

**NOAA'S FISHERY SCIENCE:
IS THE LACK OF BASIC
SCIENCE COSTING JOBS?**

OVERSIGHT HEARING

BEFORE THE

SUBCOMMITTEE ON FISHERIES, WILDLIFE,
OCEANS AND INSULAR AFFAIRS

OF THE

COMMITTEE ON NATURAL RESOURCES
U.S. HOUSE OF REPRESENTATIVES

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OVERSIGHT HEARING TITLED “NOAA’S FISHERY SCIENCE: IS THE LACK OF BASIC SCIENCE COSTING JOBS?”

Tuesday, July 26, 2011

U.S. House of Representatives

Subcommittee on Fisheries, Wildlife, Oceans and Insular Affairs

Committee on Natural Resources

Washington, D.C.

The Subcommittee met, pursuant to call, at 2:10 p.m. in Room 1324, Longworth House Office Building, Hon. John Fleming [Chairman of the Subcommittee] presiding.

Present: Representatives Fleming, Wittman, Duncan, Southerland, Harris, Runyan, Sablan, Pallone, Bordallo, and Hanabusa.

Also present: Representative Frank.

Mr. FLEMING. The Subcommittee will come to order. The Chairman notes the presence of a quorum. Good afternoon. Today the Subcommittee on Fisheries, Wildlife, Oceans and Insular Affairs will conduct an oversight hearing titled, “NOAA’s Fishery Science: Is the Lack of Basic Science Costing Jobs.”

Under Committee Rule 4(f), opening statements are limited to the Chairman and Ranking Member of the Subcommittee so that we can hear from our witnesses more quickly. However, I ask unanimous consent to include any other Members’ opening statements in the hearing record if submitted to the clerk by close of day today. Hearing no objection, so ordered.

STATEMENT OF HON. JOHN FLEMING, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF LOUISIANA

Mr. FLEMING. In 2006, Congress passed amendments to the Magnuson-Stevens Fishery Conservation and Management Act to require that fishery managers make harvest decisions based on science. These amendments also required that fishermen be held accountable to these new scientifically based harvest limits.

These were, and are, worthy goals. However, I suspect if congressmen knew then what we know now, these amendments would have been written very differently. Those requirements were based on the model of fisheries management in the North Pacific, which has been held up as an example that the rest of the country should emulate. Unfortunately, the amount of data available for fisheries outside the North Pacific is radically different than that available to managers in the North Pacific.

In addition to the 2006 amendments, the National Oceanic and Atmospheric Administration, otherwise known as NOAA, published revised National Standard 1 guidelines, which gave fishery managers additional requirements for dealing with the scientific uncertainty. These guidelines have led to the layer upon layer of

precaution to be included when setting harvest levels for those fisheries for which there is inadequate or stale data.

That means that for fisheries that have not been surveyed for many years, the harvest levels will be artificially low. This has become particularly troublesome for species on the East Coast and in the Gulf of Mexico. Counting fish is difficult. Having good data for fishery managers is not cheap, and tight budgets do not make this any easier.

However, NOAA has made budget decisions that have taken money away from the basic fisheries research to fund new initiatives like marine spatial planning and satellite programs. In fact, the Fiscal Year 2012 budget request included funding for just one satellite that accounts for almost 20 percent of the entire budget request.

This has resulted in inadequate fisheries data for councils. To quote from a letter by the chair of the South Atlantic Council to Secretary Locke in April 2010: "Fisheries management in the South Atlantic suffers from a chronic yet well documented lack of basic data, which hampers scientists' ability to evaluate exploited populations and managers' ability to develop and ensure accountability with management measures. This lack of data adds uncertainty at all levels of scientific and management processes."

Today, we will hear examples showing that the lack of data is resulting in reduced harvest levels, which in turn harms fishermen and coastal communities. This has become especially difficult for the charter fishing operations, who cannot book fishing trips when they cannot tell customers whether the fisheries will be open a week or a month from now.

In addition, restrictions on fishing opportunities are not just because of the new Magnuson-Stevens Act amendments. The lack of adequate information on Endangered Species Act and Marine Mammal Protection Act listed animals is also causing fisheries problems. We will hear at least two examples today.

In one case, NOAA has proposed uplisting the Atlantic sturgeon and splitting the population into five distinct population segments, when they admit that they have not conducted a comprehensive survey of any of the East Coast species of sturgeon, Gulf, shortnose, or Atlantic. Despite this admission, NOAA is likely to restrict a number of East Coast fisheries due to concerns about sturgeon interactions.

We will also hear that NOAA's restrictions on the Bering Sea Pacific Atka Mackerel Fishery will result in losses of up to \$60 million per year based on faulty stock assessments. Both of these examples will result in lost jobs and lost economic activity, and both examples raise concerns about whether NOAA's basic research activities are adequate to meet the requirements of the statutes that they are required to implement.

Clearly, this is a view that is shared by the House Appropriations Committee as well. The House Appropriation Committee report to accompany H.R. 2596, the Commerce, Justice, Science Appropriations bill for Fiscal Year 2012 states the following, quote: "The Committee notes that lack of accurate, up-to-date data for numerous economically vital fisheries has caused significant problems

as NMFS works to implement provisions that were incorporated into the Magnuson-Stevens Act in 2006.

“NMFS has proceeded to implement these provisions, particularly as they relate to setting annual catch limits on all fisheries, in a manner that ignores profound shortfalls and requisite data. More robust stock assessments based on more frequent surveys are vitally important to improve management of our marine fisheries and meet the requirements of the MSA. The Committee supports targeting and prioritizing stock survey funds to address critical data gaps in fisheries that have suffered dramatically from inadequate data gathering.

“Additionally, the Committee supports the further utilization of fishery-independent data collection efforts and encourages NMFS to take advantage of existing non-Federal resources that are capable of providing timely and reliable data to improve stock assessments of critical fisheries,” end quote.

For today’s hearing, we asked our witnesses a number of questions. How have the 2006 amendments, including the requirement that councils establish a mechanism for specifying annual catch limits to prevent overfishing affected domestic fishery management? Is the data generated by NOAA adequate for fishery managers to comply with these new provisions? How has the agency’s guidance for councils’ use of old data in the precautionary or risk-averse approach affected coastal economies and fishery-related jobs? Has the agency’s use of the requirement for best scientific information available become a convenient excuse for the use of incomplete or old data in management decisions rather than gathering new or more complete data? And finally, will the creation of a new recreational data collection program provide better information to fishery managers and provide data for in-season management adjustments? If not, what does this mean for recreational fishing seasons and the ability of fishery-dependent businesses to plan given this uncertainty.

I look forward to hearing from our witnesses today and hope that through this conversation we can find some solutions for the lack of data available to fisheries managers. And I will just encapsulate what is really a fairly long discussion here, and that is to say that because NOAA has been unable to do the surveys or unwilling based upon priorities, that we end up with inadequate data or stale data, and as a result, the assumptions have to be adjusted in a more conservative way, therefore cutting off adequate opportunities for fishing based on the fact that we underestimate in some cases the populations.

I look forward to hearing the testimony of our distinguished witnesses, and now recognize our Ranking Member, Mr. Sablan, for any statement he would like to make.

[The prepared statement of Mr. Fleming follows:]

**Statement of The Honorable John Fleming, Chairman,
Subcommittee on Fisheries, Wildlife, Oceans and Insular Affairs**

In 2006, Congress passed amendments to the Magnuson-Stevens Fishery Conservation and Management Act to require that fishery managers make harvest decisions based on science. These amendments also required that fishermen be held accountable to these new scientifically-based harvest limits. These were, and are, wor-

thy goals. However, I suspect if Congressmen knew then what we know now, these amendments would have been written very differently.

Those requirements were based on the model of fisheries management in the North Pacific which has been held up as the example the rest of the country should emulate. Unfortunately, the amount of data available for fisheries outside the North Pacific is radically different than that available to managers in the North Pacific.

In addition to the 2006 amendments, the National Oceanic and Atmospheric Administration (NOAA) published revised National Standard 1 guidelines which gave fishery managers additional requirements for dealing with scientific uncertainty. These guidelines have led to layer upon layer of “precaution” to be included when setting harvest levels for those fisheries for which there is inadequate or “stale” data. That means that for fisheries that have not been surveyed for many years, the harvest levels will be artificially low. This has become particularly troublesome for species on the East Coast and in the Gulf of Mexico.

