER. Thank you so much.

And I just wanted to explain that all morning I've been chairing a hearing about perchlorate, over in—and the dangers of perchlorate—over at EPW, and I'm done. I turned over the gavel so I could stay here, because this is such an important matter. And I thank the witnesses.

And I thank you so much, and Senators Inouye and Stevens, for having a hearing here.

If it's OK with you, could I respond to this fishery issue here and then could I give a—I think it's about a—oh, 4-minute opening statement? Because—and I want to show you some photos and such, and then I'll be done.

Senator CANTWELL. Certainly.

Senator BOXER. I don't have a lot of questions, because, frankly, I think the questions have been answered by my fishermen up there. I do understand and respect the comments of Ms. Fosmark, but we are talking about a sanctuary in the northern part—it's not the Monterey Bay. As a matter of fact, in the bill itself, in H.R. 1187—and I quote from the written statement of Zeke Grader, Executive Director of the Pacific Coast Federation of Fishermen's Association; he made this statement to the House. He said, "Finally, H.R. 1187 makes clear that existing fishery entities"—and he lists who they are—California Department of Fish and Game, he lists them all—"retain sole activity over fisheries within sanctuary water." Section (3)(c) effect on fishing activities says in our bill, "Nothing in this Act is intended to alter any existing authorities regarding the conduct and location of fishing activities in the sanctuaries."

I think this is a—if I could say, a strong man, strong person—because it's just not true. And I see our fishermen from that area being so supportive. They are one of the lead supporters of this bill. I mean, what—let me tell you what Zeke Grader said, Ms. Fosmark. He said, "In supporting the creation of the Gulf of the

Farallones Sanctuary, our organization sought to protect some of the best fishing grounds along the Pacific Coast, not to close them."

And so, I think, you know, if there are some issues—maybe there is a little misunderstanding, and I would love to meet with Ms. Fosmark, because I love the work she does. But, I just feel there is a disconnect here between the reality and some of the things you've said.

And I think that when the House passes a bill—what was it? By voice vote? Is that right—a bill by voice vote, frankly I don't think there is any controversy, really, because it wouldn't have done that.

So, our important bill will protect one of the world's most biologically diverse and productive regions. And I wanted to compliment Congresswoman Lynn Woolsey, Senator Feinstein, and again say, to have a bill pass by voice vote in the House is almost impossible, and this one did it, and I would hate to see any slowdown here. I'd like to move this along. I feel strongly about it.

I want to show you the photo of the Sonoma coast to show you how truly spectacular and pristine this area is. And, Madam Chairman, I don't have to prove anything to you, but I always—one of the favorite things I do as a Senator is work toward these kinds of bills, and wilderness bills, like you, and I want to share this.

Established in 1980 and 1989, respectively, the Gulf of the Farallones and Cordell Bank National Marine Sanctuaries have helped protect the marine waters and the coastline that are quintessentially Californian and quintessentially West Coast. My bill will protect an even greater part of my state's coast by expanding the sanctuaries' boundaries to include more of northern California's great upwelling marine area, one of only four on the planet.

And I want to take just a moment. Upwelling areas are places where deeper water comes to the surface, bringing the nutrients needed by marine algae to grow and support all higher forms of marine life. Though upwelling areas comprise only 1 percent of the world's ocean, they produce 20 percent of the fish. Let me say it again: 1 percent of the world's ocean are upwelling areas, but they produce 20 percent of the fish. So, we can't turn away and—and especially we can't turn away in the name of saving fisheries. We need to save the fisheries by protecting these areas.

The area from Point Arena to Bodega Bay, currently outside the sanctuary boundary, is particularly important. It has the most intense upwelling in all of North America, and an enormous capacity to support marine life. And I am proud that Senator Feinstein's and my bill will expand the sanctuary boundaries to protect this upwelling area.

The unique productivity of this region is illustrated by the abundance and diversity of marine life it supports. And I want to show a series of charts here: 36 species of marine mammals, including the endangered blue and humpback whales. And, Madam Chair, we have worked so hard on protecting these creatures. Numerous coastal and migratory seabirds—we'll show you—oh, that's another beautiful—that is a seal, and you don't have it listed here, but I know that's a seal. And—

[Laughter.]

Senator BOXER.—coastal and migratory seabirds, including the blackfooted albatross. Do we actually have that one? I'm getting

you very confused. This is—these are the seabirds. Look at them. Endangered leatherback turtles and coho salmon.

And this is the—this is the beauty. Expanding the existing sanctuaries to include this area is necessary to protect this remarkable ecosystem from pollution and habitat degradation.

I want to list the broad support the bill has: the California Coastal Commission, the California State Lands Commission, the counties of Sonoma, Marin, and Mendocino, and the City of San Francisco. Madam Chair, those are the areas that have the elected officials that are in closest proximity to this. Also supported by the fishermen in the area, including the Pacific Coast Federation of Fishermen's Association, by far the largest and most active association of commercial fishermen on the West Coast.

The fishermen, most of all, recognize the urgency of passing this legislation: to preserve the water quality and habitat essential for good fishing. Our bill will help preserve an incomparable gem of an ecosystem, and I certainly look forward to working with you and our colleagues to move this important legislation forward.

And, again, I want to thank Dr. Williams. And, Ms. Fosmark, I hope after the hearing we can have a chance to chat, as well.

[The prepared statement of Senator Boxer follows:]

PREPARED STATEMENT OF HON. BARBARA BOXER, U.S. SENATOR FROM CALIFORNIA

Thank you Chairwoman Cantwell and Ranking Member Snowe, and Chairman Inouye and Ranking Member Stevens, for including "the Gulf of the Farallones and Cordell Bank National Marine Sanctuaries Boundary Modification and Protection Act" in today's hearing. This important bill would protect one of the world's most biologically-diverse and productive marine regions. I am proud to be joined in this effort by Congresswoman Lynn Woolsey and Senator Dianne Feinstein, and pleased that this bill passed the House of Representatives in March by voice vote.

This photo of the Sonoma Coast shows how truly spectacular and pristine this area is. Established in 1981 and 1989 respectively, the Gulf of the Farallones and Cordell Bank National Marine Sanctuaries have helped protect the special marine waters and coastline that are quintessentially Californian. My bill will protect an even greater part of my state's coast by expanding the Sanctuaries' boundaries to include more of northern California's great "upwelling" marine area, one of only four on the planet.

Upwelling areas are places where deeper water comes up to the surface, bringing the nutrients needed by marine algae to grow and support all higher forms of marine life. Though upwelling areas comprise only 1 percent of the world's ocean they produce 20 percent of its fish—that's right, 20 percent. The area from Point Arena to Bodega Bay, currently *outside* the sanctuaries' boundaries, is particularly important since it consistently has the most intense upwelling in all of North America and an enormous capacity to support marine life. I am proud that my bill will expand the sanctuaries' boundaries to protect this upwelling area.

The unique productivity of this region is illustrated by the abundance and diversity of marine life it supports: 36 species of marine mammals, including the endangered blue and humpback whales; numerous coastal and migratory seabirds including the black-footed albatross; endangered leatherback turtles; and coho salmon. Expanding the existing Sanctuaries to include this area is necessary to protect this remarkable ecosystem from pollution and habitat degradation.

My bill has broad, local support, including from the California Coastal Commission, the California State Lands Commission, the Counties of Sonoma, Marin, and Mendocino, and the City of San Francisco. It is also supported by fishermen, including the Pacific Coast Federation of Fishermen's Associations, by far the largest and most active association of commercial fishermen on the West Coast. Fishermen recognize the urgency of passing this legislation to preserve the water quality and habitat essential for good fishing.

My bill will help preserve an incomparable gem of an ecosystem. I look forward to working with my colleagues to move this important legislation.

I would like to enter the following documents for the record:*

Senator CANTWELL. Well, thank you, Senator Boxer. And thank you for making it over, obviously, from chairing your own hearing on an important topic, to being here.

And I think that concludes where we are today with our hearing on two topics, both the marine sanctuary and the NOAA budget hearing. And so, I thank the witnesses for being here to testify.

And we're adjourned.

[Whereupon, at 12:02 p.m., the hearing was adjourned.]

*All of these documents are retained in the Committee's files.

A P P E N D I X

PREPARED STATEMENT OF HON. DAVID VITTER, U.S. SENATOR FROM LOUISIANA

The United States has the greatest amount of coastline in the world, and more than half of the Nation's residents live in coastal counties. Our Nation will be increasingly affected by coastal issues, and NOAA must be equipped to handle them. Louisianans are concerned about many of these issues, including sustainable and productive fisheries, hurricane and storm surge forecasting, and coastal erosion and restoration.

I am concerned by the distribution of funds in the President's FY 2009 NOAA budget. This year's budget of $4.1 billion represents a modest increase of $202 million over the FY 2008 enacted levels, but comes at a $40 million cost for the "wet side" programs of NOAA.

Hurricane Research

I am pleased that NOAA is supporting more hurricane research. Additional research, forecasting, and infrastructure will help mitigate the impact of hurricanes along our coasts. Increases for the Hurricane Weather Research and Forecasting model, hurricane data buoys in the Gulf of Mexico and elsewhere, and additional aircraft hours dedicated to hurricane research are a step in the right direction.

I also urge NOAA to work toward better storm surge predictions. I have previously introduced legislation on this important topic and believe that we need to make significant progress on storm surge prediction. Hurricane Katrina's storm surge flooding was devastating, and I hope NOAA can advance the state of the science in this area to help prevent more loss of life and property.

Hypoxia and Harmful Algal Blooms

I am also concerned about the twin problems of hypoxia and harmful algal blooms. Louisiana's offshore hypoxic zone is growing and impacts our tradition of productive fisheries. In 2007 the dead zone was 7,900 square miles—that's roughly the size of New Jersey.

Fish and shrimp cannot survive in the dead zone. Loss of ocean habitat in the future through dead zone expansion may have severe consequences for Louisiana's commercial fisheries, yet plans to reduce the size of the dead zone to 2,500 square miles by 2015 are not on track.

In addition, harmful algal blooms damage commercially valuable fisheries and shellfisheries and threaten public health. I urge NOAA to devote more energy to further research and practical control and mitigation solutions for harmful algal blooms and hypoxia.

Marine Monuments

As this hearing also dealt with some marine sanctuary issues, I'd like to reiterate my opposition to any plans for a new Gulf of Mexico marine monument. The use of the Antiquities Act to create a monument could restrict vitally important marine areas without the benefit of public participation and stakeholder input. The Gulf is home to nationally significant commercial and recreational fisheries as well as critical energy infrastructure, and a monument designation would take away these and other voices.

The two existing NOAA sanctuaries in the Gulf of Mexico established public forums that involve all interested parties in decisions to protect marine areas. I urge that proposals in the future continue using these protocols, and not the Antiquities Act, so as to maintain a trusted, transparent public process.

I would like to add a letter signed by Sens. Shelby, Sessions, and myself opposing marine monuments to the record.

U.S. SENATE
Washington, DC, April 21, 2008

Hon. JAMES CONNAUGHTON,
Chairman,
Council on Environmental Quality,
The White House,
Washington, DC.

Dear Chairman Connaughton:

We are writing to express our strong objections regarding a proposal to create a network of marine monuments within the Gulf of Mexico. This proposal, currently being circulated within the Administration, could have grave impacts for the Gulf Coast's recreational fisheries, commercial fisheries, marine cargo shipping, and domestic offshore energy industry. Each of these industries is of fundamental importance to our regional and state economies, and the Nation's economy as well.

It is our understanding that you and representatives from the National Oceanic and Atmospheric Administration have discussed a plan for the President to declare a network of marine monuments throughout the Gulf of Mexico under the Antiquities Act of 1906. We are concerned that an attempt to use this authority could restrict vitally important marine areas without the benefit of public participation and stakeholder input.

The Gulf of Mexico is home to productive commercial and recreational fisheries that have an annual economic impact of over $4.5 billion. A number of the Nation's top ports are also located in the Gulf region. Maritime infrastructure and fisheries are still recovering after the devastating 2005 hurricanes, while facing increased competition from subsidized foreign aquaculture and unsustainable fishing practices of other nations.

In addition to nationally significant fisheries, the Gulf Coast has the greatest concentration of energy infrastructure in the world, with an estimated 4,000 of the world's 7,000 offshore platforms located here. The Gulf of Mexico supplies up to 30 percent of the Nation's energy needs, and provides a source of secure domestic energy in a time of increasing volatility in the world energy market.

We support the protection of environmentally sensitive marine areas, and feel that the best way to continue to protect natural resources is to fully engage the public interest. Recommendations to expand protected areas should be based on recognized need, with sound scientific justification.

The Gulf of Mexico Fishery Management Council, which represents a spectrum of stakeholder interests from all five Gulf states, is specifically tasked to manage fisheries and identify areas of particular concern. The Flower Garden Banks and Florida Keys National Marine Sanctuaries Advisory Councils have already established public forums which involve all interested parties in decisions to protect marine areas. Any proposal under the Antiquities Act would short-circuit these councils, disrupting a trusted, transparent public process.

We strongly urge you to refrain from moving forward on a Gulf of Mexico Marine Monument. This Administration does not have enough remaining time to fully consider the variety of public interests that must be represented, and such a significant project should not move forward without the participation and support of the many stakeholders involved.

Sincerely,

Richard Shelby
U.S. Senator

Jeff Sessions
U.S. Senator

David Vitter
U.S. Senator

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. DANIEL K. INOUYE TO VICE ADMIRAL CONRAD C. LAUTENBACHER, JR.

Question 1a. Admiral Lautenbacher, while I am pleased to see a request of $60.3 million for the continuation of construction for the Pacific Regional Center, I am concerned that this level of funding is sufficient for only two of the three buildings included in the initial plan. How do you intend to provide for the construction of the third building?

Answer. The multi-year funding request contained in the FY 2009 President's Budget will fund renovation/construction of two buildings and other support structures for central IT/network infrastructure ("main distribution facility"), security command control center, and other central building operations space required for the security and operations of the entire Pacific Regional Center complex. The Pacific Tsunami Warning Center and International Tsunami Information Center and several other small programs, will remain fully operational in off-site, primarily leased space. The multi-year budget request, if appropriated, will allow us to proceed with the consolidated Pacific Regional Center project.

Question 1b. The unfunded building is intended to house the central computer system, correct? Is this system not critical to the operational capabilities of the facilities as a whole?

Answer. The President's FY 2009 Budget Request provides funding for a revised building plan in which the critical central computer system is housed in Building A. As mentioned above, the current plan for Building A supports the central IT/network infrastructure ("main distribution facility"), security command control center, and other central building operations space required to support the security and operations of the entire complex.

Question 1c. If the requested funds for the Pacific Regional Center are not appropriated in FY 2009, what will be the impact to this project?

Answer. If the funds requested for the Pacific Regional Center are not appropriated, due to a year-long continuing resolution or reductions effected during the appropriations process, there will be substantial delays in both schedule and cost associated with the project. We estimate there will be a 10–15 percent cost escalation for each year construction is delayed; for the Pacific Regional Center, this would amount to a $20–30 million cost growth.

In addition to the cost impact, there are increased risks to the NOAA programs supported at NOAA's current facilities, should the project be delayed. The Pacific Regional Center replaces dispersed, at-risk, and overcrowded buildings with consolidated, state-of-the-art facilities supporting the critical science, research and operational missions conducted by NOAA in Hawaii.

Question 1d. Admiral, the Pacific Regional Center in Hawaii represents a unique opportunity for NOAA to consolidate its various programs and organizations under one roof and to utilize existing Federal property. However, I am concerned that NOAA will face funding challenges with the operation of this Center in the future, similar to those challenges faced in the Seattle, Washington, Center. How does the NOAA intend to fund the day-to-day operating costs at the new Center and to plan for out-year funding requirements for repairs at the Center?

Answer. Costs at an owned-facility can be categorized into three categories:

- *Annual operating expenses* (*e.g.,* utilities, maintenance contracts).
- *Sustainment expenses* (predictable investments to maintain the functionality of a building); *e.g.,* regularly scheduled replacement of building systems and equipment).
- *Repair and restoration expenses* (unpredictable repair or replacement of building systems to restore operations).

The first category (annual operating expenses) is predictable, and relatively stable from year-to-year. The second category (sustainment expenses), is predictable, but not as stable from year-to-year, since it is affected by the life-cycle of specific building systems, and the costs of building systems. For example, a roof may only need to be replaced every 20 years (predictable), but its replacement costs are likely to cause large spikes in required funding (not stable). The final category (repair/restoration) is not predictable, and also not stable from year-to-year; it is also affected by failure to adequately fund sustainment costs at a facility.

The preferred model for supporting these types of costs at the Pacific Regional Center would be as follows:

1. Annual operating expenses (including sustainment costs): Annual operating expenses would be paid through current program/line office "tenant" transfers

(*e.g.,* for utilities, maintenance contracts, etc.) toward the overall costs of building operations. Any additional operational costs at the new Center above historical cost levels incurred in the separate facilities would be requested through the appropriations process as an increase in the Operations, Research, and Facilities (ORF) account.

2. Repair and restoration costs: These costs would be funded through the establishment of a dedicated budget line within the Procurement, Acquisition, and Construction account. This approach provides a transparent way to evaluate and budget for major facility repairs during each fiscal cycle.

Question 2a. The NOAA budget requests an additional $4.5 million for non-labor related adjustments, such as fuel costs. Given record high energy prices, is this increase sufficient for NOAA to meet rising fuel costs for its aircraft and vessel operations?

Answer. At the time of our FY 2009 budget development, NOAA projected ship diesel fuel to cost $2.47 per gallon. The FY 2009 President's Budget request includes approximately $14.9 million for ship fuel. NOAA expects the average price for fuel for the remainder of FY 2008 to be about $4.12 per gallon. In the event that this price remains the average for FY 2009, NOAA would need approximately an additional $10.4 million over the planned amount to cover diesel fuel for the fleet to maintain planned FY 2009 operation levels.

[NOAA attempts to use a Department of Defense fueling contract to refuel its ships whenever feasible. However, depending on their in-port location, sometimes the ships must refuel paying the prevailing commercial market rate.]

Rising fuel prices have also impacted NOAA's ability to charter days at sea. The day rate to charter both UNOLS and commercial ships has increased due to the rise in fuel costs. For example, R/V REVELLE's FY 2007 day rate was $26,200/day. As of March 2008, this rate is now $32,000/day, a 22 percent increase. Other UNOLS vessels of the same class have also correspondingly increased their day rates.

As with the rising costs of ship fuel, aviation fuel prices have also increased. During development of the FY 2009 budget, NOAA projected aircraft fuel to cost $2.93 per gallon. The FY 2009 President's Budget Request includes approximately $4.0 million for aircraft fuel. However, fuel prices paid by NOAA aircraft have averaged $3.79 per gallon in FY 2008, and we estimate that fuel will cost $4.20 per gallon in FY 2009. This estimate translates into an FY 2009 aviation fuel cost of approximately $5.8 million for NOAA aircraft to maintain planned operation levels.

Question 2b. If this funding level is not sufficient, how do you plan to address the shortfall?

Answer. High diesel fuel prices may limit NOAA's ability to perform scientific operations at sea. At the budget planning estimate of $2.47 per gallon for diesel fuel, NOAA ships were expected to support 3,390 operating days in FY 2009. Through June 2008, the NOAA fleet has averaged $3.05/gallon for the fiscal year. When NOAA finalizes its Fleet Allocation Plan in the year of execution, we will update the estimate for operating days.

Escalating aviation fuel prices will also cut into NOAA's flight hours. At the budgeted rate of $2.93 per gallon, we expected NOAA aircraft to support 2,845 flight hours in FY 2009. At the projected rate of $4.20 per gallon, NOAA could provide 1,750 flight hours—a reduction of 1,095 hours or a 38 percent decrease.

To compensate for higher than planned ship and aircraft fuel prices, one or more NOAA platforms may need to be brought off-line for the year or platforms may experience a reduction in operating days or flight hours. The NOAA Fleet Council will evaluate these measures for their programmatic and public impacts before NOAA makes its final decisions.

Question 3a. In its vision statement, the NOAA underscores the value of an informed society. However, the President's FY 2009 budget proposes to cut funding for NOAA's education programs by 48 percent. Admiral, how does the NOAA intend to educate and inform the public without adequate education programs?

Answer. NOAA has requested $16.5 million in FY 2009 for the NOAA Education Office. NOAA also funds education activities through a number of programs in the line offices. For example, the President's FY 2009 Budget Request includes $3.2 million for educational activities conducted through the National Marine Sanctuaries Program, the National Estuarine Research Reserves, and the Coral Reef Conservation Program, all within the National Ocean Service.

NOAA is currently updating its Education Plan as requested by the America Creating Opportunities to Meaningfully Promote Excellence in Technology Education, and Science Act. In addition, NOAA has contracted the National Academy of Sciences to perform a review of its Education program and provide recommenda-

tions for optimizing NOAA's investment in education. That review is currently underway and the results will be considered as NOAA develops future budget requests.

Question 3b. What is the NOAA doing to assert the value of its education programs both within the government and externally to the public?

Answer. NOAA has a vision for "an informed society that uses a comprehensive understanding of the role of the oceans, coasts and atmosphere in the global ecosystem to make the best social and economic decisions." Inherent in this vision is the need for an environmentally literate public that is aware of, and capable of understanding, issues affecting Earth's environment. NOAA generates data and scientific findings that are crucial for assessing the state of the oceans and the atmosphere. NOAA is actively working to assure that these unique data and findings are provided to the public in a focused manner that will foster advancement of environmental literacy.

In 2007, Congress recognized the role of NOAA in Earth system science education with the passage of the America COMPETES Act (P.L. 110–69). This legislation mandates NOAA to "conduct, develop, support, promote, and coordinate formal and informal education activities at all levels to enhance public awareness and understanding of ocean, coastal, Great Lakes, and atmospheric science and stewardship by the general public and other coastal stakeholders, including underrepresented groups in ocean and atmospheric science and policy careers."

NOAA is actively engaged, both within the Federal Government and externally, to meet these requirements.

Interagency Efforts

NOAA is the co-chair in the Interagency Working Group on Ocean Education (IWG–OE), established by the Interagency Committee on Ocean Science and Resource Management Integration (ICOSRMI). The IWG–OE is tasked to implement recommendations of the *U.S. Ocean Action Plan* to collaborate across Federal agencies in order to increase ocean literacy and build a future work force. Formally established in 2006, the working group has been working to compare agency programs and identify common priorities. The IWG–OE's efforts:

- Address lifelong learning through formal and informal education;
- Leverage resources by broadening and strengthening networks and investing in common messages;
- Recognize ocean education as a specific expression of Earth system science and environmental education and link to these important concepts; and
- Promote the 3Ocean Literacy Essential Principles and Fundamental Concepts 1as a model framework for organizing our efforts to increase understanding of the relevance of the ocean to our everyday lives.

External Efforts

Partnerships

NOAA has established strategic partnerships with formal and informal education groups that promote the use of NOAA products and services and contribute toward the development of an environmentally literate public. Key partnerships include:

- National Science Teachers Association (NSTA): NOAA is working with NSTA, through a Cooperative Agreement, to develop a series of education products for teachers on topics aligned to NOAA's mission. These products provide tens of thousands of science teachers with professional development and classroom resources in the form of Science Objects, SciGuides, and WebSeminars.
- Ocean and Climate Literacy efforts: To ensure consistency and incorporation of key NOAA subject areas, NOAA engaged external partners, both Federal and non-, for the development of both the Ocean and the Climate Literacy essential principles and fundamental concepts. NOAA is working with the education community toward broad adoption of these principles in the classroom and in free-choice learning venues.
- Smithsonian Institution's Ocean Initiative (OI): NOAA has made a significant commitment to support the OI. Major NOAA-Smithsonian partnership efforts include, a national exhibition on the ocean at the National Museum of Natural History—the Ocean Hall and a virtual extension of the exhibit through an Ocean Web Portal. The mission of the OI is to advance scientific understanding of the ocean and increase public awareness of its importance to all life. It is expected that over 6 million visitors will visit the Ocean Hall and over 10 million visitors will experience the Ocean Web Portal every year.

- Coastal Ecosystem Learning Centers (CELC) Network: In partnership with Coastal America, NOAA is working with the CELC Network to educate and involve the public in protecting our Nation's coastal and ocean ecosystems. For example, NOAA's "Ocean Today" kiosk (a continuously updated interface to the latest ocean discoveries & originally developed for the Smithsonian's Ocean Hall) is being pilot tested in five CELCs for possible wider use within the network.
- Science On a Sphere (SOS) Collaborative Network: NOAA has created a collaborative network of more than 30 informal science education institutions and universities interested in the development of spherical display technologies for showing current data about Earth processes. Most of these partners have created public exhibits around NOAA's Science On a Sphere and are evaluating the impact it has on the audience. Through this network NOAA promotes sharing of best practices and content for these data visualization systems, and solicits feedback on how to improve its data products for the informal science education community.

Question 4a. I understand that the cost of fully implementing the Magnuson-Stevens Fishery Conservation and Management Act is expected to be, at minimum, $75 million for FY 2009. Is this correct?

Answer. The cost of fully implementing the Magnuson-Stevens Reauthorization Act (MSRA) in FY 2009 is $45.3 million, the amount requested in NOAA's FY 2009 Budget request. This is an increase of $31.8 million over the $13.5 million provided in FY 2008. The $45.3 million will fully meet the FY 2009 requirements necessary to fulfill the top MSRA priorities of ending overfishing, implementing widespread market-based fishery management, and increasing international cooperation.

Question 4b. Is the $31.8 million requested in the President's FY 2009 budget for Magnuson-Stevens implementation sufficient to achieve the mandates set forth in the Act by 2011?

Answer. NOAA's requests over the last few years have been increasing in order to meet the highest priority MSRA requirements. In FY 2008 Congress provided NOAA $13.5 million for MSRA and closely related items, a decrease of $16.6 million compared to the President's budget. This year, we are requesting an additional $31.8 million for a total of $45.3 million to continue MSRA implementation.

The NOAA FY 2009 budget request focuses on the top MSRA priorities of ending overfishing by 2011, implementing widespread market-based fishery management, and increasing international cooperation.

The FY 2009 budget request will help end overfishing by ensuring that annual catch limits (ACLs) are put into place. The request supports widespread market-based fishery management through the increased use of limited access programs, and will support increased international cooperation on issues such as illegal, unreported, and unregulated fishing and international agreements as mandated by the MSRA.

Question 4c. How does NOAA plan to fulfill the mandates set forth in the Magnuson-Stevens Act with inadequate funding?

Answer. The $45.3 million in the FY 2009 request for MSRA implementation will keep NOAA on pace to meet the 2010/2011 deadlines for ending overfishing and establishing Annual Catch Limits.

Question 5a. The effects of marine debris on coral reefs are particularly evident in the Northwestern Hawaiian Islands, which include 69 percent of all U.S. coral reefs by area. While I am happy to see that the President has included $4 million for the NOAA Marine Debris program in the FY 2009 request, do you feel that, given the scope of this issue, the request sufficiently addresses this pressing issue?

Answer. The President's Budget request for $4 million will allow the NOAA Marine Debris Program to address the most pressing issues of marine debris through several different avenues, including funding assessment and research projects, removal projects, and outreach and education activities. All of these are done in conjunction with other organizations and research facilities, so we can leverage the amount of funding received from Congress. We are also beginning to better coordinate Federal activities and needs to achieve more by capitalizing on each other's activities.

Question 5b. As part of the enacted Marine Debris Research, Prevention, and Reduction Act, Congress instructed the NOAA to create a Federal Information Clearinghouse to provide information about the potential sources of Marine Debris. Can you confirm that the NOAA is working toward implementing this database in accordance with all of the requirements contained in the Act?

Answer. The President's FY 2009 Budget Request provides NOAA funds to start the development and implementation of the Federal Information Clearinghouse, as required by the Marine Debris Research, Prevention, and Reduction Act. NOAA is working toward implementing this data base, and to date has been engaged in the planning and scoping for the Clearinghouse. A public-use version is expected to become available in FY 2010.

Question 6a. There is growing public interest in and support for marine sanctuaries to protect and conserve valuable marine resources and ecosystems. Is NOAA able to meet the management and conservation needs at existing sanctuaries with the proposed budget level?

Answer. The President's FY 2009 Budget Request provides a total of $49.9 million for the 13 national marine sanctuaries and the Papahānaumokuākea Marine National Monument. With these funds, NOAA is able to meet the management and conservation needs of our existing sanctuaries. The National Marine Sanctuary System encompasses over 18,000 square miles of waters and marine habitats, and increases our knowledge and understanding of complex marine ecosystems. With the increasing environmental pressures on our Nation's coastal areas, the importance of maintaining a system of marine protected areas is evident.

Question 6b. If the proposed sanctuary expansions become Federal law, can you ensure that the additional resources needed for these sanctuaries will not have a negative impact on the management and conservation of the existing areas within the National Marine Sanctuary System?

Answer. NOAA will work to ensure that existing sanctuaries are not adversely impacted, should the proposed sanctuary expansions (Gulf of the Farallones, Cordell Bank, and Thunder Bay National Marine Sanctuaries) be enacted.

Question 7. Admiral Lautenbacher, I want to thank you for your service to NOAA for the past 7 years. Reflecting on your service, what would you identify as the top challenges facing the NOAA now and in the future? How do you hope to address these challenges?

Answer. NOAA faces many challenges as the country becomes more dependent on the products and services we provide.

Internally, we have tried to break down stovepipes that existed between our different line offices and have instituted a rigorous budget process that directly links funding to outcomes. Through this process, we identify specific needs of the American public and are able to bring to bear all of our expertise throughout the agency to meet those needs.

An Organic Act will give statutory guidance to the Agency and will give future NOAA leaders the tools they need to meet those goals.

NOAA continues to be challenged to improve the transition from research to operations. As an operational agency, NOAA has to ensure that fundamental research is focused on improving our operational capabilities. In some cases, such as our satellite program, this means improving working relationships across agencies as we've been doing with NASA. But often, it means simply breaking down historic barriers between our researchers and our operational staff.

With climate variability and change profoundly influencing economic prosperity, human health, and national security, NOAA stands committed to providing the public with relevant and reliable climate information in support of policy decisions in government and the private sector. To this end, NOAA will seek to leverage its research portfolio, monitoring capacity, and operational infrastructure with those capabilities of its partners.

Despite these challenges, NOAA is made up of more than 12,000 people who believe deeply in the agency and its mission. I have every reason to believe they will continue to rise to meet the challenge as they have always done in the past.

Question 8. NOAA is charged with collecting data to help the public understand, plan for, and respond to the impacts of climate change. In light of a recent study indicating that the Federal Government's efforts fall short in this regard, how will you ensure that NOAA's climate data and services are accessible and useful to decisionmakers, especially at the local level?

Answer. NOAA's National Data Centers for Climate, Geophysics, Oceans and Coasts work very closely with the climate science community to ensure the data they archive is readily available to support deliberation and action by decisionmakers at international, national, regional, and local levels.

NOAA received a 2007 report from the National Academy of Sciences entitled: *Environmental Data Management at NOAA: Archiving, Stewardship, and Access.* NOAA is developing the necessary management and business processes to implement the nine recommendations from this report. NOAA's National Data Centers work very closely with regional and state climatologists to ensure data are fully

available to them to support customized climate products that are useful at these levels.

Looking to the future, concurrently with the NOAA satellite acquisition programs, NOAA's National Data Centers have been developing and implementing the next generation data archive and access infrastructure—the Comprehensive Large Array-data Stewardship System (CLASS). CLASS will ensure that NOAA will be able to deliver the large-sized complex climate data and products derived from these next generation satellite systems to users in a timely manner. The Administration recognizes the importance of providing continuity of data from high-priority climate sensors to the climate science community. Included in the overall strategy is an element focused on the stewardship of climate data records that would be funded through the President's FY 2009 Budget Request for climate sensors.