Counting fish is difficult. Having good data for fishery managers is not cheap and tight budgets do not make this any easier; however, NOAA has made budget decisions that have taken money away from basic fisheries research to fund new initiatives like marine spatial planning and satellite programs. In fact, the Fiscal Year 2012 budget request included funding for just one satellite that accounts for almost 20 percent of their entire budget request. This has resulted in inadequate fisheries data for Councils.

To quote from a letter sent by the Chair of the South Atlantic Council to Secretary Locke in April, 2010, “Fisheries management in the South Atlantic suffers from a chronic, yet well-documented, lack of basic data which hampers scientists’ ability to evaluate exploited populations and managers’ ability to develop and ensure accountability with management measures...This lack of data adds uncertainty at all levels of scientific and management processes.” The letter also states, “In summary, the Council does not believe that a sufficient data delivery system is in place to properly implement the system of ACLs and AMs that the Council is establishing in Amendments 17A and 17B and the Comprehensive ACL Amendment.”

Today, we will hear examples showing that the lack of data is resulting in reduced harvest levels—which in turn harms fishermen and coastal communities. This has become especially difficult for the charter fishing operations which cannot book fishing trips when they cannot tell customers whether the fisheries will be open a week or a month from now.

In addition, restrictions on fishing opportunities are not just because of the new Magnuson-Stevens Act amendments. The lack of adequate information on Endangered Species Act and Marine Mammal Protection Act-listed animals is also causing fisheries problems. We will hear at least two examples today. In one case, NOAA has proposed uplisting the Atlantic sturgeon and splitting the population into 5 distinct population segments when they admit that they have “not conducted a comprehensive survey of any of the east coast species of sturgeon, Gulf, shortnose or Atlantic.” Despite this admission, NOAA is likely to restrict a number of east coast fisheries due to concerns about sturgeon interactions.

We will also hear that NOAA’s restrictions on the Bering Sea Pacific Atka mackerel fishery will result in losses of up to \$60 million per year based on faulty stock assessments and that NOAA has now cancelled a tagging study that would have provided better information.

Both of these examples will result in lost jobs and lost economic activity. And both examples raise concerns about whether NOAA’s basic research activities are adequate to meet the requirements of the statutes that they are required to implement.

Clearly, this is a view that is shared by the House Appropriations Committee as well. The House Appropriation Committee Report to accompany H.R. 2596, the Commerce, Justice, Science Appropriations bill for FY 2012 states,

“The Committee notes that lack of accurate, up-to-date data for numerous economically vital fisheries has caused significant problems as NMFS works to implement provisions that were incorporated into the Magnuson-Stevens Act (MSA) in 2006. NMFS has proceeded to implement these provisions, particularly as they relate to setting annual catch limits on all fisheries, in a manner that ignores profound shortfalls in requisite data. More robust stock assessments, based on more frequent surveys, are vitally important to improve management of our marine fisheries and meet the requirements of the MSA. The Committee supports targeting and prioritizing stock survey funds to address critical data gaps in fisheries that have suffered dramatically from inadequate data gathering. Additionally, the Committee supports the further utilization of fishery independent data collection efforts and encourages NMFS to take advantage of existing non-Federal

resources that are capable of providing timely and reliable data to improve stock assessments of critical fisheries.”

For today’s hearing, we asked our witnesses a number of questions:

- How have the 2006 amendments—including the requirement that Councils establish a mechanism for specifying annual catch limits to prevent overfishing—affected domestic fishery management?
- Is the data generated by NOAA adequate for fishery managers to comply with these new provisions?
- How has the Agency’s guidance for Council’s use of old data and the precautionary or risk averse approach affected coastal economies and fishery-related jobs?
- Has the Agency’s use of the requirement for “best scientific information available” become a convenient excuse for the use of incomplete or old data in management decisions rather than gathering new or more complete data?
- And finally, will the creation of a new recreational data collection program provide better information to fishery managers and provide data for in-season management adjustments? If not, what does this mean for recreational fishing seasons and the ability of fishery-dependent businesses to plan given this uncertainty?

I look forward to hearing from our witnesses today and hope that through this conversation, we can find some solutions for the lack of data available to fisheries managers.

STATEMENT OF HON. GREGORIO SABLAN, A DELEGATE IN CONGRESS FROM THE COMMONWEALTH OF THE NORTHERN MARIANA ISLANDS

Mr. SABLAN. Thank you. Thank you very much, Chairman Fleming. Today the Subcommittee meets to hear testimony on science-based fisheries management. By the end of this year, the Regional Fishery Management Councils will have put annual catch limits or ACLs and accountability measures in place to end overfishing and rebuild overfished fish stocks as required by the Magnuson-Stevens Fishery Conservation and Management Act.

In 1996, after witnessing the decline of important fisheries around the country, Congress first required the Councils to end overfishing and rebuild stocks that had been fished to perilously low levels. While the Councils implemented numerous reviewing plans, overfishing continued in many fisheries. In response, the Magnuson-Stevens Reauthorization Act of 2006 went a step farther and required that fishery management plans adopt ACLs and accountability measures for stocks subject to overfishing.

Requiring ACLs was intended not only to prevent overfishing from occurring, but also to drive improvements in fishery data collection and research, and to develop a more precise assessment of the amount of fish that can be caught. The Act also included specific provisions to strengthen the role of science in fishery management decision-making. Science-based management is the proven way to end and prevent overfishing, and we must utilize the existing science that is being conducted across the Nation by the Regional Fishery Management Councils.

Undoubtedly, there will always be uncertainty in managing fisheries, but ignoring the existing data and methods will simply put our fisheries at increased risk of overfishing, resulting in a more difficult and longer recovery. Protracting this recovery will prevent fishermen and coastal communities from realizing the economic value of rebuilding fish populations, which NOAA estimates to be a \$31 billion increase in annual sales, and an additional 500,000 new jobs.

The best way to support this recovery is through science-based management. But unfortunately, funding for fisheries research and management in the Fiscal Year 2012, Commerce, Justice, Science Appropriations bill is 17 percent below the President's request.

Clearly, we must do more now to invest in fishery science to ensure that fishing opportunities are available for generations to come. I look forward to hearing from our witnesses today about how science-based management is critical to preserving fish, fishing jobs, and coastal communities now and into the future. And thank you, Mr. Chairman. I yield back.

[The prepared statement of Mr. Sablan follows:]

Statement of The Honorable Gregorio Kilili Camacho Sablan, Ranking Member, Subcommittee on Fisheries, Wildlife, Oceans and Insular Affairs

Thank you, Chairman Fleming. Today the Subcommittee on Fisheries, Wildlife, Oceans and Insular Affairs meets to hear testimony on science-based fisheries management. By the end of this year, the Regional Fishery Management Councils will have put Annual Catch Limits—or ACLs—and Accountability Measures in place to end overfishing and rebuild overfished fish stocks, as required by the Magnuson-Stevens Fishery Conservation and Management Act.

In 1996, after witnessing the decline of important fisheries around the country, Congress first required the Councils to end overfishing and rebuild stocks that had been fished to perilously low levels.

While the Councils implemented numerous rebuilding plans, overfishing continued in many fisheries. In response, the Magnuson-Stevens Reauthorization Act of 2006 went a step further and required that fishery management plans adopt ACLs and Accountability Measures for stocks subject to overfishing.

Requiring ACLs was intended not only to prevent overfishing from occurring, but also to drive improvements in fishery data collection and research, to develop a more precise assessment of the amount of fish that can be caught. The Act also included specific provisions to strengthen the role of science in fishery management decision-making. Science-based management is the proven way to end and prevent overfishing, and we must utilize the existing science that is being conducted across the nation by the Regional Fishery Management Councils. Undoubtedly, there will always be uncertainty in managing fisheries, but ignoring the existing data and methods will simply put our fisheries at increased risk of overfishing, resulting in a more difficult and longer recovery.

Protracting this recovery will prevent fishermen and coastal communities from realizing the economic value of rebuilding fish populations, which NOAA estimates to be a \$31 billion dollar increase in annual sales and an additional 500,000 new jobs. The best way to support this recovery is through science-based management, but unfortunately, funding for fisheries research and management in the FY 12 Commerce, Justice, Science Appropriations bill is 17% *below* the President's request. Clearly, we must do more now to invest in fisheries science to ensure that fishing opportunities are available for generations to come.

I look forward to hearing from our witnesses today about how science-based management is critical to preserving fish, fishing jobs, and coastal communities now and into the future.

Mr. FLEMING. I thank the gentleman. Now, we will hear from our first panel.