Finally, data from NOAA's Data Centers are currently being incorporated in monthly, seasonal, and annual climate assessments, drought outlook products, and ocean climatology products, as well as many other climate data products. Full funding of the President's FY 2009 Budget Request for NOAA's Data Centers and Information Services will ensure that NOAA's National Data Centers continue to provide these valuable services to regional and local climate data users and continue to develop the necessary processes to deliver future higher resolution data.

Question 9. Admiral Lautenbacher, it has come to my attention that the Pacific Region is the only Weather Service Region whose Director is not a Senior Executive Service member, also known as a "SES." Why is this position not a SES position? Does NOAA plan to make this a SES position?

Answer. Jack Hayes, Director of the National Weather Service for only the past 9 months, is evaluating his corporate leadership and their roles and responsibilities. He is working with NOAA's Workforce Management Office and NOAA's Operating Executive Resources Board to evaluate the roles and responsibilities of the Pacific Region Director to determine if these roles and responsibilities meet the criteria for the Senior Executive Service.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. MARIA CANTWELL TO VICE ADMIRAL CONRAD C. LAUTENBACHER, JR.

Question 1a. The Administration's proposed NOAA budget is an increase of 5.2 percent over the FY08 enacted level. All of this increase, however, goes toward the satellites acquisition program, with the National Ocean Service, National Marine Fisheries Service, and Oceanic and Atmospheric Research all receiving cuts. Are the satellite program's cost increases eating away at our Nation's oceans programs?

Answer. NOAA has a diverse mission ranging from managing fisheries to predicting severe weather. The Administration's request provides a balanced set of priorities to sustain core mission services and address our highest priority program needs. Even within a restrained fiscal environment, however, the President's FY 2009 Budget Request includes over $49 million over the prior year request in increases in support of the President's Ocean Initiative. $21 million is new funding over the prior year request that directly supports the additional requirements of the reauthorized Magnuson-Stevens Fishery Conservation and Management Act. As in the past, NOAA will continue to work within the Administration and with Congress to ensure the needs of ocean, coastal and fisheries program are addressed.

Question 1b. Are the satellite cost increases presenting a significant budget challenge for NOAA? How are they impacting your ability to support NOAA's other agencies?

Answer. Although satellite cost increases continue to present a significant challenge for NOAA, we have an extensive planning process that ensures the highest priorities are addressed in our annual budget request, and that all programs receive appropriate funding. We have not cut or taxed other programs to fund increases in satellites, and we work continuously within the Administration and with Congress to create a balanced portfolio of programs to address the Nation's most critical needs.

Question 2a. The 2010 Census has recently experienced major cost overruns and acquisition problems. In April, these problems prompted Secretary Gutiérrez to submit a plan to Congress, including a request to transfer $232 million in FY 2008 from other agencies (including $27 million from NOAA) to the Census Bureau. Additionally, up to $700 million more will be needed in FY 2009 and $2.1 billion between 2010 and 2013.

Admiral, were you aware of Secretary Gutiérrez's plan to transfer $27 million from NOAA this year before he presented this plan to Congress?

Answer. Yes, in terms of timing, but it was not a plan to transfer $27 million from NOAA. The Administration requested increased statutory authority to transfer funds to the Census Bureau, and provided a list showing the universe of candidates that might be transferred in the event that Congress provided the authority. The list showed that the Department had unrequested funds, including NOAA funds, in excess of the maximum estimated need for the Census Bureau. But the minimum estimated need was some $70 million less, so there was a substantial likelihood from the start that a transfer of NOAA funds would not be necessary. The actual need turned out to be $156 million, not $232 million, so even if Congress had provided the requested authority the Department could have met that need without including any NOAA funds in a subsequent transfer proposal.

Question 2b. Were you or anyone else in NOAA consulted on where from within NOAA these funds should come from?

Answer. Current statutory authority does not permit the Department to transfer funds from NOAA to another bureau. Had Congress provided the requested authority to allow such a transfer, NOAA certainly would have been consulted on whether to use NOAA funds as a source and, if so, which funds. NOAA was not consulted on the Department-wide candidate list.

Question 2c. If Secretary Gutiérrez has his way, where from within NOAA would these funds come from?

Answer. The candidate list consisted of appropriations that the President did not request or that exceeded the requested level, and that were not identified in the list of Congressional earmarks and Congressionally-directed spending items that accompanied the Consolidated Appropriations Act, 2008.

Question 3a. In a hearing last month before the House Appropriations Subcommittee on Commerce, Justice, and Science, you testified that certain divisions of NOAA have had to delay hiring due to budget constraints. You identified the National Weather Service as being most affected, although other parts of NOAA have also been affected. The proposed budget for the National Marine Fisheries Service is $46.8 million less than the 2008 enacted level. How many positions within the agency will go unfilled in 2009 because of this budget?

Answer. Although the President's FY 2009 Budget Request for NMFS is under the FY 2008 enacted levels, this is primarily due to the exclusion of Congressionally-directed projects not requested by the Administration. At this time, and outside of being consistent with prior year lapse rates for hiring staff, NOAA does not anticipate that any additional positions will go unfilled for FY 2009.

Question 3b. What effect will these vacancies have on NOAA's ability to fulfill the requirements of the Magnuson-Stevens Reauthorization Act?

Answer. In FY 2008 Congress provided NOAA about $13.5 million for the Magnuson-Stevens Reauthorization Act (MSRA). For FY 2009, we are requesting an additional $31.8 million above the FY 2008 enacted amount. The NOAA FY 2009 budget request focuses on the top MSRA priorities of ending overfishing by 2011, implementing widespread market-based fishery management, and increasing international cooperation.

NOAA does not have the capacity to efficiently meet all the new MSRA requirements in 1 year. However, the FY 2009 NOAA budget request provides adequate funding to fulfill the top MSRA priorities of ending overfishing by 2011, implementing widespread market-based fishery management, and increasing international cooperation. We are phasing in the funding increases to match our capacity to meet the new requirements. As stated above, we do not anticipate any vacancies related to the FY 2008 funding levels.

Question 3c. The National Ocean Service and Office of Atmospheric Research are also slated to incur budget decreases. How will these budget decreases impact hiring?

Answer. For both the National Ocean Service and the Office of Atmospheric Research, the FY 2008 Omnibus bill reduced funding for a number of core base programs. NOAA has taken a number of steps to absorb these reductions, including deferring program improvements, delaying or terminating contract actions, deferring research grants, and delaying hiring for noncritical positions. NOAA is a labor intensive organization with over 12,000 employees and 25 percent of its operating budget allocated to personnel-related costs. The full FY 2009 President's Budget is critical for avoiding such actions in the future.

Question 4a. Because of historically low salmon returns, the states of California, Oregon, and Washington are now experiencing the largest fishery closure in U.S. history. In 2006, an estimated 800,000 Chinook salmon returned to the Sacramento River; but this year, estimates are that less than 90,000 will return. There is de-

bate, however, whether these poor salmon returns are due to poor oceanographic conditions or poor salmon conservation. What is NOAA's science telling us so far? Is it possible that the poor oceanographic conditions might be linked to climate change?

Answer. The ocean conditions necessary for the survival of young salmon are linked to the circulation of ocean currents, particularly currents that cause upwelling of cold, nutrient rich waters to the surface. The strength and location of these currents varies from season to season and year to year. Longer-term changes in climate also affect the wind patterns and ocean currents. Both short-term variation and long-term climate change will affect the ocean conditions critical to salmon survival. However, separating the relative effects of these two influences is speculative without a long-term record.

Question 4b. Do NOAA's climate, ocean, and fisheries research programs have the resources needed to gather the data necessary to definitively explain the cause for this disaster? If so, then what is the definitive explanation?

Answer. NOAA is leading the way in establishing Ocean Observation Systems for the purpose of collecting and analyzing data that will help answer this question. These data have been collected sporadically in some areas in the past, but comprehensive observations will greatly enhance our understanding of ocean processes and their influence on living marine resources. Funding of this work is included in the NOAA budget, and continues to be furnished through the cooperation of many partners in the ocean science community, including the National Science Foundation. More time is required to amass the observations and to monitor longer-term cyclic changes before NOAA will be able to provide a definitive explanation.

*Question 5a.*In response to low salmon returns in 2006, $60.4 million in disaster assistance was provided to salmon fishermen in Oregon and California. These funds were given to the Pacific States Marine Fisheries Commission to administer a grant program for fishermen and businesses affected by the salmon closure. If and when Congress provides disaster relief for the salmon fisheries, do you anticipate NOAA would use the same mechanism for distributing the funds that was used for the 2006 salmon disaster?

Answer. Yes, NOAA intends to partner with the Pacific States Marine Fisheries Commission to administer funding for the salmon disaster if funds are made available. The 2006 distribution was made according to plans developed by the affected states (Oregon and California), and was implemented through the Pacific States Marine Fisheries Commission. NOAA ensured that the plans developed by the states were consistent with Congressional intent, and issued the funds as a grant to the Commission for distribution in accordance with the state plans. At this point, the states have not yet completed their 2008 plans. As a result, we do not have their specific recommendations for distribution of the funds. NOAA is maintaining regular contact with liaisons in each of the Governors' Offices. With their agreement, NOAA intends to follow a similar mechanism this year.

Question 5b. What are some lessons learned from past distributions during fisheries disasters?

Answer. The first important lesson was confirmation that the proposed method of distribution of funds in 2006 was effective and accountable.

Once the plans were in place, NOAA was able to move the funds quickly and in a way that assured we had effective tracking and accountability.

This experience also demonstrated the importance of developing clear and detailed standards, such as who should receive funds and the qualifying years of fishing, for those who may qualify for a share of the funding.

In general, the 2006 fishery disaster process went well but there was some dispute about the standards developed by the states, and how individual applicants qualified for particular amounts of funding.

We expect that the standards now being developed by the states for distribution of the FY 2008 funds will be informed by the 2006 fishery disaster process.

Finally, when the immediate income needs of the fishing communities were met, additional funding still remained. While there were a number of potential uses for that funding (to help restore the fishery or prevent a similar failure in the future), those uses were, for the most part, not a part of the initial 2006 plans. In this year's distribution, we seek to ensure that plans allow for the best use of any funds remaining after the immediate needs have been addressed.

The fact that there have been two such distributions in a fairly short period of time serves as a reminder that, while distributions can be effective in providing short-term income support. it is also vital to identify the underlying causes of the fishery failure, and, where possible, invest in long-term solutions.

Question 6a. At the July 2007 hearing on the NOAA satellites program, I expressed my concerns about the many climate sensors that were cut from the National Polar-orbiting Operational Environmental Satellite System. I'm happy to see that this year's budget request includes $74 million to add several of these climate sensors back in. How important is it that NOAA get this funding for the climate sensors?

Answer. It is extremely important to NOAA and the national and international climate science community that NOAA receive timely and full funding of the $74 million for the Climate Sensor/Climate Data Record initiative. The $74 million continues the Administration's efforts to restore the five high priority climate instruments that were demanifested from the National Polar-orbiting Operational Environmental Satellite System (NPOESS) in 2006, and to address the recommendation of the National Academies of Sciences Decadal Survey Report (2007) to restore key climate and environmental sensors.

The $74 million budget increase in FY 2009 will fund development of Total Solar Irradiance Sensor (TSIS) and Clouds and Earth Radiant Energy System (CERES), and provide for Climate Sensor/Climate Data Record development and continuity. NOAA and the National Aeronautics and Space Administration (NASA) previously jointly funded restoration of Ozone Mapper/Profiler Suite-Limb onto the NPOESS Preparatory Project (NPP) satellite. However, full funding of the NPOESS-related budget requests in the NASA, NOAA and Air Force appropriations bills is also required to ensure the climate sensors can be integrated and launched on the NPP and NPOESS satellites. By launching these sensors on existing spacecraft, NOAA takes advantage of pre-existing launch opportunities on NPP and NPOESS. NOAA must receive these funds by October 1, 2008 to meet the schedule for CERES and TSIS to be integrated onto NPP and NPOESS, respectively, and still meet scheduled launch dates.

Question 6b. What would be the impact if Congress were to not fully fund this request?

Answer. If NOAA does not receive full funding at the $74 million level by October 1, 2008, current acquisition and development activities will be canceled and NOAA will not be able to develop TSIS and CERES in time for the respective NPP and the first NPOESS satellite (C–1) launch. Further, NOAA would be forced to readjust current long lead planning to continue development of climate sensors for future spacecraft. NOAA would readjust the Climate Data Record component of the initiative which would diminish the availability of these data to national and international climate scientists. National decision-makers would not have the required information to develop the necessary policy (such as Congressional legislation, Presidential directives, or State action) to appropriately respond to global climate change. Finally, international bodies such as the United Nations would not have the data to support the necessary multilateral dialogue to develop global consensus on the appropriate actions required to address climate change.

Question 6c. Would it hurt NOAA's ability to monitor global warming and the ongoing changes to our planet's climate?

Answer. Not receiving the FY 2009 budget increase of $74 million to fund development of TSIS, CERES, and associated climate data records and not receiving full funding of the NPOESS-related budget requests in the NASA, NOAA and Air Force appropriations bills would hinder NOAA's ability to monitor on-going and future changes of the global climate after current missions expire.

Question 6d. Would it reduce your ability to replace our current sensors without a gap in climate monitoring?

Answer. 6d. Without funding to develop demanifested climate sensors and to develop the Climate Data Record initiative on NPP and NPOESS, there will be a significant gap in our ability to monitor the climate.

Question 6e. If you got more than $74 million for climate sensors, how would you use it?

Answer. Based on the current portfolio of satellite acquisition activities that NOAA, NASA and the Air Force are pursuing, it would be very difficult to absorb and effectively use any additional funds above the FY 2009 President's Budget Request. The President's FY 2009 Budget Request does assume continued funding of Climate Sensor/Climate Data Record development in FY 2010 and beyond to continue these efforts.

Question 7a. What impacts does the reduced funding for the NOAA Office of Response and Restoration have on our Nation's oil spill response capabilities?

Answer. The FY 2008 enacted appropriation for NOAA provides $11.5 million for response and restoration base activities; this amount is $5.3 million below the FY 2008 requested level. Specific impacts include a reduction in:

- Capacity to respond to two simultaneous medium spill events (which has occurred on two occasions over the past 5 years) or one large spill, such as the EXXON VALDEZ or Hurricane Katrina.
- Developing and updating oil prediction models, 3-dimensional models, Environmental Sensitivity Index (ESI) maps, and socioeconomic valuation tools. For example, some of the ESI maps are more than 25 years old.
- Conducting and participating in preparedness and response training and drills, such as the highly successful Safe Seas Exercises that contribute so effectively to elevating response capacity at the regional level.

Question 7b. At these funding levels, does NOAA have the ability to fully respond to two major oil spills simultaneously?

Answer. It is important that NOAA's Office of Response and Restoration (OR&R) receive the President's request of $17.3 million in FY 2009 in order to help rebuild core capabilities that have diminished over the past 4 years. At the FY 2008 enacted appropriation of $11.5 million, OR&R has limited capacity to respond to two major oil spills simultaneously, without taking measures such as temporarily reassigning from other NOAA programs, or recalling retired personnel. Without such measures, the level of response OR&R would be able to provide, including scientific support, on-scene responders, and damage assessment, would be very limited.

Question 8a. NOAA's oil spill response office currently has a backlog of its ecological sensitivity maps. These maps are used in decision-making during spill responses to decide which environmentally sensitive areas to protect.

During the COSCO BUSAN oil spill in San Francisco, responders relied on NOAA's ecological sensitivity maps to identify areas that needed protection from the spreading oil. NOAA's maps for the outer coast of Washington, though, are twenty-three years old and severely outdated. By relying on outdated maps, aren't we risking our ability to respond effectively to a spill on the Washington coast?

Answer. It is true that the Washington Coast atlases are among the oldest in the country, but this does not necessarily mean that these maps are outdated. Older maps can still provide useful information and NOAA continues to use these maps during response events.

Question 8b. If Congress funds the Office of Response and Restoration at levels dramatically below the President's request like we did last year, isn't it a safe assumption that the ecological sensitivity map backlog will grow? How much will it cost to update all of the maps that need to be updated?

Answer. Appropriations below the President's request have led to an increase in the Environmental Sensitivity Index (ESI) backlog. Funding ESI maps has most often been accomplished by using a variety of funding sources, both Federal and state. Funding at the FY 2009 budget request level will allow NOAA to update 1 ESI atlas.

Question 9a. During the recent Coast Guard budget hearing, Admiral Allen testified that he is uncertain of the Coast Guard's ability to respond to oil spills in the Arctic. He even went so far as to question whether the Coast Guard's ships and planes can even operate in Arctic conditions. Do you believe that our Nation currently has the capabilities to effectively respond to a major oil spill in the Arctic Ocean?

Answer. The vast majority of the pollution response equipment in the U.S. Arctic Region belongs to Alaska Clean Seas and the petroleum industry. While these prepositioned caches provide a capability to respond to most spills, a prolonged clean-up operation would require transporting resources (*i.e.,* human, mechanical, etc.) to the impacted area from outside of the region.

NOAA's role in spill response comprises of scientific support and damage assessment. Currently, NOAA's capability to perform this role in the Arctic is challenged by limited experience working in oil-in-ice conditions and limited environmental baseline information in terms of both biological densities and environmental sensitivities of resources for damage assessment. However, given current vessel traffic in the Arctic Ocean, the likelihood of a major spill in that region is remote. As vessel traffic in the Arctic Ocean increases and the likelihood of major spills grows less remote, Federal agencies responsible for responding to such spills will adapt.

Question 9b. Do we have the scientific knowledge necessary to know how to respond effectively to oil spills in the Arctic?

Answer. NOAA and U.S. Coast Guard continue to develop and acquire the necessary expertise to respond effectively to spills in Arctic conditions. The SELENDANG AYU (2004) spill off of Unalaska, Alaska, represents the type of spill the U.S. would be facing in the Bering Sea region, as well as the Beaufort and Chukchi Seas. NOAA has the expertise on the current state-of-the-art in response

techniques and is working with the international research and development community to improve predictive capabilities for oil-in-ice scenarios. NOAA's work on spills like the SELENDANG AYU clearly identifies additional information required to understand how oil released into the Arctic weathers the processes by which oil lingers in the environment, and how these processes ultimately result in injuries to the biological and ecological resources in these environments.

Question 9c. What steps is NOAA taking to prepare us for major oil spills in the Arctic?

Answer. NOAA is proactively looking at plausible spill scenarios that we might face in the Arctic. NOAA is working with the U.S. Arctic Research Commission and U.S. Coast Guard to define these scenarios. A NOAA-sponsored workshop took place in March 2008 to start defining these scenarios and to develop data-gaps and research needs in order to improve response capabilities. NOAA is strengthening these partnerships and looking for opportunities to leverage resources to improve response capabilities. In addition, NOAA is attempting to increase the education and information base for potential Arctic responders. For increased access to pertinent information before and during an oil spill response, NOAA has developed a new high resolution environmental information system that can access both static data (like biological sensitivities and shoreline characteristics) as well as real-time data from monitoring stations (like weather and currents). Appropriation of the President's FY 2009 Budget Request would allow NOAA to make progress on the development of this system.

Question 10a. In a letter commenting on the Environmental Impact Statement for the Chukchi Sea oil and gas drilling plan, the National Marine Fisheries Service wrote that the Minerals Management Service's analysis "did not present a strong enough case to NMFS that marine resources would be adequately protected." Do you support your agency's assessment that the Minerals Management Service's plan for oil and gas drilling in the Arctic Ocean's Chukchi Sea does not adequately protect marine resources and ecosystems?

Answer. The NOAA Fisheries Service's letter, dated January 30, 2007, presented comments on the Minerals Management Service's (MMS) draft Environmental Impact Statement for the Chukchi Sea Planning Area—Oil and Gas Lease Sale 193 and Seismic Surveying Activities in the Chukchi Sea. The comment letter specifically concerned support for the preferred alternative (Alternative III), and whether the DEIS presented a strong enough case to justify that alternative over NOAA Fisheries' recommendation to adopt Alternative IV. While NOAA supported Alternative IV, we do not consider the adoption of Alternative III by the MMS to mean the process or conclusions of the EIS are unacceptable. The MMS employed the best available scientific data in preparing the DEIS. Furthermore, the alternative the MMS adopted excluded a sizable portion of the area we recommended for exclusion from the sale area.

Where appropriate to comply with the Marine Mammal Protection Act, NOAA Fisheries Service will issue letters of authorization or incidental harassment authorizations on specific oil and gas activities in the Chukchi and Beaufort Seas to allow for the incidental harassment of marine mammals. This allows NOAA Fisheries Service to place conditions on the oil and gas drilling activities which may result in modification to operations. These conditions are added to ensure that the effects of the drilling and production activities do not result in more than a negligible impact on marine mammals in the area. NOAA Fisheries Service will develop our own NEPA documentation to support any letter of authorization or incidental harassment authorization.

NOAA Fisheries Service will continue to coordinate with the MMS as production and development plans evolve.

Question 10b. Do you resent the fact that the Minerals Management Service largely ignored your agency's plea to adopt the more environmentally-sensitive drilling plan for the Chukchi Sea?

Answer. NOAA did not review a "drilling plan," but rather an EIS for a lease sale which encompasses a much broader range of issues than a drill plan. NOAA recommended an alternative for the sale plan which would have included a 60 mile buffer between the lease sale and the Alaska Chukchi coastline. The actual boundaries for Sale 193 are greater than 60 miles offshore in some important habitats, such as the Leydyard Bay critical habitat area, and are never closer than 25 miles. Thus, we cannot agree that our comments were largely ignored, although our stated preference and recommendation was for the 60 mile buffer. NOAA is currently working closely with the MMS to reduce impact to our trust resources due to oil and gas exploration, and to complete research to answer many of the environmental issues raised in our letter.

Question 11a. 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. NOAA is currently investing funding and providing staff support in Puget Sound. The Director of the Northwest Fisheries Science Center, who is a member of the Puget Sound Partnership's Science Panel, is serving as NOAA's lead for the Puget Sound Partnership's recovery effort. A NOAA Puget Sound Coordination Group has also been formed under the guidance of the Director of the Northwest Fisheries Science Center. The Regional Administrator for NOAA's National Marine Fisheries Service, Northwest Region is one of three Federal representatives on the Puget Sound Partnership's Ecosystem Recovery Board. Additional NOAA staff participates in other advisory groups in support of the Partnership.

Question 11b. In my state, the Puget Sound Partnership is making a major push to restore Washington's waters using a science and ecosystem-based approach. Isn't this the kind of regional effort that you support and that should be replicated elsewhere throughout the country?

Answer. NOAA is very supportive of the approach being taken to restore Puget Sound and views the Puget Sound Partnership as one of the model efforts in the Nation for an ecosystem approach to management.

Question 11c. Is it true that NOAA does not have funding available for participation in the Puget Sound Partnership?

Answer. In the years 2003 through 2007, NOAA expenditures in Puget Sound across all line offices averaged about $27.4 million annually, including habitat restoration, salmon recovery, contaminated sediment cleanup, and science. Approximately $15.7 million annually was from the Pacific Coastal Salmon Recovery Fund. The amount for 2008 will be about the same, while the NOAA's request for 2009 is lower, largely due to a reduction in the request for Pacific Coast Salmon Recovery funding. NOAA is working within the Puget Sound Federal Caucus to better coordinate funding and actions from all Federal agencies, which will create some efficiency in carrying out this work. However, NOAA recognizes that moving to an ecosystem approach to management will require scientific and management resources and extensive coordination. For example, a Leadership Group composed of city and county elected officials from the Puget Sound region, government agency representatives, tribes, conservation organizations, and private industry recently completed the recovery plan for Puget Sound Chinook. This plan will require coordination between many groups within the Puget Sound.

As the Partnership develops its Action agenda over the next 6 months, NOAA will endeavor to assist the Partnership as much as possible and will work with the Partnership and the Federal Caucus to identify those actions that would benefit from NOAA's leadership and fiscal support. These will be considered as the Administration develops its outyear priorities and budget.

Question 12. A small program called "Mussel Watch" may be cut under this year's NOAA budget. This program monitors water quality and chemical contaminants by analyzing mussel tissues. The 22-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. Although the program is small, Mussel Watch is instrumental in monitoring water quality in Washington. Will NOAA continue support for this successful program?

Answer. NOAA appreciates your concern for the Mussel Watch Program, and we are pleased to hear of the program's value to your state. Because Mussel Watch is funded a year in advance, the program will continue through FY 2009 using FY 2008 funds. Continued support will depend on the final appropriations for FY 2009. However, we continue to explore options, such as increased partnerships with state and local stakeholders, to maintain this important national observing program.

Question 13a. In response to the 2004 Indian Ocean Tsunami, the Bush Administration pledged $37.5 million toward expanding the U.S. Tsunami warning program to protect lives and property along all U.S. coasts. NOAA deployed the final two tsunami detection buoys in the South Pacific this past March, completing the U.S. Tsunami Warning System. Given the completion of the Pacific tsunami warning system, what grade would you give our current Tsunami Warning System?

Answer. The U.S. Tsunami Warning System is highly effective. In May 2008, the Office of Management and Budget (OMB) completed a Program Assessment Rating Tool (PART) on NOAA's Tsunami Monitoring, Forecasting, and Warning Program.

OMB gave the program an "effective" rating, which is the highest score a program can receive.

NOAA has made tremendous progress in just 3½ years. In March 2008, NOAA completed the U.S. Tsunami Warning System strengthening effort. In addition to the completed deployment of 39 Deep-ocean Assessment and Reporting of Tsunami (DART) stations, NOAA: (1) upgraded 120 and installed 16 new National Water Level Observation Network (NWLON) tide gauges (for a total of 136); (2) added 8 new seismic stations and worked with partners, such as the U.S. Geological Survey to enhance the Nation's seismic networks; (3) developed site-specific inundation models; (4) upgraded telecommunications infrastructure; and (5) expanded operations at its two Tsunami Warning Centers to 24 hours/day, 7 days/week. Equally important to success are processing systems, warning message content and generation, communications to coastal communities, local response capability, and the preplanning at the local level which includes public education, warning response, and recovery.

In the Pacific region, NOAA improved accuracy, timeliness, and reliability of tsunami detection. NOAA's tsunami observational network in the Pacific includes 32 DART stations, 74 NWLON tide gauges, and 8 seismic stations. NOAA researchers and data managers also completed 22 site-specific inundation models. We made improvements in the level of community awareness, preparedness, response, and recovery capability as demonstrated through tsunami communication tests, evacuation drills, disaster planning, and public education.

During the next year, NOAA's Tsunami Warning System will be reviewed by the National Academies of Science to determine if there are any other enhancements that can be made to the warning system, so we can better serve coastal residents and visitors.

Question 13b. What other actions need to be taken to ensure accurate and timely tsunami predictions?

Answer. While continued investment in tsunami warning infrastructure, such as observing stations, will improve the accuracy and timeliness of tsunami predictions, there must be an investment in tsunami research, mitigation, and public outreach and education efforts. Maintaining the existing U.S. Tsunami Warning System is critical. NOAA is continuing to improve and upgrade the overall Tsunami Warning System. This is achieved through improvements to Tsunami Warning Center computing capabilities, such as routine software upgrades and enhancements. Improvements to forecasts and tsunami products, based on new techniques, research and customer demand, are also part of a continuous process to improve the service NOAA's Tsunami Warning Centers provide to the Nation every day. Collaborative research is needed to advance data collection, analysis, and assessment for tsunami tracking and numerical forecast modeling, as well as mitigation science.

Question 13c. In your opinion, where are the most vulnerable gaps in our tsunami warning system?

Answer. The most vulnerable gaps in the Nation's Tsunami Warning System include:

1. *Delivery of warning messages to those most at risk*—Warning information can be effectively distributed through the NOAA/NWS infrastructure, but the information is only useful when people have the capability to receive it, *e.g.*, NOAA Weather Radio or other means. We are working to strengthen this infrastructure and improve receipt of warning information.

2. *Improving hazard mitigation*—While we have made progress in our modeling of inundation mapping for a significant portion of the highest risk areas in Washington, Hawaii, and Puerto Rico, more can be done for these and other areas. Our plans include continued development and refinement of inundation maps for evacuation routes, land use planning, and educating the public about their risk.

3. *Promoting mitigation activities for exposed communities and infrastructures*—Working with our Federal, state and local partners, we will continue an aggressive outreach and education program to ensure the public, both resident and visitor, understand how to respond to tsunami information and can take appropriate action.

Over the next 5 years, NOAA will use funding from the 2008 spectrum sale, as directed by the Deficit Reduction Act of 2005, to reduce these vulnerabilities in the Tsunami Warning System.

Question 14. NOAA's Office of Response and Restoration includes a Marine Debris removal program, with a proposed budget of $4 million. Funding for research and cleanup of Marine Debris peaked at $4.9 million in FY 2005 and has remained at

lower levels since then. The need for the removal of marine debris is an ongoing issue affecting our oceans and coastal areas. How has the reduced funding levels affected the Office of Response and Restoration's ability to address this important issue?

Answer. The President's Budget request for $4 million will allow the NOAA Marine Debris Program to address the most pressing issues of marine debris through several different avenues, including funding assessment and research projects, removal projects, and outreach and education activities. All of these are done in conjunction with other organizations and research facilities, so we can leverage the amount of funding received from Congress. We are also beginning to better coordinate Federal activities and needs to achieve more by capitalizing on each other's activities.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. JOHN F. KERRY TO VICE ADMIRAL CONRAD C. LAUTENBACHER, JR.

Question 1. Stellwagen Bank National Marine Sanctuary is one of the richest marine systems in the Nation. However, a 2007 status report evaluated the sanctuary's health based on 17 key indicators—most received marks of fair or poor. We need to be making the investments to protect these remarkable resources. At a time when there is increased public interest in and support for marine sanctuaries, why does the President's budget call for a $2.5 million decrease to the Marine Sanctuary Program base—reducing funding levels to $44.4 million?

Answer. The FY 2009 President's budget provides $44.4 million for the National Marine Sanctuary base. These funds will provide resources to protect our investments in our 13 national marine sanctuaries—including the Gerry E. Studds Stellwagen Bank National Marine Sanctuary—and the Papahānaumokuākea Marine National Monument. NOAA works within the Administration's budget process to ensure that adequate funds are requested to allow the National Marine Sanctuary Program to manage these sites based on priority needs and critical core requirements. We remain deeply committed to protecting the special natural, historic, and cultural resources of these areas.

Question 2. Congress appropriated $235,000 in FY08 for the deployment of a weather buoy in Nantucket Sound—this is critical to safe navigation and weather forecasting. What is NOAA's schedule for deployment of the buoy?

Answer. The Nantucket Sound Weather Buoy is scheduled to be deployed in April 2009. This schedule includes acquisition, fabrication, integration, and testing.

Question 3. I understand that the President's budget will add back two sensors that were de-manifested from the National Polar-orbiting Operational Environmental Satellite System (NPOESS)—the CERES (Clouds and the Earth's Radiant Energy System) and TSIS (Total Solar Irradiance Sensor). What is your long-term plan to ensure the continuity of essential climate observation data?

Answer. The President's FY 2009 Budget Request includes a $74 million initiative to continue the restoration of climate measurements that were demanifested from the NPOESS program in 2006, and to address the recommendation of the National Academies of Sciences Decadal Survey Report to restore key climate and environmental sensors.

NOAA and the National Aeronautics and Space Administration (NASA) have determined that near-term continuity of three of these measurements can be fulfilled through existing plans. Aerosol measurements can be fulfilled with the 2009 launch of the Aerosol Polarimeter Sensor on the NASA GLORY mission. Ozone vertical profile data requirements were addressed by the NPOESS Executive Committee's 2007 decision to remanifest the Ozone Mapper/Profiler Suite-Limb sensor onto the NPOESS Preparatory Project (NPP). Continuity of RADAR altimetry measurements can be fulfilled through the Jason 2 mission that was launched on June 20, 2008.