Mr. SABLAN. Mr. Chairman, if I may, I ask unanimous consent that Congressman Frank, my good friend from Massachusetts, join us to testify at today's hearing.

Mr. FLEMING. Without objection, we welcome Congressman Frank to join the first panel.

Mr. FRANK. Thank you, Mr. Chairman.

Mr. FLEMING. Like all witnesses, Panel, your written testimony will appear in full in the hearing record, so I ask that you keep your oral statements to five minutes, as outlined in our invitation letter to you, and under Committee Rule 4(a).

Our microphones are not automatic in this room. While I am sure you know how things work, I will just explain for everyone that you have five minutes to give your presentation. You will be under a green light. It will turn yellow one minute out, and then when the red light comes on, we ask that you wrap up as quickly as possible so we can get to everyone.

I would now like to introduce our first panel. First, The Honorable John L. Mica, the gentleman from Florida. Welcome, sir. The Honorable Walter B. Jones, the gentleman from North Carolina. Is it this room or the other room that is named after your dad? It is the other room, I believe. And then, of course, The Honorable Barney Frank, the gentleman from Massachusetts.

Chairman Mica, you may begin, sir.

**STATEMENTS OF HON. JOHN MICA, A REPRESENTATIVE IN
CONGRESS FROM THE STATE OF FLORIDA**

Mr. MICA. Well, thank you so much, and I do want to really say how much I appreciate Chairman Fleming and the Ranking Member, also Mr. Hastings, the Chairman of the full Committee, for granting our request to hold this hearing. I have been asking that we pay more attention to this issue since March 2009, when the South Atlantic Fishery Management Council voted by a very slim margin, seven to six votes, to impose a ban on red snapper fishing all the way from Florida up to the Carolinas.

Let me say that even when Mr. Henry Brown was the Ranking Member, he sent a letter asking for a hearing. We sent a joint letter. Just about everybody in the Florida delegation and others signed it November of 2009. Nothing was done. So I can't tell you how pleased we are that this Committee under new leadership has responded.

Now, from the very beginning—well, first of all, I don't know much about the fishing industry, even though I represent Florida. I should say I didn't know much, but I certainly learned in a hurry the incredible impact fishing, both commercial fishing and sports fishing, has in my state and my district.

We heard from the very beginning, and we have reports back to 2009—I have commercial and charter fishermen who told us that we would impact not only businesses—this is an article which we will put in the record if it is appropriate—in St. Augustine, which is a major fishing point and center for our state, to put of business and take a toll. This is the projection on restaurants, hotels, and others in town.

I have a recent assessment from Jody Lynn of St. Augustine, who has a charter fishing business, and she said just recently, "Since the ban went into effect, our charter business has dropped from 200-plus trips a year to just 104 trips." This is a \$5 billion industry, so we have put people out of business, as predicted, and we have also just made employment so difficult in a very tough economic time to begin with. So huge economic damage.

Now, let me just say, if a ban would preserve an endangered species, red snapper or others, I would support it. I introduced legislation that was ignored again by the committee, no hearing, nothing. I introduced H.R. 3307. And all I said is, let's confirm the data. Now, I am not a big fisherman, and I am not a marine biologist

or scientist. So I looked at what others said, and back in 2009, a professor of marine biology in Florida, Dr. Raymond Waldner, said, "Having examined the Federal Government's assessment and proposals regarding Atlantic red snapper, we conclude that the data used are of questionable reliability, which makes the resulting analysis and conclusions questionable as well."

So again, you have seen the incredible economic negative impact that was predicted; it took place. You have seen that they passed this without again having accurate data. It was passed on a seven-six vote. One thing I learned, interesting, from the fishermen too is 30 to 40 percent of the fish that—we are still catching red snapper, and 30 to 40 percent of them die when they throw them back in.

You know, these fish don't come up and look to see what Congress has done lately as far as a ban. They are taking the bait, and we are killing them. The anecdotal reports I get from fishermen—you will hear from Captain Dave Nelson. We also have Syd Prescott, who represents some of the industry here. They can tell you about the runs and what they see.

So based on science, the step I think was flawed. The action was premature. We never had the opportunity of this hearing before Congress or I think in the proper forums to consider this. So again, I am dismayed. I think that this committee needs to go back and look at the Magnuson Act, the overall Act, and also the actions that have resulted that have done inestimable damage to my district, the State of Florida, and the Nation's economy.

I apologize. I have ten seconds left. I am going to have to speak and run because I have a bill on the Floor right at this time. Thank you for your consideration. I will leave two seconds to yield back.

Mr. FLEMING. Thank you for yielding back, Mr. Chairman, and certainly come and go as you need to, sir. We understand.

Mr. MICA. And I will leave several documents for submission to the record.

Mr. FLEMING. Yes, thank you. And with unanimous consent, there is no objection.

Mr. FLEMING. Next we have Congressman Jones. Sir, you have five minutes.

**STATEMENT OF HON. WALTER JONES, A REPRESENTATIVE IN
CONGRESS FROM THE STATE OF NORTH CAROLINA**

Mr. JONES. Mr. Chairman, thank you for this opportunity. I can confirm that the Magnuson Act definition of best available science and the lack of science on fish stocks are causing serious job losses in the district that I represent in North Carolina. A great example of this is NOAA's December 2010 approval of amendment 17(b) to the South Atlantic snapper/grouper plan. That amendment closed Federal waters from 240 feet to 200 miles offshore from Florida through North Carolina to protect two fish, speckled hind and Warsaw grouper, for which there are no valid stock assessments.

In fact, the last stock assessment on speckled hind was completed 11 years ago. The last stock assessment on Warsaw grouper was completed over 20 years ago. Imposing such a massive closure based on outdated science is not a good policy. It is also costing my

constituents their jobs. The annual economic loss to fishermen in my district from amendment 17(b) is over \$1 million.

I am pleased that NOAA is helping to get some of these fishermen back to work, but serious damage has been done. This unnecessary situation is the result of Magnuson Act requirements to set annual catch limits on species determined to be undergoing overfishing based on best available science. NOAA has interpreted the Magnuson definition of best available science to mean any available science, regardless of how old it is and how sound it is.

So in the case of amendment 17(b), even though the science was over ten years old, it was used to produce a finding that the stocks are now undergoing overfishing. That finding triggered the Magnuson Act requirements for an annual catch limit which the agency set at zero. Unfortunately, this is not an isolated incident. Fishing communities around the country are suffering under similar circumstances.

The fishermen that I talked to agree that at least two changes are necessary to fix the problem. First, Congress must improve the Magnuson Act definition of best available science. If the most recent stock assessment is more than five years old, it should not be considered as best available or used as a basis for management decisions.

Second, we need more money for fishery science. That is why it is so troubling that NOAA is robbing money from the science budget in order to ram their job-destroying catch shares agenda down the throats of fishermen. For Fiscal Year 2012, NOAA proposed to redirect \$17.4 million from science to catch shares. This again is unacceptable. It is troubling to see NOAA take tens of millions of dollars in Saltonstall-Kennedy funds, which are required by law to be spent on fisheries research, and instead use them to fund NOAA operations.

In Fiscal Year 2009 alone, NOAA used over two-thirds of its \$108 million in Saltonstall-Kennedy revenue on operating expenses, leaving less than one-third for fisheries research grants. At the very least, this practice appears improper. It may be illegal. In the interests of transparency and accountability, I believe the Inspector General of the Commerce Department or GAO should open an investigation into NOAA's administration of Saltonstall-Kennedy funds.

Mr. Chairman, I would like to thank you and this committee again for this opportunity. As Mr. Mica said, it is time that we review what is sound science. And with that, I will yield back the balance of my time.

[The prepared statement of Mr. Jones follows:]

Statement of The Honorable Walter B. Jones, a Representative in Congress from the State of North Carolina

Mr. Chairman, thank you for the opportunity to provide testimony on this important topic. On behalf of Eastern North Carolina fishermen, I can confirm that the Magnuson Act's definition of "best available" science and the lack of science on fish stocks are causing significant job loss in North Carolina.

A great example of this can be seen in NOAA's December 2010 approval of Amendment 17B to the South Atlantic Snapper-Grouper Management Plan. That amendment closed federal waters from 240 feet to 200 miles offshore from Florida through North Carolina to protect two fish species—speckled hind and warsaw grouper—for which there are no valid stock assessments. In fact, the last stock as-

assessment on speckled hind was completed 11 years ago. The last stock assessment on warsaw grouper was completed over 20 years ago! Imposing such a massive closure based on such outdated science is terrible policy. It's also costing my constituents their jobs, as boats are literally tied to the dock because of this. The annual economic loss to fishermen in my district from Amendment 17B is well over \$1 million dollars. I am pleased that NOAA is helping to get some of these fishermen back to work, but serious damage has been done.

This unnecessary situation is largely the result of the Magnuson Act's requirements to set annual catch limits on species determined to be undergoing "overfishing" based on "best available science". NOAA has interpreted the Magnuson Act definition of "best available" science to mean "any available" science, regardless of how old it is, or how sound it is. So in the case of Amendment 17B, despite the fact that the only available science was well over 10 years old, it was used to produce a determination that the stock is currently undergoing overfishing. This finding triggered the Magnuson Act's requirement for imposition of an annual catch limit, which the agency found should be set at zero.

Unfortunately, this situation is not an isolated incident. Fishing communities around the country are suffering under similar circumstances. The fishermen I talk to unanimously agree that at least two changes are necessary to fix this problem.

First, Congress must pass legislation to improve the Magnuson Act's definition of "best available" science. If the latest available stock assessment is more than five years old, it should not be considered "best available" or used as the basis for management decisions.

Second, we need more money for fisheries science. That is why it is extremely troubling that this Administration continues to rob money from the NOAA science budget in order to ram their job-destroying catch shares agenda down the throats of fishermen across the country. For Fiscal Year 2012, NOAA proposed to redirect \$17.4 million from science to catch shares. That is simply unacceptable.

It is also troubling to see NOAA annually take tens of millions of dollars in Saltonstall-Kennedy funds—which are required by law to be spent on fisheries research—and instead redirect them to fund NOAA operations. In Fiscal Year 2009, NOAA used over two-thirds of its \$108 million in Saltonstall-Kennedy revenue on operating expenses, leaving less than one-third for fisheries research grants. At the very least, this practice appears improper. It may also be illegal. In the interest of transparency and accountability, I believe the Inspector General of the Commerce Department or the Government Accountability Office (GAO) should open an investigation of NOAA's administration of Saltonstall-Kennedy funds.

Mr. Chairman, I'd like to thank you again for holding this hearing. This is an important issue, and I appreciate the opportunity to testify.

Mr. FLEMING. The gentleman yields back. The Chairman thanks you. Mr. Frank, sir, you have five minutes.

**STATEMENT OF BARNEY FRANK, A REPRESENTATIVE IN
CONGRESS FROM THE COMMONWEALTH OF MASSACHUSETTS**

Mr. FRANK. Thank you, Mr. Chairman. And as he often does, Mr. Jones has put this case forward quite carefully and in a very well documented fashion. I am very pleased that we worked together on a number of things. We have one particular bill especially relevant in the funding situation. We uncovered a pattern, the Inspector General did, of the agency taking the money that they received from fines and using it quite improperly for their own benefit. So you have both an incentive for them to be levying fines more frequently and in larger amounts because they were the beneficiaries. And there were even some questionable expenditures, and it was money that could have gone to research.

So one of the things we have is a bill that is before your committee that would take the fines and give them in the rest of this Fiscal Year, 80 percent to the Federal Government, 20 percent to the States. But from the next Fiscal Year on, give them to the States to do the research because it is important that we have good research, and it is also important that we have independent re-

search. It is important that we not simply have research that is done by the people who may have their own biases.

So I recommend to you this legislation, which would make a significant amount of money available to do independent research, and it would convert the fines of the current system from an incentive to be excessively rigid—and I have to say, we have just all worked together to get an investigation of the way fishermen are treated. And I am a little bit disappointed in some of my friends in the environmental community who kind of thought we were crying wolf. And I have to say, as a liberal, if immigrants, political protestors, or members of racial minorities had been abused by law enforcement in the same way that fishermen had, there would have been very loud protests.

And I am sorry it took so long for some of my friends to understand that the right to fair law enforcement should not depend on other policy terms. And I think we are finally getting there. We have a new head of law enforcement.

But there are some other legislative changes that are necessary. The definition of science—and again, we want it to be good science. We want it to be science where there is some independence. We get a Catch-22 where the Magnuson Act does say that they could revise the amount that people can catch if there is a showing that this is having terrible economic harm, and you can justify it. But we have been told that they can only do that with data, but they can only do it with their own data. And we need to make that more flexible.

There is a problem with the Magnuson Act definition also on the bycatch, as Mr. Mica talked about, where in multi-species fisheries, a shortage of one shuts down a whole fishery, and where you have this very rigid view about bycatch so that fish that are caught are thrown overboard when they could be made available for people.

And finally, we had a successful experiment, again in a bipartisan way. We had the aid of Senator Snowe in the Senate, Mr. Jones, myself, and some others. We amended—it is particular relevant for the New England area—the Canadian Boundary Act because that had the requirement that is in the Magnuson Act that you have to rebuild the stocks within ten years. Ten years is very arbitrary. I asked Dr. Lubchenco at NMFS, is there any justification for the ten years. She said, well, the fact that it is in the statute is the only justification. I asked her if she would then change the statute, and she unfortunately, as is her wont, was uncooperative.

But that ten years is arbitrary. If we are making progress in restocking the fish, and it is going to take 12 or 13 years, but steady progress is coming, and maybe there was an incident not related to fishing that slowed it down, there isn't any reason why we couldn't have some flexibility there. And I said to my environmental friends, we are not talking here about permanently fouling the water or deteriorating air quality. We are talking about the number of fish we have, and that is not an absolute number. But what we did in the Canadian boundary issue was to give flexibility so we don't have to live by the ten years, and that is working very well, and it will mean there will be enough fish.

You know, we had a little debate at the end of last year that some Members will recall about lame duck legislation. Well, part of the problem is that the Magnuson Act under which we are now acting was a lame duck bill passed in 2006, in that lame duck session, with a chairman who unfortunately had been defeated. And I think that we suffer from that.

So this is an example of legislation to go through. The bill we have in terms of how you use the fines is an example. And I think we can in fact amend the Magnuson Act to be fully protective of fish stocks.

Just the last thing. The notion that fishermen want to fish stocks out of existence assumes that the current generation of fishermen, who love this, want to be the last fishermen ever. Nothing could be farther from the truth.

Mr. FLEMING. Well, I thank the gentleman. I would like to thank our colleagues for their interest in this important issue, and also for your time coming here today. It is a very busy time for Congress. I am just going to open the dais for any specific question of the gentlemen. I want to get them back to their duties as soon as possible. Rather than having a round of questions, we will just simply ask, if you have any questions, we do have another panel of scientific experts that are going to be coming up, which we are going to drill down on.

Mr. FRANK. And we won't be offended if you think they have more to tell you than we do.

Mr. FLEMING. So with that, anyone have specific questions for our colleagues today? Well, if not, gentlemen, thank you so much for your testimony.

Mr. FRANK. Thank you, Mr. Chairman and Members.

Mr. FLEMING. And as the gentlemen leave, we would ask for our next panel to step forward.

[Pause]

Mr. FLEMING. I would now like to introduce our second panel. First we have Mr. Eric Schwaab, Assistant Administrator for National Marine Fisheries Service, National Oceanic and Atmospheric Administration; Mr. Duane Harris, Member and Former Chairman, South Atlantic Fishery Management Council; Dr. Steve—let's see. Well, I guess we are a little bit out of order here. But that is OK. Just stay where you are. We will switch around here. Next is Ms. Julie Morris, Assistant Vice President for Academic Affairs, Office of the Provost, New College of Florida; and Dr. Steve Cadrin, Associate Professor, Department of Fisheries Oceanography, School for Marine Science and Technology, University of Massachusetts Dartmouth.

And again, like all witnesses, your written testimony will appear in full in the hearing record, so I ask that you keep your oral statements to five minutes as outlined in our invitation letter to you and under Committee Rule 4(a).

Our microphones are not automatic. And again, lights work very straightforwardly. You have five minutes to give your testimony, four minutes under the green light. Then you will have one minute under yellow. When it turns red, we ask that you wrap up.

So with that, I will now recognize Assistant Administrator Schwaab for your testimony. Sir, you have five minutes.