Continuity of the remaining two measurements—Earth radiation budget and total solar irradiance—will be supported by the $74 million in the President's FY 2009 Budget Request. Continuity of the Earth radiation budget data can be met with the Clouds and Earth Radiant Energy System (CERES) sensor. NOAA and NASA will accelerate development of this instrument and will integrate it on the NPP mission which is scheduled for launch in June 2010. A replacement CERES instrument will be developed and flown on the first NPOESS satellite (C–1) when it is launched in 2013. Total solar irradiance measurement continuity can be met by the Total Solar Irradiance Sensor (TSIS). The $74 million in the FY 2009 President's Budget request will allow this instrument to be developed and launched on the first NPOESS satellite (C–1) in 2013.

To achieve this near-term success, these instruments must be delivered in time to be integrated onto the NPP and NPOESS C–1 spacecraft, respectively, to meet scheduled launch dates. NOAA must receive full funding or authorization to expend funds at the $74 million level by October 1, 2008 to meet these schedules. Additionally, full funding of the NPOESS-related budget requests of NOAA, NASA, and the Air Force is also required to ensure that the climate sensors can be integrated and launched on the NPP and NPOESS satellites to meet scheduled launch dates.

Regarding long-term planning, NOAA and NASA, in collaboration with the Office of Science and Technology Policy and the Office of Management and Budget, continue to work with the climate science community to determine when additional sensors must be developed and launched to ensure uninterrupted continuity of these climate sensor measurements.

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. BILL NELSON TO VICE ADMIRAL CONRAD C. LAUTENBACHER, JR.

Question 1. S. 931, the National Hurricane Research Initiative Act of 2007, was introduced in March 2007 and referred to the Committee on Commerce, Science, and Transportation. This legislation would dramatically expand the scope of basic research on hurricanes, including enhanced data collection, data analysis in critical research areas, and mechanisms to translate the results into improved forecasts and planning. This legislation designates NOAA and the National Science Foundation (NSF) as lead agencies for the Initiative. NOAA's various line offices and many other Federal agencies, such as the U.S. Geological Survey, the National Aeronautics and Space Administration, Federal Emergency Management Agency (FEMA), and offices within the Department of Defense (*e.g.,* Office of Naval Research) have existing authorities and activities that are closely aligned with the goals of this Initiative. Is NOAA prepared to work cooperatively with NSF to manage and implement this 10-year Initiative?

Answer. NOAA is prepared to work cooperatively with NSF to manage and implement this 10 year initiative. NOAA has already engaged with NSF to formulate an agreement aimed at cooperating in the development of improved hurricane forecasting and to ensure expertise and facilities of academic and research institutions and other nongovernmental organizations nationwide are leveraged to address this national challenge.

Question 2. How would this Initiative be coordinated with NOAA's existing hurricane program activities, including the agency's Hurricane Forecast Improvement Project, to avoid duplication of effort and address the highest-priority needs of the primary consumers of the research results?

Answer. NOAA established the national Hurricane Forecast Improvement Project (HFIP) to ensure a coordinated NOAA effort for improving hurricane forecasts and ensure the efforts meet the highest priority needs of NOAA operational elements. One of the primary objectives of HFIP is to accelerate and transition proven research results into operations. The HFIP manager reports directly to the Assistant Administrator for Weather Services and the Assistant Administrator for Oceanic and Atmospheric Research. This project is overseen by an Executive Oversight Board consisting of key NOAA Hurricane Program operational managers. Any NOAA hurricane research activities arising from the National Hurricane Research Initiative, including the application and transition of the broader initiative research results to NOAA operations, would be managed through the NOAA HFIP, with review by its Executive Oversight Board and the responsible Assistant Administrators. The draft plan for HFIP was published in the *Federal Register* for public comment, and the comments we received supported the plan.

Question 3. Academic and research institutions and other nongovernmental organizations nationwide possess expertise and facilities that are well suited to undertake much of the research that would be conducted under this Initiative. How would NOAA, in coordination with NSF, maximize the effective utilization of these considerable non-Federal assets in conducting the Initiative's fundamental research and in developing and disseminating related products?

Answer. NOAA is currently engaging with the other key Federal agencies, including NSF, NASA, and the Navy (including Office of Naval Research) to develop a National Hurricane Research Alliance. This Alliance will leverage existing Federal hurricane coordination efforts, including those from the Office of the Federal Coordinator for Meteorological Services and Supporting Research, to manage overall roles and responsibilities (including those of the broader academic community funded by NSF, NOAA, and others). Through this Alliance, NOAA and NSF will work with the other entities to maximize the effective use of considerable non-Federal assets in

conducting the Initiative's fundamental research, and in developing and disseminating related products and services.

Question 4. The National Earthquake Hazards Reduction Program (NEHRP), which was created in 1977, has research goals, program partners, and products similar to those proposed for the National Hurricane Research Initiative. In NEHRP's 2004 reauthorization (P.L. 108–360), Congress reorganized the program in several ways. Changes included shifting lead-agency responsibilities from FEMA to the National Institute of Standards and Technology (NIST), and creating an advisory committee composed of non-Federal experts to provide guidance to the lead agency and the program's Interagency Coordinating Committee.

Would NOAA view a similar structure—specifically, collaboration between a lead Federal agency, an interagency working group, and an expert advisory committee—as being beneficial in implementing the National Hurricane Research Initiative and in periodically examining its progress and aiding in the review and revision of program goals as needed?

Answer. NOAA does view a similar structure as being beneficial in implementing the National Hurricane Research Initiative but points out that a similar structure is already in place. As stated in the previous response, NOAA is currently engaging with other key Federal agencies through the National Hurricane Research Alliance and the Office of the Federal Coordinator for Meteorological Services and Supporting Research. NOAA's existing Science Advisory Board would be an effective expert advisory committee to periodically examine scientific progress and aid in review.

Question 5. Does NOAA have any other interagency or intergovernmental (*i.e.,* Federal/state/local) partnerships through its hurricane research program, forecast operations, community resiliency initiative, or other related programs that should be considered as Congress considers this National Hurricane Research Initiative?

Answer. The Federal Coordinator for Meteorological Services and Supporting Research (OFCM) coordinates Federal Hurricane Operations and Research efforts across the responsible Federal agencies. Efforts from the OFCM should be considered by Congress as it considers the National Hurricane Research Initiative. We suggest hurricane related research efforts from the National Ocean Partnership Program and the U.S. Weather Research Program also be considered by Congress to further the overall hurricane research effort.

Question 6. In addition to reauthorizing and restructuring NEHRP, P.L. 108–360 established the National Windstorm Impact Reduction Program (NWIRP) in 2004. The program's primary goals are to improve meteorological understanding of windstorms, quantify windstorm impacts, and identify and promote cost-effective measures to reduce windstorm impacts.

Please summarize briefly what progress NOAA has made in addressing the goals of NWIRP with the funds appropriated by Congress from FY 2005 through FY 2008. In particular, please explain how NOAA intends to spend the approximately $700,000 that was appropriated by Congress for FY2008. What additional accomplishments related to NWIRP's goals has NOAA made through other authorized program activities?

Answer. The Act stipulates that "NOAA shall support atmospheric sciences research to improve the understanding of the behavior of windstorms and their impact on buildings, structures, and lifelines." In line with the Act, NOAA spends $700,000 per year on activities that improve the understanding of the behavior of windstorms and their impacts. This includes the continuing development and use of the H*WIND (hurricane wind analysis) product at the Hurricane Research Division, the National Severe Storm Laboratory's outreach on structural wind hazards, and Sea Grant's funding of an instrumented house in coastal North Carolina and corresponding education and outreach through its extension service.

In response to the legislation and to a bilateral plan with the National Institute of Science and Technology (NIST), NOAA has a $300,000 increase in the FY 2009 Hurricane Forecast Improvement Project initiative to deploy high time and spatial resolution wind measurements along the coast for use by structural engineers.

In general, NOAA supports a number of activities related to measuring and predicting windstorms and their impact such as:

- The National Weather Radar Testbed is studying how Multifunction Phased Array Radar (MPAR), with its advanced capabilities and performance can meet the Nation's weather, aviation, and homeland security needs. NOAA scientists recently proved MPAR can detect rotation, hail, microbursts and gust fronts well ahead of other radars due to its rapid scan capability.

- NOAA researchers co-sponsored the annual NOAA Hazardous Weather Testbed with forecasters from the National Weather Service Storm Prediction Center to focus on early and precise warnings of severe weather hazards. The Hazardous Weather Testbed also emphasizes developing, testing and evaluating forecasts that could predict severe weather a week in advance.

Question 7. In April 2006, the National Science and Technology Council published the "*Windstorm Impact Reduction Implementation Plan*," as required by P.L. 108–360. NOAA was one of several Federal agencies involved in the formulation of this plan.

Since the implementation plan was completed, how has NOAA been engaged by the Office of Science and Technology Policy (OSTP) and/or the Office of Management and Budget (OMB) concerning NWIRP? Beginning with FY 2005, has OSTP or OMB ever provided NOAA with any guidance concerning NWIRP during formulation of NOAA's annual budget request? In turn, has NOAA sought assistance from OSTP in preparing budget requests or spending plans for NWIRP-related activities? To the best of your knowledge, is the level of interaction or guidance that NOAA has received from OSTP typical of that provided to the other agencies participating in this program?

Answer. In response to the NWIRP legislation, OSTP formed a Working Group on Wind Hazard Reduction under its Subcommittee for Disaster Reduction in 2005. Each agency mentioned in the legislation plus the Federal Highway Administration is represented on this Working Group.

NOAA chaired the Working Group for the first 2 years during which time an implementation plan and a biannual progress report was completed. These were done under the guidance of the OSTP. OSTP has discussed the way forward with the NWIRP agencies, but no additional actions have been taken under NWIRP. The OSTP guidance has been provided at the Working Group meetings to all agency representatives equally, and the agency representatives have had the opportunity to provide their ideas about ways forward.

NOAA has not asked for assistance from OSTP on budget requests or spending plans for NWIRP-related activities. OSTP has left these matters to the agencies.

Question 8. From FY 2005 through FY 2008, NOAA was authorized to be appropriated $2 million per year under NWIRP. Is funding of $2 million per year adequate for NOAA to partner fully with the other NWIRP agencies and accomplish the research and operations-related goals described in the NWIRP-authorizing statute and in the April 2006 implementation plan?

Answer. NOAA supports the President's FY 2009 budget request of $1 million for activities within NOAA related to the National Windstorm Impact Reduction Act. This funding will allow NOAA to develop new strategies and technologies for observing storms, to improve our models for predicting storm intensity, and to provide critical assistance to forecasters.

Additionally, the President's 2009 Budget, not including the recently transmitted budget amendment, provides nearly $20 million for hurricane-related increases across NOAA, including modeling improvements on forecasts and storm surge and research into ocean vector winds and coastal inundation.

NOAA has a diverse mission ranging from managing fisheries to predicting severe weather. The Administration's request provides a balanced set of priorities to sustain core mission services and address our highest priority program needs. NOAA will continue to work within the Administration and with Congress to ensure that our program needs are addressed.

Question 9. Harmful algal blooms (HABs) and hypoxia events have far-reaching consequences for coastal communities, including human health impacts, harm to wildlife and ecosystems, and economic losses from lost tourism. Congress is currently considering legislation that would reauthorize the Harmful Algal Bloom and Hypoxia Research and Control Act (HABHRCA), which was first passed in 1998 and last amended in 2004. NOAA has several programs that support research and other activities concerning HABs (*e.g.,* ECOHAB, MERHAB, RDDT) and hypoxia (*e.g.,* CHRP, NGOMEX).

For FY 2009, the Administration has only requested $10.8 million for HABHRCA-related programs. While this represents an increase of $2 million over what Congress appropriated in FY 2008, it is still far below historical levels ($12.7–20.2 million) and far below the $25.5 million that is currently authorized.

Does the Administration view the funding requested for FY2009 as adequate to address the myriad research, forecasting, monitoring, prevention, and response needs that exist among the state, regional, and local authorities nationwide that are dealing with HABs and hypoxia events and their impacts?

Answer. The President's FY 2009 Budget Request includes $15.8 million for the National Centers for Coastal Ocean Science (NCCOS) Competitive Research line, which supports a suite of competitive grant programs including Harmful Algal Bloom and Hypoxia Research and Control Act programs. If appropriated at $15.8 million for the Competitive Research line, NCCOS will use at least $8.9 million for research related to harmful algal blooms and hypoxia. Over the past few years this effort has been appropriated below the President's request. This has reduced the scope of activities and delayed progress of NOAA efforts toward mitigating HAB and hypoxia impacts to coastal ecosystems and communities.

Question 10. There are a number of reports required by HABHRCA that NOAA is yet to complete and furnish to Congress. Please report on NOAA's progress in completing these overdue reports, including a timeline for final submission.

Answer. On December 10, 2004 the President signed the Harmful Algal Bloom and Hypoxia Amendments Act of 2004 (HABHRCA) which calls on NOAA to advance the scientific understanding of, and ability to detect, monitor, assess, predict and mitigate, harmful algal blooms (HABs) and hypoxia (low oxygen conditions). HABHRCA called for 5 written reports to assess the current state of research on and response to harmful algal blooms and hypoxia. The Interagency Working Group on Harmful Algal Blooms, Hypoxia, and Human Health (IWG–4H), co-chaired by NOAA and the Centers for Disease Control and Prevention, was tasked with drafting the reports. The IWG–4H has been working to ensure these reports include the most up to date information and are of the highest quality, which has taken some time. The status of the reports is as follows:

- The *National Assessment of Efforts to Predict and Respond to Harmful Algal Blooms in U.S. Waters,* was published in September 2007;
- *The National Scientific Research, Development, Demonstration, and Technology Transfer Plan on Reducing Impacts from Harmful Algal Blooms (RDDTT Plan)* and *The Scientific Assessment of Marine Harmful Algal Blooms* are undergoing interagency review;
- *The Scientific Assessment of Freshwater Harmful Algal Blooms* has been completed and approved and will be published online soon; and
- *The Scientific Assessments of Hypoxia* is currently being drafted by the Interagency Working Group.

Question 11. Significant hypoxia events have become more numerous in coastal waters around the U.S., including in the Great Lakes and along the Pacific Northwest. At this time, scientists or research entities interested in pursuing grants for hypoxia-related work, particularly outside of the Gulf of Mexico, have far fewer opportunities to compete for funding as compared to their HABs counterparts.

Since HABHRCA's enactment, has NOAA received requests for assistance to undertake hypoxia-related research, forecasting, monitoring, prevention, or mitigation activities from areas outside of the Gulf of Mexico? If so, what geographic regions were covered by these requests, and what was the cumulative cost (approximately) of the requested assistance? How much has NOAA spent (approximately) in the last 5 years internally and extramurally on hypoxia-related research in the Gulf of Mexico? In areas outside of the Gulf of Mexico?

Answer. Through the NOAA Coastal Hypoxia Research Program (CHRP), initiated in FY 2004 with competitions held in FY 2005 and FY 2007, NOAA has received requests for assistance to undertake hypoxia-related research, forecasting, monitoring, prevention, or mitigation activities from many regions outside of the Gulf of Mexico, a testament to the national scale of the problem. These requests have been binned into the following regions with a corresponding cumulative cost of the requested assistance:

Hypoxia Requests for Research Funding by Region (FY 05–07)

Regions not covered by NGOMEX [1]	
Multiple Regions [2]	$14,500,000
Gulf of Mexico estuaries	$6,400,000
Chesapeake Bay/Delaware Inland Bays	$19,700,000
Great Lakes	$6,000,000
Southeast—NC/SC/GA	$14,600,000
Northeast—NJ/NY/MA	$12,500,000
Pacific Northwest	$10,900,000
Total	$84,700,000

[1] Northern Gulf of Mexico Program addressing hypoxia on the Louisiana/Texas shelf influenced by the Mississippi River.
[2] Projects addressing hypoxia in more than one region.

Over the past 5 years (FY 2004–2008), NOAA has spent the following on hypoxia research:

Hypoxia Research Funded (FY 04–08)

	Competitive	Intramural
NOS/CSCOR		
Gulf of Mexico	$7,640,654	
Outside Gulf of Mexico	$7,234,041	
NOS/NERRS (outside Gulf)		$180,000
NOS/NCBO (Chesapeake Bay)	$500,000	
OAR/Sea Grant (outside Gulf)	$370,000	
OAR/GLERL (Lake Erie Hypoxia—IFYLE)		$6,500,000
Subtotals	$15,744,695	$6,680,000
Gulf of Mexico	$7,640,654	
Outside Gulf of Mexico	$14,784,041	
Total	$22,424,695	

Question 12. The availability of funding notwithstanding, do you have any recommendations on how to achieve greater equity in terms of opportunities for eligible entities to compete for funding for hypoxia-related activities? Has NOAA considered building on NGOMEX and CHRP to create broader (*i.e.,* national) hypoxia programs that are parallel in scope to ECOHAB and MERHAB?