**STATEMENT OF ERIC SCHWAAB, ASSISTANT ADMINISTRATOR,
NATIONAL MARINE FISHERIES SERVICE, NATIONAL
OCEANIC AND ATMOSPHERIC ADMINISTRATION**

Mr. SCHWAAB. Chairman Fleming, Ranking Member Sablan, and Members of the Subcommittee, thank you for the opportunity to testify today. My name is Eric Schwaab. I am the Assistant Administrator for Fisheries within the National Oceanic and Atmospheric Administration.

Coastal and marine fisheries such as salmon in the Pacific Northwest, red snapper in the South Atlantic and Gulf of Mexico, and cod in New England have been vital to the prosperity and cultural identity of the coastal United States for hundreds of years. As of 2009, using our most recent complete estimate, U.S. commercial and saltwater recreational fisheries support 1.4 million full- and part-time jobs, many of these local jobs that cannot be outsourced, and generate \$166 billion in sales impacts.

Sustainability of our Nation's fisheries relies on continual effort to monitor fisheries and update scientific information. So our science and that of partner agencies and organizations plays a critical role in ensuring the continued productivity of these resources.

National standard two of the Magnuson-Stevens Act mandates that all fisheries' conservation and management measures must be based upon the best scientific information available. While there are challenges in securing sufficiently accurate, precise, and timely data that allow us to respond to changing conditions, on balance science-based management leads to improved productivity and sustainability of coastal jobs.

Through the Magnuson-Stevens Act, the United States has a clear mandate to achieve sustainable fisheries. NMFS is committed to generating the best fishery science to help achieve this mandate. Strong science coupled with sound management is beginning to pay off. Over the ten-year period between 2000 and 2010, we saw 36 stocks once overfished achieve rebuilding goals and come off that list, and 36 stocks once undergoing overfishing managed at sustainable fishing levels and also removed from the overfishing list.

In the Pacific Northwest, lean cod was designated as overfished in 1999. A variety of restrictions ended overfishing in 2005, and the stock was rebuilt ahead of schedule. Atlantic sea scallops were once severely overfished, but with cooperation from scallop fishermen, the stock was rebuilt in 2001, and is now the top-valued fishery in the United States.

Compared to when scallops were overfished, New England scallop fishermen are now sustainably harvesting an additional 17.5 million metric tons per year, and ex-vessel revenues have increased by \$93 million annually.

The 26 stocks and stock complexes in the Alaska groundfish fisheries have long been managed under annual catch limits. None of these stocks is overfished or subject to overfishing, and all are near or above the abundance levels that support the long-term optimum yield from the fishery.

These success stories are a product of strong leadership and investment by Congress, and hard work of scientists and fishermen across the country to obtain the data needed to effectively inform

management decisions. But they do require long-term commitments.

Our progress shows that investment in science and management results in sustainable fisheries. That is why NMFS and our partners have always focused on getting the most data and the highest priority and quality data by fully utilizing the funding Congress has provided. With sustained congressional support, we can continue to make substantial progress. Conversely, reducing commitments to science or retreating from the mandates of the Magnuson-Stevens Act will hurt our fisheries and reduce local economic benefits.

As part of the President's Fiscal Year 2012 budget, NOAA is seeking to increase the expand annual stock assessment budget by \$15 million, for a total of more than \$61 million. This funding would allow NMFS to increase the number of stocks with adequate assessments, helping to verify that overfishing is no longer occurring and allow catch levels that support both sustainability and economic viability.

It is important to note that this single budget line represents only about one-third of the total funding that NMFS spends on stock assessments and fishery monitoring, and that there are additional costs for infrastructure and for the sea days provided by the NOAA fleet for fish surveys. Investments such as this can help our fisheries and our economy grow. NMFS has estimate that if all stocks were rebuilt and harvested at their maximum sustainable yield, this could increase ex-vessel value by as much as \$2.2 billion, which would generate \$31 billion in sales impacts and support 500,000 jobs.

Sustaining the science to understand stock dynamics, document stock status, and develop and implement annual catch limits is paramount to reaching these goals.

Mr. Chairman, thank you again for the opportunity to testify before you today. I am happy at the appropriate time to answer any questions you may have.

[The prepared statement of Mr. Schwaab follows:]

Statement of Eric Schwaab, Assistant Administrator, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce

Chairman Fleming and members of the Subcommittee, thank you for the opportunity to testify before you today on the question, "NOAA's Fishery Science: Is the Lack of Basic Science Costing Jobs?" My name is Eric Schwaab and I am the Assistant Administrator for Fisheries, within the National Oceanic and Atmospheric Administration (NOAA), Department of Commerce. The National Marine Fisheries Service (NMFS) is dedicated to the stewardship of living marine resources through science-based conservation and management, and the promotion of healthy ecosystems. As a steward, NMFS conserves, protects, and manages living marine resources to ensure functioning marine ecosystems and recreational and economic opportunities for the American public.

NOAA's fishery science adds value to our Nation's fisheries and can lead to increased opportunities for businesses and the employment they generate. National Standard 2 of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) mandates that all fisheries conservation and management measures must be based upon "the best scientific information available" (16 U.S.C. 1851(a)(2)). While there are challenges in securing data of sufficient accuracy, precision and timeliness so as to understand and respond maximally to changing conditions, on balance, science based management leads to improved productivity and sustainability of fisheries and fishery dependent businesses.

I will begin by describing the elements of fisheries science, focusing primarily on fish stock assessments, to explain current efforts. I will talk about the importance of the different types of data we use, how they contribute to stock assessments, and how stock assessments are used to advise fisheries managers. Fisheries science is a data-intensive endeavor, and NMFS and our management partners have always focused on getting the most data, and the highest priority, highest quality data, by fully utilizing the funding Congress has provided for us to do this vital work. This funding and the work it supports enable us to sustain and enhance our fisheries. Further, either reducing funding levels or retreating from the mandates of the Magnuson-Stevens Act, as amended, will hurt our fisheries and reduce the economic benefits they provide to coastal communities.

I also note that NMFS has a broad and diverse science enterprise that supports not only fisheries management but also habitat and protected species programs. NMFS's science is necessary to implement the Magnuson-Stevens Act, Endangered Species Act, and Marine Mammal Protection Act. Sound science is needed to ensure that target fishery species, endangered species and marine mammals and their habitats are conserved. Scientific understanding and effective management decisions are essential to efforts to maintain or recover species to healthy and ecologically-sustainable levels. Through this understanding and management, fisheries will be sustainable, and activities like energy development and national security actions will proceed appropriately and consistent with relevant legislative mandates. Quality information will allow management to meet conservation objectives while also ensuring optimal levels of economic activity that can be sustainably supported by the resource.

Marine fisheries, such as salmon in the Pacific Northwest and cod in New England, have been vital to the prosperity and cultural identity of coastal communities in the United States for hundreds of years. As of 2009, our most recent complete estimate, U.S. commercial and saltwater recreational fisheries supported 1.4 million full and part-time jobs—including local jobs that cannot be outsourced—and generated \$166 billion in sales impacts.¹ Sustainability of our Nation's fisheries takes continual effort to monitor fisheries and update scientific information. With continued Congressional support, NMFS will continue to make substantial progress toward science-based, effectively managed, and economically viable commercial and recreational fisheries that will benefit coastal communities and the U.S. economy both today and for generations to come.

The elements and data requirements of fisheries science

Fishery science provides information needed to define and attain sustainable and valuable fisheries. Without high quality fishery science, we cannot be confident that the Nation is attaining optimum yield from its fisheries, or that we're preventing overfishing and harm to ecosystems and fishing communities. Attaining optimum yield requires an investment in information about fish stocks, their fisheries and their ecosystems. The United States has a clear legislative mandate to achieve sustainable fisheries, based on a strong regulatory structure in association with the Regional Fishery Management Councils. NMFS is committed to generating the best fishery science to implement this program. We are international leaders in fishery science, at the forefront of rebuilding overfished stocks and preventing overfishing, efforts that are beginning to pay off in many coastal communities. Today, we know more about our fish stocks than ever before, and it is vital that our science not regress, as this would inevitably lead to declines in our stocks and a loss in the economic and social values they provide.

NMFS collects the data required for stock assessments through both fishery-independent observations, such as surveys of fish abundance, and through fishery-dependent observations, such as data collected by fishery observers and vessel trip reports provided by fishermen. In FY 2011, this capability will be primarily supported through the Expand Annual Stock Assessments budget line which is funded at \$53.4 million. Other significant contributions to the total stock assessment effort include Survey and Monitoring, Fisheries Statistics, Fishery Information Networks, Observer Programs, and others. In addition, NMFS utilizes NOAA Office of Marine and Aviation Operation's Fishery Survey Vessels as a primary platform for many of its stock assessment data collection activities. As part of the FY 2012 President's Budget, NOAA is seeking to increase the Expand Annual Stock Assessment budget by \$15 million, while at least maintaining funding from other contributing budget lines. This funding will improve assessments for high priority stocks; update assessments for stocks more frequently; and, conduct fishery-independent surveys to en-

¹National Marine Fisheries Service. 2011. Fisheries Economics of the United States, 2009, available at http://www.st.nmfs.noaa.gov/st5/publication/fisheries_economics_2009.html.

able assessment of more stocks, including data poor stocks, 3–5 years from now. This funding will help verify that overfishing is no longer occurring and allow optimum catch levels to be set to support the sustainability and economic viability of fish stocks.

The stock assessment process is generally considered to include both data collection and the analysis of that data by fishery scientists. Data for fishery science is based generally on three core components: *fishery catch* from fishery monitoring programs, *fish abundance* from fishery-independent surveys, and *fish biology*. By tracking these three components over time and incorporating these data into stock assessment models, scientists can estimate range and abundance of stocks, calculate maximum sustainable yield, determine whether overfishing has been occurring or whether the stock has declined into an overfished state, and can forecast a sustainable level of catch, which provides the foundation for setting annual catch limits in accordance with law. Because fish stocks and their fisheries are broadly distributed throughout state, national, and international zones, the monitoring programs needed to provide these data are geographically extensive. Finally, the amount and quality of data available are used to estimate degrees of uncertainty that can inform assessments and the level of risk associated with various management actions.

Fishery catch information strives to measure total catch. One component is obtained by monitoring commercial landings, largely in partnership with the states and the marine fishery commissions. This landed catch information is augmented by at-sea monitoring of bycatch and information on discards collected by fishery observer programs. For recreational fisheries, NMFS' Marine Recreational Information Program is applying new and improved methods to the difficult challenge of estimating total catch by the millions of recreational anglers nationwide. Rarely are fishery catch monitoring programs focused on single species or fisheries; instead they are generally designed to monitor multiple species and fisheries over large geographic areas.

NMFS has relied heavily on its partnerships with the states and the interstate marine fisheries commissions to conduct efficient and cost-effective monitoring of commercial landings and recreational catches. The federally-funded Fisheries Information Networks have provided a means through which NMFS has been able to work collaboratively with its partners to design and implement well-integrated data collection programs that meet the management needs of both state and federally-managed fisheries. Cooperative regional programs such as the Atlantic Coastal Cooperative Statistics Program, the Gulf Fisheries Information Network, the Pacific Fisheries Information Network, the Pacific Recreational Fisheries Information Network, the Western Pacific Information Network, and the Alaska Fisheries Information Network have worked effectively to eliminate unnecessary overlaps, standardize data elements and collection methods, and improve the timeliness of data processing, statistical analysis, and dissemination of catch statistics to all partners. Much of the commercial landings and recreational catch data is actually collected, processed, and managed by state agency personnel in accordance with procedures developed in collaboration with NMFS. Continued funding of the Fisheries Information Networks will be crucial for maintaining our current capabilities for monitoring commercial and recreational catches. The House Appropriations Committee mark up of the FY 2012 Commerce, Justice, Science and Related Agencies Appropriation bill includes a 30 percent cut from the FY 2011 spend plan in funding for the Fisheries Information Networks, which would considerably reduce the effectiveness of these programs.

NMFS' National Fisheries Information System Program has provided a mechanism for cross-regional collaboration and sharing of ideas on how best to improve the timeliness, quality, and accessibility of commercial and recreational fishery catch information. The Fisheries Information System Program has been working to continue to develop electronic dealer reporting programs and electronic logbook reporting programs to provide more timely and accurate updates on commercial landings. The Fisheries Information System and the Fisheries Information Networks have also been working together to develop and implement information management architectures that will eventually allow comprehensive access to complete and up-to-date state and federal catch statistics within each region, as well as at the national level. Cooperative efforts are now also focused on improving quality management of catch data collection programs through enhanced reviews and evaluations of the current procedures for quality assurance and quality control. Improving the timeliness, accessibility, and quality of catch information is extremely important to facilitate the work of fishery managers in monitoring fishing performance.

Fisheries observers are trained biologists placed on board commercial fishing and processing vessels, as well as in some shoreside processing plants. They are the most reliable, unbiased source of data on the actual at-sea performance of commer-

cial fisheries. They collect data on bycatch, enabling accurate estimation of total mortality, a key component of stock assessment modeling. In some fisheries, they provide data on catches. They also provide high-quality data on interactions with protected species. This information is important to ensure that protected species remain healthy and their interactions with fisheries are minimized so that harvest opportunities are affected as little as possible. In FY 2010, NMFS logged over 68,000 observer days in 45 fisheries.

Fish biology information is most diverse in its sources, with important information coming from NMFS monitoring programs, academic studies, cooperative research and other programs. The outcome of these activities is vital information on fish longevity, growth, reproduction, movement, and other factors needed to calibrate fish stock assessment models. The biological information we collect includes age data for many of our most important stocks. With the addition of fish age data, we are able to apply more complex and sophisticated stock-assessment models that provide better information on changes in fish abundance over time, more direct information on fish mortality rates caused by fishing, and more precise forecasts of future changes in fish abundance and potential annual catch limits.

Fish abundance information is best obtained from standardized, fishery-independent surveys covering the extensive range of the fish stocks. The average catch rate of fish typically is measured at hundreds of sampling locations over the range of a suite of fish stocks. These surveys are repeated, typically annually, to measure the change in catch rate over time, which is the cornerstone information of the fishery assessment models. When possible, NOAA vessels conduct these surveys to achieve the highest degree of standardization and to simultaneously collect the broadest range of associated habitat, ecosystem and environmental data. In some regions, the primary platforms for the surveys are chartered fishing vessels that may be partially funded through catch set-asides or other forms of cooperative research. Where fishery-independent surveys are not feasible, such as for open ocean tunas, or have not been funded, NOAA uses catch rates from the fishery as a proxy approach. Compared to fishery-independent surveys, this approach provides a lower level of confidence of standardization over time, because changes in commercial or recreational landings can be influenced by factors other than abundance, such as market forces or changes in regulations.

NMFS partners with states in conducting some of our surveys, particularly in coastal waters. The state vessels are generally smaller than the NOAA vessels, and can operate in shallower, nearshore and estuarine areas. This is particularly important for providing data on stocks that occur in these important habitats. For example, the Southeast Area Monitoring and Assessment Program, commonly known as SEAMAP, is a collaboration dating back to 1977 involving NMFS, the Gulf States Marine Fisheries Commission, and the states bordering the Gulf of Mexico. SEAMAP provides much of the fisheries-independent data used in Gulf of Mexico stock assessments, and is funded at \$5.1 million in FY 2011. These funds are transferred to the Commission and individual states via grants and cooperative agreements to conduct the surveys. There are numerous other surveys conducted by, or in partnership with, states that provide data to NMFS for stock assessments.

While sophisticated stock assessments provide information on what changes have occurred in fish abundance, they do not tell why these changes occurred. For this, NMFS seeks to augment our fish assessments with habitat studies, fishery oceanography, ecosystem investigations and other programs to explain why changes have occurred and improve forecasts of long-term and short-term fishery available yield and holistic ecosystem impacts.

It is important to note here that protected species surveys (marine mammals and threatened and endangered species) are also important, as a paucity of information on these species can lead to conservative assumptions regarding fishery interactions, which can lead to restrictions on fisheries.

Stock assessments, uncertainty buffers, and management advice

From 2005 to 2010, NMFS had the data and capacity to assess an average of 95 stocks each year. With this level of assessment activity, NMFS is not able to provide adequate assessments for all of the 500 plus stocks in U.S. Fishery Management Plans, but is able to provide regular assessments for the most important stocks. Assessment activity is distributed to address the most important needs to the extent possible. Some important stocks have been assessed every one to two years, while several other stocks that had not been previously assessed were assessed for the first time during this six-year period. Of the 500 plus managed stocks, 230 have been identified as members of the Fish Stock Sustainability Index. These Fish Stock Sustainability Index stocks constitute over 90 percent of U.S. commercial landings. For the Fish Stock Sustainability Index stocks, NMFS has been able to increase the

number with adequate assessments from 119 in 2005 to 132 in 2010. For the purpose of tracking performance, an assessment is considered to be adequate for five years after its most recent update. All of these 132 adequate assessments meet this criterion. The overall index score, which tracks our knowledge about the stocks, as well as progress in ending overfishing, ensuring stocks are not overfished, and rebuilding stocks has increased by 63 percent since 2000. That substantial increase shows that investment in both science and management results in sustainable fisheries.