Answer. The recently reauthorized HABHRCA and the report required by this legislation provide guidance for ongoing and future NOAA research efforts related to hypoxia. NOAA has maintained a long-term research program investigating the causes, consequences and prediction of the seasonal hypoxic (or "dead") zone in the northern Gulf of Mexico, the largest zone of its type in North America. These efforts, funded through the northern Gulf of Mexico Research Program (NGOMEX), have provided the scientific basis for the Gulf of Mexico Action Plan required by HABHRCA. NGOMEX funds interdisciplinary research projects to develop a fundamental understanding of the northern Gulf of Mexico ecosystem with a focus on the causes and effects of the hypoxic zone and the prediction of its future extent and impacts. The research program is directed toward the goal of developing a predictive capability and an adaptive management framework for hypoxia in the Louisiana continental shelf ecosystem. Given the scale and impact of the problem in the Gulf of Mexico, with nutrient management implications for roughly 40 percent of the United States, NOAA continues to support the NGOMEX program and its participation in the Mississippi River/Gulf of Mexico Watershed Task Force. Complimentary to NGOMEX is the Coastal Hypoxia Research Program (CHRP), the intent of which is to expand NOAA's research capability to address hypoxia in other regions outside of the Gulf of Mexico experiencing hypoxia. The objective of CHRP is to provide research results and modeling tools that will be used by coastal resource managers to assess alternative management strategies for preventing or mitigating the impacts of hypoxia on coastal ecosystems. Determining the causes of hypoxia, developing the capability to predict its occurrence in response to varying levels of anthropogenic stress, and evaluating the subsequent ecological, economic, and social im-

pacts are necessary to assess potential management alternatives. Therefore, between the two programs (NGOMEX and CHRP), researchers and managers from anywhere in U.S. have an opportunity to compete for hypoxia research support. More information about both programs is available at the following websites:

CHRP: *http://www.cop.noaa.gov/stressors/pollution/current/chrp.html*,

NGOMEX: *http://www.cop.noaa.gov/stressors/pollution/current/gomex-fact sheet.html*.

RESPONSE TO WRITTEN QUESTION SUBMITTED BY HON. FRANK R. LAUTENBERG TO VICE ADMIRAL CONRAD C. LAUTENBACHER, JR.

Question. To which ports and in which amounts will you distribute FY 2008 funding for operation of the Physical Oceanographic Real-Time System (PORTS) program?

Answer. NOAA met with appropriations staff on this issue and will provide funding for the operation and maintenance contracts of the following PORTS:

Houston Galveston PORTS	$210K
Upper Chesapeake Bay PORTS	$235K
New York/New Jersey PORTS	~$210K (government cost estimate for new maintenance contract to be awarded by August 30)

RESPONSE TO WRITTEN QUESTIONS SUBMITTED BY HON. OLYMPIA J. SNOWE TO VICE ADMIRAL CONRAD C. LAUTENBACHER, JR.

Question 1a. The Administration has requested approximately $4.1 billion for NOAA in its 2009 proposal—a 5.2 percent increase from the level enacted in Fiscal Year 2008. This Administration's request exceeds funding previously provided by Congress, which would appear to suggest that the President is placing a greater priority on funding our critical ocean and atmospheric science and management programs. However, upon closer examination, it is clear that this increase in funding is entirely devoted to a single satellite program, and that most other programs—including all ocean and coastal programs—are facing notable cuts.

Satellites are expensive and warrant a $200 million request, but is it fair to say that this increase is being paid for by requesting cuts for most other programs—most notably all oceans and coastal programs? If not, is NOAA suggesting that Congress has been over-funding the ocean and coastal programs?

Answer. NOAA has a diverse mission ranging from managing fisheries to predicting severe weather. The Administration's request provides a balanced set of priorities to sustain core mission services and address our highest priority program needs. Even within a restrained fiscal environment, however, the President's FY 2009 Budget Request includes over $1.9 billion in ocean and coastal program funding, including $49 million in increases in support of the President's Ocean Initiative. NOAA will continue to work within the Administration and with Congress to ensure the needs of ocean, coastal and fisheries program are addressed.

Question 1b. What Congressional directives would not be carried out if these ocean and coastal cuts are maintained in the 2009 budget?

Answer. NOAA removes unrequested Congressional directives and add-ons during our annual planning process to prepare the President's Budget Request, and before addressing NOAA's priorities within the new budget. The determination of NOAA priorities within the President's Budget Request is shaped by both the Administration's priorities and NOAA's programmatic needs. Each fiscal year, NOAA undergoes an extensive review of current and future projects, allowing for a continuous reevaluation of priorities and funding. The top priorities that emerge come from integrated requirements-based planning linked to NOAA's strategic vision and the optimization of our capabilities. Within the constraints of the current fiscal environment, NOAA proposes funding its highest priority programs.

Question 2. Last October, NMFS issued regulations on the lobster industry intended to protect endangered whales. These rules would require lobstermen to use sinking rope to connect their strings of pots, something made nearly impossible in many areas off the coast of Maine by rocky bottom conditions and strong tides. NMFS suggested that these regulations would impose total costs of approximately $14 million, over ninety percent of which would be borne by the lobster industry. The Maine Lobstermen's Association puts that figure at $10–15,000 in first year

costs alone per lobsterman, and annual replacement costs of up to $9,000, far in excess of your agency's estimates. In July 2007, a GAO analysis of the then proposed rules found that NMFS:

- "did not adequately represent uncertainties associated with proposed gear modifications cost, and could not fully assess impacts on fishing communities." and
- "cannot estimate the extent to which risks to whales will be reduced" by these regulations.

In other words, it appears that your agency conducted an inadequate economic analysis and then imposed on the lobster industry a set of regulations that have an unproven likelihood of success.

Answer. NOAA Fisheries Service believes the economic analysis presented in the Draft Environmental Impact Statement (DEIS) used to determine the costs of the then proposed fishing gear modifications was adequate. NOAA Fisheries Service noted that GAO's review of the DEIS economic analysis recommended no changes to the models or methods employed. GAO's principal finding with respect to the economic analysis was to recommend that NOAA Fisheries Service improve the representation of uncertainties in the analysis by presenting a range of possible costs in the Final Environmental Impact Statement (FEIS).

In response to this recommendation, the FEIS includes a quantitative assessment of the sensitivity of compliance cost estimates to variations in four factors: (1) the increase in gear loss that lobster trap/pot vessels fishing in Maine inshore waters may experience as a result of converting from floating groundline to sinking and/or neutrally buoyant groundline; (2) the rate at which sinking and/or neutrally buoyant groundline will wear out and need to be replaced; (3) the price of sinking and/or neutrally buoyant line relative to the price of floating line; and (4) the estimated number of state-permitted vessels subject to the Atlantic Large Whale Take Reduction Plan requirements. The FEIS presents this analysis, providing cost estimates for each regulatory option under a range of alternative assumptions. NOAA Fisheries Service believes that incorporation of this analysis into the FEIS fully addresses GAO's recommendations for improvement of the economic analysis presented in the DEIS.

Some industry organization's cost analyses include alternative assumptions that increase each of the cost parameters to reflect extreme predictions of gear costs and functionality. Although the industry organization's have an intimate knowledge of the lobster fishery, their statements are based upon the predictions of individuals with limited or no experience fishing with sinking groundline. In contrast, NOAA Fisheries Service gear experts developed the assumptions applied in the economic analysis based upon detailed conversations with individuals throughout the Atlantic coast with years of experience fishing sinking groundline in a variety of habitats, including Maine's rocky bottom. NOAA Fisheries Service would also like to specify some additional points related to these comments:

- The average cost of groundline was estimated based upon estimates for specific products. The estimate the commenter uses for certain brands is significantly higher than the price at which the brand is sold by gear suppliers.
- The commenter's assumptions about the useful life of sinking groundline are based upon field studies with experimental gear, instead of commercially available sinking groundline used in NOAA Fisheries Service assumptions.
- Based upon discussions that NOAA Fisheries Service gear experts had with fishermen operating with sinking groundline in hard bottom environments, the rate of gear loss would be significantly less than the rate suggested by the commenter.
- Evidence from Vessel Trip Report data indicates that a significant number of Federal permit holders that the commenter assumes would be affected by the rule do not actively fish and would therefore not incur costs of gear conversion.

Question 2a. Do you find it acceptable that a single industry is saddled with such major economic impact for regulations that are not even likely to achieve their intended goal?

Answer. Based on comments received on the Draft Environmental Impact Statement (DEIS), NOAA Fisheries Service developed a new preferred alternative in the Final EIS (FEIS) that offered significantly lower economic costs while sacrificing little protectiveness. Chapter 8 of the FEIS provides an overview of the costs and benefits of all the alternatives. Because of the geographic concentration of the lobster fishery in New England (see FEIS Chapter 7) and the relatively large size of the lobster fishery, it is true that New England vessels bear a large share of the overall estimated costs of the Atlantic Large Whale Take Reduction Plan modifications.

Given whale movements and behavior, however, New England waters represent important areas for entanglement risk reduction. Furthermore, the social impact analysis suggests that only a limited subset of smaller vessels are likely to experience costs that represent a significant share of per-vessel fishing revenues. Groundline buyback programs will help mitigate compliance cost impacts.

NOAA Fisheries Service firmly believes that the recent amendment to the Take Reduction Plan will achieve its intended goals. NOAA Fisheries Service believes that the final rule published in October 2007 represents a comprehensive suite of amendments to the Take Reduction Plan. NOAA Fisheries Service worked with the Atlantic Large Whale Take Reduction Team to help evaluate the Take Reduction Plan and discuss additional modifications necessary to meet the goals of the Marine Mammal Protection Act and the Endangered Species Act. NOAA Fisheries Service also solicited input from the public after issuing a Notice of Intent to prepare an EIS. Although there were no consensus recommendations from the Take Reduction Team or consistent proposals from the public, NOAA Fisheries Service believes that it has developed the best options available for amending the Take Reduction Plan.

Question 2b. Do you agree that the general public, which receives the benefit of that protection, bear some of the cost? If so, what programs do you intend to fund within the parameters of this budget request that will help defray the burdensome cost to the affected fishing industries?

Answer. We agree that the general public, which receives the benefit of that protection, should bear some of the cost. While the FY 2009 budget does not request additional funding for lobster gear buyback and recycling programs, NOAA Fisheries Service has worked with the fishing industry and conservation organizations such as the Gulf of Maine Lobster Foundation, the National Fish and Wildlife Foundation and the International Fund for Animal Welfare to promote these activities. As a result of these gear buyback efforts, approximately 4,700 miles of floating line have been removed from the ocean providing a valuable entanglement risk reduction for large whales.

Question 3. Following a field hearing on this topic in Maine this past February, lobster fishermen have been meeting with representatives from environmental groups to attempt to come to some consensus about a way forward on this issue that will increase benefits to whales but reduce the impacts on the lobster industry. These may include permission to use neutrally buoyant rope in certain areas in exchange for a reduction in endlines—the ropes that run from the buoy to the traps on the seabed. This proposal would almost certainly result in less rope in the water, and greater protection for whales and reduce costs and increase safety for our lobstermen.

If these groups come to a mutually acceptable, scientifically supported agreement, how could the regulations be changed to reflect that proposal? Is it feasible for these changes to be in place before the scheduled implementation date of October 5, 2008? If not, could that date be pushed back to coincide with the start of the next fishing year?

Answer. Should this group develop a mutually acceptable, scientifically supported alternative to the sinking groundline requirement, NOAA Fisheries Service would forward their proposal to the Atlantic Large Whale Take Reduction Team for consideration. If the proposal received a favorable review from the Take Reduction Team, NOAA Fisheries Service would develop and publish a proposed rule and supporting environmental analysis. The proposed rule and ultimately, the final rule, would go through the normal rulemaking process as required by the Administrative Procedures Act and other applicable mandates and statutes. Based on the various mandates and statutory requirements, it would not be feasible to develop and implement changes to the sinking groundline provision prior to the scheduled October 5, 2008 implementation date.

However, NOAA Fisheries Service has recently published a proposed rule to amend the regulations implementing the Atlantic Large Whale Take Reduction Plan to provide an additional 6 months (through April 5, 2009) for trap/pot fishermen along the Atlantic East Coast to comply with the broad-based sinking groundline requirement. NOAA Fisheries Service will evaluate the comments received on the proposed rule prior to making its final determination regarding the 6-month extension.

Question 4. While many fishermen continue to do their part to minimize right whale entanglements, and others are being forced to bear the burden of undue and unproven regulatory restrictions, many are troubled by the fact that there seems to be little progress in reducing right whale deaths due to ship strikes. In fact, ship strikes have killed three times as many north Atlantic right whales since 2001 than gear entanglements. In February 2007, NOAA sent a final rule to the Office of Man-

agement and Budget that would reduce the likelihood of ship strikes by instituting speed limits in certain areas along the eastern seaboard at times when whales are present. Today, more than a year later, that rule stills sits with OMB.

Given that it has been over a year since the final rule was submitted to OMB, when can we expect to see action taken on it? Do you agree that your agency has failed to protect whales from ship strikes as it is required to do under the Marine Mammal Protection Act? Assuming this failure is unacceptable to you, how do you intend to rectify the situation?

Answer. NOAA has taken and continues to take a comprehensive approach to minimizing the risk of ship strikes and other threats to whales. Since NOAA published an Advanced Notice of Proposed Rulemaking on the ship strike rule in 2004 and a proposed rule in 2006, NOAA has, with the U.S. Coast Guard and through the International Maritime Organization, shifted ship traffic lanes to reduce the risk of collisions between large ships and whales into and out of Boston Harbor. The shift in Boston ship traffic added only 3.75 nautical miles (roughly 10 to 22 minutes to one-way trips depending upon the type of vessel and the speed at which they travel), yet would potentially reduce the risk of ship strikes to right whales by moving ships out of known right whale habitat.

Also, in collaboration with the U.S. Coast Guard and with the support of the International Maritime Organization, NOAA established and continues to maintain two Mandatory Ship Reporting systems—one in waters off New England and another in calving/nursery areas in waters off Georgia and Florida. The systems, operational since July 1999, require that all ships 300 gross tons and greater report to a shore-based station via satellite communication systems upon entering these two key right whale aggregation areas. Mariners are required to report ship name, call sign, entry location, destination, and ship speed. The reports prompt an automated return message providing information about the vulnerability of right whales to ship strikes, and recent right whale sighting locations.

In 2006, NOAA established recommended shipping routes in key right whale aggregation areas within Cape Cod Bay and off three ports in Georgia and Florida. The routes are an attempt to reduce the co-occurrence of whales and ships by minimizing ship transit times in whale habitat and avoiding specific whale aggregation areas, while also ensuring navigational safety and limiting adverse effects on the shipping industry.

NOAA has also worked with its partners in developing, publishing, and distributing guidelines for mariners when operating in right whale habitat. NOAA and other Federal and state agencies support or conduct extensive aircraft surveys for right whales. NOAA Fisheries Service assembles reports and right whale "alerts" are disseminated to mariners via multiple media.

Additionally, through U.S. Coast Guard and other broadcasts, NOAA provides vessel speed advisories in areas where right whales occur. Education and outreach remain an important part of NOAA's overall strategy for reducing threats to right whales and other whales from ship strikes. For example, in June 2007, NOAA and the U.S. Coast Guard released "A Prudent Mariner's Guide to Right Whale Protection." This interactive, multi-media CD program is distributed free-of-charge upon request and contains crew training information about right whales, recommended navigation actions when operating in right whale habitat, guidance for compliance with the Mandatory Ship Reporting System, and what to do in the event an injured right whale is sighted.