Uncertainty is inherent in all fish stock assessments. Because fish abundance surveys and fishery monitoring programs have sampling error, fish stock assessment models are simplifications of all the complex processes occurring in nature. Neither ecosystem studies nor advanced technology surveys can eliminate this uncertainty completely. To address this uncertainty when setting fishery catch targets, fishery managers typically include a buffer between the overfishing limit and the target for allowable catch. The objective is to lower the probability that the overfishing limit will be exceeded, while not overly restricting fishing opportunities. The size of this buffer depends on the degree of uncertainty in the assessment result and the degree to which the Council's Fishery Management Plan seeks to avoid overfishing. For example, if the plan calls for no more than a 45 percent chance that overfishing would occur, then a stock with a highly uncertain assessment would have a larger buffer than would a stock with a more precise assessment. Investments in more and better assessment data reduce uncertainty, and thus reduce the size of the buffer without increasing the chance of overfishing. This in turn allows for greater fishing opportunities and improved economic benefits. Conversely, reduced investment in assessments will lead to either increased uncertainty and lower catch limits or greater risk of overfishing.

To ensure that we provide fishery managers with the best available science, NMFS includes extensive peer reviews as a component of our stock assessment processes. The peer review process provides fishery managers and constituents with confidence in the integrity of assessments and assurance that they represent the best available science. The Magnuson-Stevens Act clarifies that such peer reviews are a valuable part of the management process. The Regional Fishery Management Councils' Scientific and Statistical Committees use the peer reviewed stock assessment results as the basis for providing fishing level recommendations to their Fishery Management Councils. NMFS is working with the Regional Fishery Management Councils and their Science and Statistical Committees as each Council works to implement regionally relevant protocols for peer reviews and to expand the role of the Science and Statistical Committee in providing fishing level recommendations.

Provision and allocation of survey vessel time

The provision and allocation of survey vessel time for conducting our fish surveys is a particularly important issue. Surveys provided by NOAA survey vessels are the primary sources of fisheries-independent data used to monitor stock abundance and are augmented by chartered commercial vessels for some surveys.

Eight fisheries survey vessels, including four new Dyson-class vessels, conduct the majority of these fishery-independent surveys. A ninth vessel, the *Miller Freeman*, was recently removed from service due to numerous mechanical failures and declining safety. These vessels conduct dozens of surveys each year; however, this number is in decline. NOAA's Office of Marine and Aviation Operations' (OMAO) base-funded days at sea for the overall NOAA fleet have declined from approximately 200 days per ship (average FY 2004—FY 2006) to as few as 153 days per ship in FY 2010 (maximum operating tempo for NOAA vessels is 235 days at sea). In 2008, NOAA vessels conducted 56 surveys for fish assessments, protected species assessments, and supporting studies. Only 40 surveys were conducted in FY 2010, and 40 are planned to be conducted in FY 2011. Primary factors contributing to the reduction of capacity for the NOAA fleet include: changing composition of the fleet including new more sophisticated fisheries survey vessels with improved scientific capabilities; higher personnel costs associated with staffing, safety and regulatory requirements, and increased fuel and maintenance requirements, especially for aging vessels.

Since 2007, NMFS has provided programmatic funds, called "Program Funded Days" to the NOAA fleet, so that critical surveys could be sustained. Additional funds have been provided for charter commercial vessels to conduct surveys for which NOAA vessels were not available or not appropriate. In FY 2011, NMFS will spend over \$8 million on chartered surveys, using funds that otherwise would have been used to increase the pace and quality of stock assessments including investments in advanced technology. Some surveys have been shortened in length, limiting their effectiveness, and in other cases surveys have been cancelled altogether.

This decreased survey time ultimately results in stock assessments that include estimates with a higher uncertainty, which must be considered by fishery managers when establishing annual catch limits to avoid overfishing as required by the Magnuson-Stevens Act. This could lead to more conservative annual catch limits. In uncertain situations, lower catch levels decrease the possibility of overfishing, thereby increasing long-term economic opportunity from a sustainably managed resource. Even if a stock is stable, without sea time to collect enough updated data on stock abundance and distribution, stock assessments cannot verify this stability without high uncertainty. An increased utilization rate for the fleet will result in more frequent and/or extensive fishery surveys, leading to updated stock assessments and increased confidence in establishing annual catch limits. NOAA is currently identifying several options for increasing days at sea, because a robust NOAA fleet directly benefits our coastal communities and increases fishery-related jobs. To reiterate, the FY 2012 President's Request to the Expand Annual Stock Assessments budget, an increase of \$15 million, will support fishery-independent surveys to enable assessment of more stocks.

Cooperative research

Another valuable source of fisheries-independent data is cooperative research. The agency's cooperative research provides both targeted survey data and opportunities for hands-on, face-to-face interactions between fishermen and scientists from NMFS, other management agencies and academia. Cooperative research is essential to leveraging the knowledge, tools, techniques, skills, and experiences that fishermen possess that would otherwise be unavailable to our scientists. It also fosters better understanding and increased acceptance of our science by these vital stakeholders. In FY 2011, Congress provided over \$16 million in funds for cooperative research, including: \$10.1 million to the National Cooperative Research Program and \$6 million for cooperative research activities from the National Catch Share Program.

Regional cooperative research priorities are established collaboratively among the NMFS Science Centers and Regional Offices, Regional Fishery Management Councils, interstate Commissions, state fishery management agencies, academia, and interstate stakeholders in accordance with the cooperative research priorities in Section 318 of the Magnuson-Stevens Act. The agency's cooperative research portfolio corresponds on a regional basis to the respective Regional Fishery Management Council multi-year research priority plans. These plans are Regional Fishery Management Council functions under Section 302(h)(7) of the Magnuson-Stevens Act, which requires the Regional Fishery Management Councils, in conjunction with their Science and Statistical Committees, to develop multi-year research priorities for fisheries, fisheries interactions, habitats, and other areas of research that are necessary for management purposes every five years.

Since NMFS's cooperative research program is designed to complement NMFS's base monitoring programs, most of the activities generate information that is not collected by agency assets. Improvements in the data available for management, including from cooperative research, allow for greater confidence in stock assessment estimates and less need to reduce allocations to protect against uncertainty.

Marine Recreational Information Program

NMFS is now implementing the new Marine Recreational Information Program, which has been designed based on the recommendations of the National Research Council's 2006 review of the Marine Recreational Fishing Statistical Survey. NMFS is developing and testing new survey methodologies to improve the accuracy, geographic resolution and timeliness of recreational fishing catch and effort data. These improvements are necessary to support successful management of fisheries with Annual Catch Limits and Accountability Measures. The President's FY 2012 budget request includes an increase of \$3 million to begin implementing improvements developed through the Marine Recreational Information Program.

NMFS currently develops recreational fishery catch estimates for the Gulf and Atlantic coasts via three ongoing surveys. The coastal household telephone survey generates information on angler trips. The access point angler intercept survey provides data on catch per trip. The results of these two surveys are combined to generate catch estimates for shore and private boat angling modes. The for-hire survey and the access point angler intercept survey are utilized to provide estimates for the for-hire (charter and head boat) mode. The Marine Recreational Information Program is developing revised methods that are being phased in over the next two years to substantially reduce sources of error and improve the accuracy of effort and catch estimates based on a combination of telephone, mail and access point surveys. Currently, the Marine Recreational Information Program is implementing a new design-unbiased method to retrospectively estimate catch statistics from the Marine Rec-

reational Fishing Statistical Survey for data from 2004 to the present. Next winter, the program will implement an improved sampling design for access point surveys that will further reduce the potential for error. These revised methods have been developed by a team of NMFS and independent survey experts and, as with all changes to our survey methods, have been subject to independent peer review. The same team, in collaboration with Pacific Recreational Fisheries Information Network and state natural resource agencies, has also reviewed survey methods in use in California, Oregon and Washington, and has recommended survey design improvements to address potential sources of error in those surveys. The states will be testing these recommendations with the Marine Recreational Information Program support over the next two years.