Question 5a. NOAA requires basic oceanographic data to improve climate and resource management models and create more accurate weather and sea state forecasts. I appreciate your request of $6.5 million for implementation of NOAA's Integrated Ocean Observing System, and $14.5 million for regional observations. These are increases from last year's request, but still below the $26.3 million Congress enacted in FY08 for ocean and coastal observations. And your request is still far below the number recommended by the U.S. Commission on Ocean Policy: $138 million to initiate an IOOS system, and escalated that figure to half a billion dollars within 5 years. While we can argue about actual numbers, investment on this scale is warranted, as forecasts based on data from an ocean observing system in the south Pacific is estimated by NOAA to have generated returns in excess of one billion dollars annually. Given these potential economic benefits, why have you requested such a relatively modest amount to ocean observing systems this year?

Answer. The FY 2009 President's Budget Request is $21 million for NOAA Integrated Ocean Observing System (IOOS) activities. This is $7 million above the FY 2008 request or nearly 50 percent more than included in last year's request; this increase demonstrates a continuing commitment to the IOOS program. Within the context of NOAA's overall budget, any new investment area is funded at the expense of other important NOAA programs. Modest, incremental budget increases

can be expected for new programs as they work toward demonstrated and validated program results.

The requested increase of $7 million will:

- Support a national technical capability within NOAA ($3.0 million);
- Improve capacity for the Data Assembly Center at NOAA's National Data Buoy Center (NDBC) in Stennis, Mississippi ($1 million); and
- Provide additional support for the regional component of IOOS ($3 million).

Within the $21 million total, $14.5 million is requested for "IOOS Regional Observations". This funding will allow NOAA to continue its competitive selection process for grants and cooperative agreements, to establish a regional network of observing systems to serve both national and regional needs for ocean observing data and information services.

The remaining $6.5 million, requested for the NOAA IOOS Program, will continue national IOOS implementation efforts and development of an IOOS Data Integration Framework. NOAA has made progress with implementing IOOS. Some examples of our work:

- Established a dedicated IOOS Program and developed a strategic plan;
- Conducted the first peer-reviewed, competitive grants process for regional IOOS awards; (resulting in 23 IOOS cooperative agreements);
- Developed a prioritized list of measurements, based on feedback from users: temperature, salinity, sea level, surface currents, and ocean color;
- Established common processing standards to be applied nationally; and
- Implemented IOOS Data Integration Framework at three NOAA centers of data, which will result in interoperable data.

Making progress on these modest steps is imperative to demonstrating the value of a U.S. IOOS and garnering the support to build the IOOS envisioned by the U.S. Commission on Ocean Policy and others.

Question 5b. What is your opinion of the Ocean Commission's assessment that an IOOS system will require upwards of $500 million to operate effectively?

Answer. The U.S. Commission on Ocean Policy called for a fully developed IOOS in 10 years, with initial estimates of annual funding on the order of $500 to $750 million. These cost values have not been independently evaluated. NOAA has made progress implementing IOOS under our current budget requests. Continued support for research and development, regional observing development, and data management and communication efforts will be required to fully develop the U.S. IOOS. NOAA believes IOOS can be built and operated in phases, with a level of new investment much below the Ocean Commission's estimate.

To do this NOAA is focusing efforts internally and collaborating with its regional partners to build and demonstrate the viability of the regional and data management components. NOAA continues to be committed to building a national IOOS, and is providing the leadership, management, and oversight needed to facilitate its development.

Question 6a. NOAA is now in the second year of running a competitive national program to fund the regional research and operational components of the Integrated Ocean Observing System. The funding provided to the IOOS program last year was woefully insufficient, and as a direct result, the Gulf of Maine Ocean Observing System, just one of eleven such systems nationwide, will be forced to remove as many as half of its buoys from the water this year because they simply do not have the money to continue operating them. Interrupting the continuity of these data streams will have consequences beyond baseline research, as a Woods Hole Oceanographic Institute study has shown that GoMOOS returns six dollars to the regional economy for every dollar invested.

First of all, what does NOAA hope to gain by requiring regional observation programs to compete against one another? Doesn't this system inherently result in a set of winners and losers, when in reality we should be trying to build a system in which all regions are equally "winners"? Why not promote a "merit based" system, as in S. 950?

Answer. With the FY 2007 Omnibus Appropriation, NOAA initiated a transition from a collection of Congressionally-directed projects to a competitive award system to develop a national network of coastal ocean observing systems.

NOAA is working to establish a national network of regional coastal ocean observing systems by soliciting high-quality proposals through a competitive and merit-based process. NOAA recognizes that past competitive processes may not have been optimal to support a national network and we are looking at ways to structure fu-

ture funding announcements, such that competition is focused within, not among, each of the 11 IOOS regions.

NOAA included a selection criterion within its FY 2008 Federal Funding Announcement that allows proposals deemed to be meritorious of funding to be elevated based on the need to maintain geographic distribution. NOAA continues to operate a highly transparent funding process and works closely with its regional partners on lessons learned to support a fair, yet robust process.

Question 6b. It is painfully obvious that the top line number—the overall pot of money for these regional competitions—is too low. What was the total amount allocated for FY07 and FY08? What is the amount requested for FY09? These numbers are not clearly identified in your request.

Answer. In FY 2007, NOAA awarded $22.4 million to support regional IOOS development, including the eleven IOOS Regional Associations and Regional Coastal Ocean Observing Systems (RCOOS). This included 23 IOOS Development awards spanning three focus areas:

- Regional coastal ocean observing systems development;
- IOOS applications and product development; and
- Regional Data Management and Communication guidance and processes.

In FY 2008, Congress appropriated $26.3 million for NOAA IOOS (approx. 58 percent above the President's Budget Request). NOAA awarded $20.4 million of the total IOOS appropriation to support regional IOOS development. This included 11 new management and planning awards to the Regional Associations and 7 new RCOOS awards to continue development of regional ocean observing systems.

The FY 2009 request for "IOOS Regional Observations" is $14.5 million. NOAA intends to use these funds to support existing, multi-year, regional awards.

Question 6c. If every region were to receive the amount of funding warranted to build an effective ocean observation program, how much funding would NOAA have to allocate for these regional programs?

Answer. NOAA is completing program assessments within each IOOS region to better understand baseline costs, existing capabilities, and diversity of funding sources. This review will serve as a basis for further analysis of regional needs and requirements.

Question 6d. Some regions note that they cannot compete for funds, because they are suffering from the effects of being under-funded in the past. Do you agree with this characterization? How can NOAA help these programs get on a more competitive footing?

Answer. NOAA is not aware that some regions have concluded they cannot compete for funds. The NOAA IOOS funding process is transparent, open, and consistent with competitive funding processes across the agency. NOAA is working closely with our regional partners to develop viable observing capabilities with available resources.

Question 7. The New England Fishery Management Council is currently in the process of developing the next major amendment to its groundfish fishery management plan. At a meeting last month, the Council decided to table proposals to explore new management methods to replace the existing days-at-sea system. Under the present system, groundfishermen have an average of just 47 days-at-sea. Estimates suggest these levels could be cut by as much as an additional 70 percent under Amendment 16, leaving the same fisherman with just 15 days to make a living. Has NOAA provided funding in this budget to determine the viability and potential benefits of any groundfish management plan other than days-at-sea? Are any existing programs investigating other management measures?

Answer. Yes. The FY 2009 President's Budget requests an increase of $4.8 million to develop and implement Limited Access Privilege Programs. Of this amount, $1.142 million is preliminarily allocated to the Northeast Region. In FY 2008, NOAA is funding development of the Amendment 16, which also includes development of sector management. Through sector management part or all of groundfish fishery resources (denominated in terms of catch) would be allocated to various industry sectors. One of the major benefits of self-selecting sectors is that they provide incentives to self-govern, therefore, reducing the need for the New England Fishery Management Council and NOAA Fisheries Service mandated measures. Sectors also are thought to reduce the risk of overfishing by operating under a hard total allowable catch (TAC) for at least some species, rather than input controls based on a target TAC.

Question 8. The regulations established by NMFS in Amendment 13 call for a review of the plan for fishing year 2009 using information based on a 2008 peer-re-

viewed benchmark assessment. This assessment, also known as the GARM III, will not be completed until August 2008 at the earliest, yet the Council is already considering plans to cut Days-at-Sea despite the fact that they do not have adequate data as mandated by NMFS's own regulations. The Council's current plan is to complete work on a Draft Environmental Impact Statement for Amendment 16 by the first week in June, 2 months *before* the GARM is completed, and to enact a final regulation in October 2008, at the very meeting that will provide the public's first opportunity to hear a formal presentation of the data included in the GARM.

Given that the Magnuson-Stevens Act requires the Council to give the public "a reasonable opportunity to respond to new data or information" before taking final action, how do you rationalize this schedule for implementation of Amendment 16 with the requirements of Magnuson-Stevens? Why should the Council not delay action on Amendment 16 until the necessary data can be appropriately considered and included in management measures?

Answer. Based on the preliminary results of the assessment process, the New England Fishery Management Council has determined that it is necessary to see the final scientific results before it can complete a draft document that will fully inform the public of the alternatives under consideration. The Council will continue working on those aspects of the amendment that are not reliant on the final scientific results. Because it is unlikely that Amendment 16 measures will be in place at the beginning of the new fishing year (May 1, 2009), the agency is evaluating options for ensuring that efforts to rebuild stocks and end overfishing are not compromised during this time.

Question 9a. The 2008 budget request included $10 million for the Penobscot River Habitat Restoration Project—an unprecedented dam purchase and removal partnership among Federal and State agencies, non-profit organizations, a private electricity company, and the Penobscot Indian Nation that would retain over 95 percent of the river's electricity production while providing unrestricted access to nearly 1,000 miles of unobstructed habitat for salmon and other diadromous species. Of the $25 million Congress directed toward the Open Rivers Initiative for Fiscal Year 2008, how much of that is NOAA now putting toward the Penobscot River Restoration Project?

Answer. Within the NOAA budget Congress did not appropriate $25 million for the Open Rivers Initiative (ORI). The FY 2008 appropriation permits the following under the Fisheries habitat Restoration line in the budget:

- $10.0 million for Penobscot River habitat Restoration.
- $12.9 million for Community-Based Restoration.
- $1.6 million for Open Rivers Initiative.
- $0.8 million for Chesapeake Bay Oyster Restoration.

No Open Rivers Initiative funding is being used in FY 2008 for the Penobscot River Restoration Project. The $10 million in FY 2008 for the Penobscot River Restoration Project is included in NOAA's $25 million appropriated under the Fisheries Habitat Restoration line.

Question 9b. Going forward with this multi-year project, how will NOAA decide how to allocate funding under the Open Rivers Initiative? How will NOAA engage its Federal partners such as the Fish and Wildlife Service and the Army Corps of Engineers to help defray the costs of large-scale projects like the Penobscot River Restoration?

Answer. NOAA requested $7 million in FY 2009 for the Open Rivers Initiative. Projects selected for funding under the Open Rivers Initiative (ORI) must be a dam or stream barrier removal project that benefits diadromous fish and fosters economic, educational, and social benefits for the surrounding community. ORI is a nationally competitive program, with applications going through a multiple step review, ranking and selection process. Projects are ineligible if they are outside of the $1,000,000 maximum allowable request or the $30,000 minimum allowable request; or if the dam is licensed by the Federal Energy Regulatory Commission (FERC) at the time of proposal submission. NOAA also evaluates and selects projects according to NOAA's standard evaluation criteria:

1. Importance and Applicability of Proposal.
2. Technical/Scientific Merit.
3. Overall Qualifications of Applicants.
4. Project Costs.
5. Outreach, Education, and Community Involvement.

NOAA routinely partners with other Federal agencies, such as the U.S. Fish and Wildlife Service, the U.S. Army Corps of Engineers, and the Natural Resources Conservation Service, to accomplish habitat restoration goals for coastal and river habitats, including dam removals.

Regarding the Penobscot River Restoration Project, NOAA is working closely with the U.S. Fish and Wildlife Service, the U.S. Geological Survey, and the U.S. Army Corps of Engineers on acquisition, removal and restoration design, and permitting issues. NOAA will continue to work closely with these agencies and the Federal Energy Regulatory Commission as the Federal and state permitting processes progress throughout FY 2008 and into FY 2009. These agencies are providing critical technical assistance and funding to advance the project to the next stage. NOAA remains committed to see the project through to completion and will continue to work with our Federal partners who are contributing key technical and financial resources to the project.

Question 10. The FY 2009 budget requests $32.7 million for observer coverage overall, on par with last year's request and the enacted levels, but there is no information in the budget request specifying how much of that will go to the New England Groundfish Observer Program. As you are aware, under Amendment 13, NMFS must provide at least 10 percent observer coverage to monitor bycatch in the New England groundfishery and in the scallop fishery. How much funding would you allocate for groundfish observers in New England? What percentage of coverage will this level of funding provide?

Answer. The President's FY 2009 Budget Request for the New England Groundfish Court-Ordered Observers budget line is $8.619 million. During litigation concerning Northeast Multispecies Fishery Management Plan (FMP) Amendment 9, NOAA Fisheries Service was temporarily ordered to provide either a 10 percent coverage level or to determine the appropriate coverage level to provide statistically reliable bycatch information on all gear sectors in the Northeast Multispecies Fishery. NOAA Fisheries Service's analysis suggested that 5 percent coverage of all groundfish days-at-sea trips was sufficient to monitor catches and discards in the groundfish fishery with an acceptable level of precision and accuracy. Although NOAA Fisheries Service is no longer subject to that court order, it has continued to provide a 5 percent coverage level through FY 2008 in the Northeast Multispecies Fishery to ensure statistically reliable information on groundfish bycatch levels.

NOAA Fisheries Service is transitioning to a Standardized Bycatch Reporting Methodology (SBRM) process, which is now mandated by the New England Fishery Management Council. The SBRM requires a method to allocate sea days for observer coverage in all Northeast fisheries so that bycatch estimates are provided at a reliable level. The SBRM includes a prioritization and consultation process with the Fisheries Management Councils in the Northeast region. The data is also analyzed statistically to ensure this level of coverage produces a sufficiently precise bycatch estimate.

The sea scallop program is primarily industry funded through Amendment 13 to the Scallop FMP, although still supported by NOAA Fisheries Service funds for specific activities. It is difficult to project the number of observed sea days that will occur through an industry funded program. However, in FY 2006 a total of 2,200 sea days were observed. Assuming this same level of observer coverage, NOAA Fisheries Service anticipated funding the sea scallop industry-funded program at approximately $397,000 in FY 2009. NOAA Fisheries Service funds are used to cover the 72-hour call in notifications, data processing, data quality assurance programs, program oversight to attain proper coverage and sampling, and portions of the observer training and sampling gear. Approximately 10 percent of the trips are currently observed in the general category access areas, limited access areas, and limited access open area scallop fisheries (not general category open area). Although this may change under the SBRM, coverage in the sea scallop fishery will be maintained at a level high enough to provide statistically valid bycatch estimates.

Question 11. Herring has been described as a "keystone species" in the Gulf of Maine ecosystem, serving as forage for larger species such as tuna and endangered northern right whales, as bait in the lobster industry, and as a commercially important species in its own right. The New England herring fishery is also in need of additional observer coverage to help settle many ongoing disagreements about the status of this stock and its harvest and bycatch levels. How much funding—and what level of coverage—can NMFS devote to observer coverage in the herring fishery? How much coverage is needed to truly address the ongoing questions about stock and bycatch uncertainties?

Answer. The Northeast Observer Program must now allocate observer coverage in the herring fishery pursuant to the Standardized Bycatch Reporting Methodology

(SBRM), which is now mandated by the New England Fishery Management Council. The FY 2009 budget under the New England Groundfish Court-Ordered Observers budget line was intended to provide observer coverage in the herring mid-water trawl fishery at a target level of 20 percent, with a lower coverage rate, closer to 5 percent for the purse seine herring fishery. With the transition to the new SBRM process, the target coverage levels for the herring fishery will need to be reevaluated. The specific FY 2009 funding amount targeted for these herring fisheries is approximately $460,000.

The Herring Plan Development Team is actively addressing and identifying the monitoring needs of the herring fishery as a New England Fishery Management Council priority through the proposed Amendment 4 to the Herring Fishery Management Plan. The objectives of this Amendment include implementing measures to improve the long-term monitoring of catch in the herring fishery, consideration of the health of the herring resources, and evaluation of the important role of herring as forage and predator fish throughout its range. NOAA Fisheries Service may adapt or readdress target levels of observer coverage as the need for coverage is fully examined during this process.

Question 12a. There are concerns about NOAA's ability to provide a long-term, cost-effective satellite system given its budgetary constraints and its recent track record beset with launch delays and instrument development failures. Most recently, the launch date for the NPOESS Preparatory satellite was pushed back an additional 9 months to June 2010. This launch was initially scheduled for May of 2006, so we are now looking at more than *4 years* of delay and when the NPOESS satellites do fly they will be lacking many key instruments initially planned to be onboard. As a matter of fact, a September 2007 National Academy of Sciences Report noted that in January 2006, more than 120 instruments were used to collect climate data—a number that is expected to drop to fewer than 80 instruments by 2010, a decline of 25 percent or more. The FY09 budget includes $74 million to restore key climate sensors cut from the next generation of environmental satellites. Will this increased funding address the problems in the NAS report?

Answer. The President's FY 2009 Budget Request includes a $74 million initiative to fund the Administration's commitment to restore two of the five high priority climate measurements that were demanifested from the National Polar-orbiting Operational Environmental Satellite System (NPOESS) in 2006. The Administration has previously addressed the other three high priority climate measurements.

The $74 million budget increase will fund development of Total Solar Irradiance Sensor (TSIS) and Clouds and Earth Radiant Energy System sensor (CERES). In 2007, NOAA and the National Aeronautics and Space Administration (NASA) jointly funded restoration of Ozone Mapper/Profiler Suite-Limb to the NPP satellite. However, full funding of the NPOESS-related budget requests in the appropriations bills for NOAA, the National Aeronautics and Space Administration (NASA), and the Air Force appropriations bills is required to ensure that the climate sensors can be integrated and launched on the respective NPP and NPOESS satellites.

NOAA and NASA have determined that near-term continuity of the other two measurements can be fulfilled through existing plans detailed below:

- Continuity of radar altimetry measurements can be fulfilled through the Jason 2 mission that was successfully launched on June 20, 2008.
- Aerosol measurements can be fulfilled with the 2009 launch of the Aerosol Polarimeter Sensor on the NASA GLORY mission.

NOAA and NASA, in collaboration with the Office of Science and Technology Policy and the Office of Management and Budget, continue to work with the climate science community to ensure that the climate sensors are developed and placed in orbit in time to continue and enhance climate data collection and avoid an interruption of these important space-based climate measurements.

Question 12b. What assurances can you provide that we will not simply continue to see one instrument failure after another and an unending string of delays?

Answer. NOAA, NASA, and the Air Force carefully assessed the processes and capabilities required to build these instruments and place them onto the appropriate and most cost-effective satellite. Careful consideration was given to cost, schedule, and technological maturity of the sensors, as well as the capability of the Federal Government and its contractors to successfully deliver the instruments. The conclusion of this review indicated that the remanifested climate sensors are instruments that have been flown before or will be flown prior to being placed on an operational satellite.

NOAA will work directly with NASA to build near-duplicate instruments (*i.e.,* not push for new unproven technology), in order to limit cost growth and ensure we

meet the launch schedules of the NPOESS Preparatory Project (NPP) and the first NPOESS satellites (C–1). These climate sensors will be subject to demanding test programs that will identify and address flaws in the design and manufacturing of the instruments prior to launch. NOAA and NASA believe that the necessary program management and engineering oversight processes are in place to identify and take the appropriate steps to mitigate cost, schedule, and risk of these climate sensors to the NPP and NPOESS programs.

Question 12c. Will the latest delay in the launch of the NPOESS Preparatory satellite cause additional cost increases? Will there be information gaps?

Answer. The NPOESS Executive Committee (EXCOM) recently received a revised cost estimate from the DOD's Cost Analysis Improvement Group (CAIG). This estimate included development, production and operations and sustainment costs for the baseline program. Given the differences between the CAIG estimate and the Integrated Program Office estimate, the EXCOM members are engaged in ongoing discussions to reconcile the two cost estimates and determine which estimate will form the basis of the NPOESS Acquisition Program Baseline (APB). Once the APB is updated, NOAA will inform the Committee of the EXCOM decision and implications of the revised estimate to the program.

With respect to information gaps, existing NOAA, Air Force, and NASA Polar-orbiting satellites continue to provide data. However, as we get closer to 2010 the chances of specific instrument failures on these existing satellites increases. All three agencies will manage their spacecraft to maximize the health and safety of the satellites and instruments to ensure that data will be available until NPP and NPOESS are launched. Through a pre-existing agreement with the Europeans, the MetOp satellite is on-orbit and also providing critical operational data. The real impact of the NPP delay is the extended time to access and use the improved datasets that NPP will provide. The NPOESS Executive Committee and Integrated Program Office remain committed to mission success.

Question 13a. Apparently NOAA satellite operations has uncovered a potentially serious battery issue on the GOES–11 (GOES West) satellite currently in orbit and covering the Pacific Ocean and Western United States. GOES–11 was expected to last until the end of 2011, but that date is now in serious jeopardy. In the process of preparing the batteries for eclipse operations, NOAA found that one of the two spacecraft batteries was having problems holding a charge. While the satellite could go through the upcoming months without a problem, there is a particular failure situation that could result in an end of life condition for the satellite.

What information does NOAA receive from the satellite—and is NOAA prepared for a worst case scenario if adjustments to its existing battery charging procedures cannot be made in an attempt to manage the GOES–11 problem? What will this failure mean to the program? Will GOES–13 be used to collect the information that GOES West was expected to send back to NOAA until the end of 2011 or will there be gaps in data?

Answer. GOES–11, which was launched in May 2000, currently serves as the operational "GOES-West" satellite and provides operational environmental data and other services for the western United States and Central Pacific regions. GOES–11 provides the following information:

- Visible and infrared images of the Earth's atmosphere, at 5, 15, and 30 minute intervals.
- Space environment monitoring data including Earth's magnetic field and energetic particle measurements.
- Data collection system receives environmental data from surface based data collection platforms and ocean buoys and relays them to users. Data are also used for tsunami detection and reservoir monitoring.
- Search and rescue distress signals from aircraft, marine, and land based vessels are relayed through the Search and Rescue Satellite-Aided Tracking System.
- Broadcast of operational weather data through the Low Rate Information Transfer system and emergency warnings through the Emergency Weather Information Network transponders.

GOES–11 battery performance degradation was first observed in Fall 2004 as a gradual decline in voltage. NOAA satellite operators modified battery charging procedures to allow the spacecraft to maintain acceptable voltage by reducing power system loads during the approximately 70 minute eclipse period. The eclipse, approximately 6 weeks long, occurs in the Spring and Fall months when the Earth is between the spacecraft and the sun and the spacecraft is unable to charge its batteries to acceptable levels in order to support nominal satellite operations.

NOAA satellite operators project that the gradual degradation of the batteries will worsen with time. During the Spring 2008 eclipse, NOAA identified a limited number of non-time critical services, including secondary payload instruments and communication services that could be turned off during the eclipse periods. Additionally, NOAA took GOES–13 (the on-orbit spare spacecraft) out of on-orbit storage prior to eclipse season to test a space environment sensor and left it in an operational configuration as a hot backup to GOES–11 in the event of a catastrophic failure of the GOES–11 power system. GOES–13 was also used to provide an alternate source of data communication and to provide SARSAT services during GOES–11 eclipse.

In the event of a GOES–11 failure, NOAA is prepared to activate GOES–13 which will supply the same data as GOES–11 to ensure continuity of geostationary environmental satellite observations over the western U.S. and Central Pacific. Procedures have been developed and exercised to optimize this transition in the event it is required. With a failure of GOES–11 and the early activation of GOES–13, NOAA would not have an on-orbit spare spacecraft to meet all of its mission requirements until the launch of GOES–O now scheduled for December 2008. Based on current analyses, NOAA does not anticipate a gap in geostationary environmental data coverage, but the current situation underscores the importance of developing the next-generation GOES–R series so it will be launched and ready to provide uninterrupted data when the GOES–N,–O,–P series of satellite has finished its mission life.

Question 14a. A bluefin tuna tagging program has been ongoing in the north Atlantic since 1999, but the NOAA budget request and Congressional funding has not consistently supported this effort. I am very pleased to see the request for $850,000 in the NOAA FY09 budget request. Bluefin tuna is one of the most valuable fish in the ocean—individual fish can bring tens of thousands of dollars at auction—yet in recent years, the fishery has declined precipitously. Many scientists and resource managers believe that lax regulatory practices in Europe and elsewhere are largely to blame for this decline. However, without strong science to back these claims, the U.S.'s assertions that our sustainable management practices are being undermined by other countries' policies carry little water.

Despite an uneven recent history of requesting and enacting funding for bluefin tuna tagging, has NMFS been able to maintain this program year after year? To what extent have lapses in data collection impacted the long-term viability of the study?

Answer. NOAA Fisheries Service has not been able to maintain this program in all years, largely because funding levels have been inconsistent due to Congressional earmarks. In the FY 2008 enacted budget, this program was funded at $446,000 under an earmark. The FY 2009 Budget request includes $850,000 for this program. However, different research teams (primarily academics) have conducted electronic tagging of bluefin tuna using a variety of funding sources, including Congressional funding and private funds. A consistent level of funding for NOAA would ensure their long-term viability, to more directly address management questions, and to increase NOAA's access to the resulting data. It should be noted that other scientific research tools, such as genetics and microchemical analyses, also aid in understanding better stock structure and the impacts that eastern Atlantic fisheries have on the western population of bluefin tuna.

Question 14b. How has a lack of data affected the U.S. position at ICCAT? What else can we do to increase ICCAT members' attention to the need to study and conserve these stocks?

Answer. The United States needs strong and reliable data for accurate estimates of the fraction of the total catch by fishermen in the eastern Atlantic comprised of fish from the western stock, as well as how the decline of the eastern stock affects U.S. catches of bluefin tuna. These data help to make a strong case for the conservation of the eastern stock.

Last year, compliance concerns together with the steep decline of the eastern stock, led the United States to propose a temporary suspension of the eastern bluefin tuna fishery until such time as countries could demonstrate control of their fisheries. The United States proposal did not achieve consensus. Harvesters did agree to report in detail on their implementation of eastern bluefin tuna fishery rules before the 2008 ICCAT meeting. The United States will review over the coming months the steps taken by eastern harvesters to comply with ICCAT's rules. It is too early to say where that review will lead us. Measures to improve compliance with eastern Atlantic and Mediterranean bluefin tuna measures remain a U.S. priority. In general, compliance discussions at ICCAT should be much more robust than in the past as the United States now chairs the Compliance Committee.

In addition to compliance discussions, the management measures for the eastern Atlantic and Mediterranean stock of bluefin tuna will be reviewed by ICCAT this

fall following completion of a new stock assessment. NOAA expects that ICCAT will need to adopt new measures to reduce mortality on this stock substantially. This will be a high priority for the United States at ICCAT this year.

Question 15a. Harmful algal blooms and hypoxia continue to wreak havoc on our ocean and coastal waters—and the number, size, duration, ecological effects, and economic impacts of these events only continue to grow with each passing year. According to NOAA's own online report, the U.S. seafood and tourism industries alone suffer losses of $82 million to harmful algal blooms and hypoxia annually, and these numbers are likely to continue to grow. Yet it is very unclear what the Administration proposed to do about this in the future—any effort that NOAA is devoting to these outbreaks seems to be buried in the FY09 budget request.

How much funding is NOAA requesting for harmful algal bloom and hypoxia activities in FY09? On what would you spend this funding? And how did you spend the funding allocated to this program in FY08?

Answer. The FY 2009 President's Request includes $15.8 million for NCCOS Competitive Research, of which NOAA expects to spend at least $8.9 million on research related to harmful algal blooms (HABs) and hypoxia. The Harmful Algal Bloom and Hypoxia Research and Control Act (HABHRCA) is primarily implemented through the suite of competitive national grant programs (ECOHAB, MERHAB, NGOMEX, CHRP) supported through the NCCOS Competitive Research line (formerly "Extramural Research"). Congress' long-term and continued support of HABHRCA has enabled NOAA to provide tools in areas that are necessary for managers to respond to and predict annual HAB and hypoxia events such as those affecting the New England, Gulf of Mexico, Pacific Northwest and California coasts as well as the Great Lakes. Products include development and transition of regionally-specific detection and analysis methods, coupled biological-physical models, enhanced state and local government HAB monitoring capacity in both marine and freshwater environments and new methods for prevention, control and mitigation.

NOAA is in the process of finalizing FY 2008 funding recommendations for grants related to HAB and hypoxia research. The release of specific funding information regarding individual grants is restricted until final awards are made. NOAA can provide this funding information on specific projects related to HABs and hypoxia funded in FY 2008 later in the fiscal year.

Question 15b. How is NOAA increasing its ability to work with regions, states, and local communities to respond to and mitigate the impacts of these outbreaks? As we craft a new bill to reauthorize the Harmful Algal Bloom and Hypoxia Research and Control Act, what lessons have we learned to guide future efforts?

Answer. NOAA is taking two steps to increasing regional HAB and hypoxia efforts. The first step is to conduct regional workshops to assess research and response needs and develop plans. Examples of previous and planned efforts include:

- April 2006—Hypoxia in the Northern Gulf of Mexico: Assessing the State of the Science Symposium;
- July 2006—State of the Research on Red Tide in the Gulf of Mexico: Workshop and Public Forum;
- April 2006—Hypoxia in the Northern Gulf of Mexico: Assessing the State of the Science Symposium;
- January 2007—Summit on Long-term Monitoring of the Gulf of Mexico Hypoxic Zone: developing the Implementation Plan for an Operational Observation System;
- March 2007—Ecological Impacts of Hypoxia on Living Resources;
- January 2008—Mississippi River/Gulf of Mexico Watershed Nutrient Task Force EPA Science Advisory Board Hypoxia Advisory Panel Report;
- April 2008—Regional Workshop for Harmful Algal Blooms in California Coastal Waters;
- June 2008—Gulf of Maine Operational Forecasting Workshop;
- September 2008—West Coast Regional HAB Workshop, during the West Coast Governors' Agreement (WCGA) on Ocean Health; and
- December 2008—Nuisance Macroalgal Blooms in coastal Maui: assessment and integration of physical factors and biological processes.

The second step is to use the information we gather during the regional workshops to set research funding priorities for our HAB and hypoxia programs on a regional basis. This approach is based on lessons learned over the last 10 years of HAB and hypoxia research. Some lessons we have learned:

- Effective HAB and hypoxia management is based on understanding the causes and impacts of HABs;
- There are many immediate short term benefits to HAB and hypoxia research. For example, the development of methods to detect HAB cells and toxins is essential to monitoring and early warning and is usually the first product of HAB research. Examples of more long term products are annual predictions of bloom or hypoxia severity, development of prevention strategies, and development of new control methods;
- The ability to provide assistance during events is critical to resource and public health managers in the face of new or large HAB or hypoxia events. Further, data obtained during severe outbreaks of HABs or hypoxia has greatly advanced our understanding of these events and our ability to predict and manage them;
- Making research products such as new control methods, prevention strategies, and forecasting abilities operational is a challenge that requires considerable testing through pilot projects at different scales; and
- HABs and hypoxia are regionally specific occurrences that are best addressed on a regional basis.

Question 15c. In your opinion, should Congress focus on preventing or mitigating these outbreaks? Would it be more cost effective to focus on prevention or mitigation?

Answer. Both prevention and mitigation are essential goals. Many mitigation strategies can be implemented quickly. Prevention, on the other hand, requires a more thorough understanding of the causes of a HAB occurrence and the long-term management efforts needed to reduce the distribution and severity of blooms. Some blooms cannot be controlled at all or only to a limited extent so, for these, mitigation is the only option. Proposed regional research and action plans (mentioned in the response to 15b) can be used to evaluate the most effective course of action—mitigation, prevention or both—for each regional HAB problem.

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