In addition, NMFS implemented the National Saltwater Angler Registry Program in 2010 and has developed new survey designs for estimating fishing effort that are based primarily on sampling from lists of registered anglers who fish from shore or private boats or from lists of registered for-hire boats and their operators. The new registry-based approach will replace the coastal household telephone survey and upgrade the for-hire survey. NMFS expects that implementation of the new fishing effort surveys will begin in 2011. These changes address the highest priority findings of the National Research Council's 2006 review of our current survey methods.

The potential for in-season management of recreational fisheries

Improving the timeliness of catch estimate delivery that could support active, in-season tracking and management of recreational catch is a significant challenge. The Marine Recreational Information Program will continue to use sample survey methods to estimate recreational catch for private boat and shore fisheries. Currently, preliminary estimates of catch for these surveys for the Atlantic and Gulf coast fisheries are available for 45 days following a two-month sampling period. In March 2011, NMFS conducted a workshop with key management partners and stakeholders to assess needs for more timely catch estimates and the tradeoffs associated with improving data timeliness. The key outcomes of the workshop are posted at: <http://www.countmyfish.noaa.gov/workshop/Data%20Timeliness%20Workshop%20Key%20Outcomes%20FINAL.pdf>. A final report and recommendations for improving timeliness of recreational catch estimate delivery, and for improving methods for forecasting in-season catches, will be completed by late summer. During the workshop, managers expressed a need to shorten sampling periods from two months to one month for at least some portions of the year on the Atlantic and Gulf coasts. The President's Budget Request for FY 2012 includes an increase of \$3.0 million for the Marine Recreational Information Program, of which \$2.0 million is targeted at shortening sampling intervals for the Atlantic and Gulf coasts to address this need.

The Marine Recreational Information Program is also developing electronic trip reporting methods for the for-hire fisheries. Electronic reporting, when mandated and strictly enforced and supplemented with independent validation, would enable near real-time tracking of the catch of the charter and headboat sector. Of the funding increase requested for FY 2012, \$1.0 million is targeted at implementing electronic for-hire trip reports in the Southeast and Northeast Regions.

Providing preliminary catch estimates to managers more frequently during fishing seasons, and improving models for projecting catch from such preliminary data, may enable managers to more confidently track or project recreational catch and consider in-season adjustments to prevent significant overharvest of catch limits, or to reopen fisheries that closed before annual catch limits were reached. In some cases, including fisheries with short open seasons or limited catch, such in-season capability will be difficult to achieve with sample survey methods, regardless of any efforts to shorten sample periods. In these cases, the Regional Fishery Management Councils may apply tools consistent with the National Standard 1 guidelines to prevent catch from exceeding catch limits, potentially triggering subsequent reductions in recreational sector catch limits. Such tools include setting catch targets at levels below the catch limits that are proportionate to the management uncertainty associated with the timing of the availability of catch estimates or setting multi-year catch limits with periodic adjustments to management measures in response to monitored catch over time. By improving the timeliness of our current estimates and applying the management tools available, NMFS and the Regional Fishery Management Councils can work together to maximize recreational opportunities while preventing overfishing.

Effect of 2007 amendments to the Magnuson-Stevens Act on domestic fisheries

The 2007 amendments to the Magnuson-Stevens Act have had a significant impact on fisheries management. A key element of these amendments is the require-

ment that the Regional Fishery Management Councils specify annual catch limits to prevent overfishing for all fisheries experiencing overfishing by 2010, and for all fisheries by 2011. NMFS has been working hard to acquire the necessary data, conduct the stock assessments, and work with the Regional Fishery Management Councils and their Scientific and Statistical Committees to specify and put in place the required annual catch limits. NMFS and the fishermen it serves have benefited considerably from the funding we have received from Congress to meet these challenging requirements.

NMFS strives to provide as up-to-date stock assessments as possible. Fish assessments and their forecasts of potential fishery yield are not unlike weather forecasting. In both cases, complex natural forces cause fluctuations, which require monitoring and periodic forecast updates to avoid getting “stale” and to remain highly relevant. Just as a two-week old weather forecast can still tell you whether it is winter or summer, an old stock assessment can still have the average conditions about right even as it loses track of subsequent fluctuations. However, old stock assessments do not capture recent trend information, such as whether the stock is on a rebuilding plan or is collapsing. The best interval between assessment updates depends upon many factors including the degree of natural fluctuations for that stock, the value of the fishery and intensity of fishing activity, whether the stock is on a rebuilding plan, is overfished or undergoing overfishing, and other factors. In 2012, NMFS will deploy a comprehensive stock assessment prioritization strategy to ensure agency resources and efforts are directed to those stocks whose assessments are most in need of updating, or which are the highest priority for a new assessment.

For the 40 stocks that were subject to overfishing in 2010, the average age of the assessment was 2.6 years. Further, of the 20 stocks that have been on the overfishing list since 2000, the average age of their assessments was approximately 3.5 years, versus 1.8 years average age for the other stocks on the list. Similarly, for the 48 stocks that were overfished in 2010, the average age of the assessment was 2.0 years. Of the 13 stocks that have been on the overfished list since 2000, the average age of their assessments was also approximately 3.5 years, versus 1.4 years average age for the other stocks on the list.

However, it is clear that there are stocks for which NMFS does not have adequate assessments. NMFS fully intends to make more progress in assessing these stocks, especially those identified as high priority, and there is some potential for gains through greater efficiency in the assessment process. However, fishery science is a data-intensive and labor-intensive endeavor, and making substantial improvements will require additional resources for data acquisition and analysis. In addition, NMFS is striving to conduct more surveys using advanced sampling technologies that can achieve higher standardization and, in some cases, can directly measure fish abundance at each survey location, not just a standardized catch rate. With such information, NMFS will be able to provide more precise and accurate assessments sooner. At present, these technologies are still in the developmental phase. In the future, they will enable greater efficiency and increased accuracy and precision for our assessments, but these benefits will take some years to be realized.

Rather than resulting in unnecessarily reduced harvest levels, management under annual catch limits is in fact rebuilding stocks and leading to better and more sustainable harvests. For example, the 26 stocks and stock complexes in the Alaska groundfish fisheries have long been managed under annual catch limits. None of these stocks is overfished or subject to overfishing, and all are at abundance levels that support the long term optimum yield from the fishery.

NMFS is confident that, in the long run, these amendments will enable us to rebuild stocks, increase yields, and provide the economic benefits and employment that robust stocks can sustain. High quality fisheries science is vital for attaining these results. More timely and more precise estimates of abundance of targeted populations will enable better assessments, better management and ultimately better and, importantly, more sustainable profits to the fishing industry. Conversely, the loss of support for fisheries science and corresponding support for fishery management activities would have a very deleterious effect on the fisheries sector.

The Magnuson-Stevens Act calls for annual catch limits in all fisheries such that overfishing does not occur. This is a forward-looking, proactive approach to preventing overfishing and providing a clear indication of the target management level for the fishery. Various forms of catch quotas, which are basically annual catch limits, have been used successfully for decades in the implementation of some fishery management plans. With imprecise stock assessments and catch monitoring, we can never be completely certain that overfishing will not occur, even with annual catch limits. However, the probability that overfishing will occur can be calculated, which can inform socio-economic analyses of the trade-off between the confidence in pre-

venting overfishing versus the amount of foregone short-term fishing opportunity needed to achieve this confidence. One of the greatest challenges is in the data-poor fisheries where assessments are not yet possible. Here, NMFS is working on alternative approaches that provide preliminary determination of catch levels that will prevent overfishing.

Concluding remarks

NMFS has made significant progress in improving the status of fish stocks. We recognize that robust data collection and stock assessments and responsive management programs are vital to rebuilding overfished stocks and strengthening economies. Of the 84 stocks determined to be overfished between 2000 and 2010, 36 stocks are no longer overfished. Of the 76 stocks determined to be subject to overfishing in the same time period, 36 stocks are no longer subject to overfishing. In addition, 23 stocks have been rebuilt over this same time period. For fisheries subject to overfishing, the Regional Fishery Management Councils and NMFS have taken final actions to end overfishing and put annual catch limits in place. The Regional Fishery Management Councils and NMFS are also on track to meet the 2011 deadline to have annual catch limits included in fishery management plans for all managed stocks. NOAA's FY 2012 budget request includes \$7.6 million for NMFS to support the establishment, monitoring, and compliance of annual catch limits, and \$5.6 million for the Regional Fishery Management Councils to set, evaluate, and revise annual catch limits and associated regulatory measures to end overfishing. One of the top priorities for use of the \$15 million requested increase to Expand Annual Stock Assessments in FY 2012 will be to update assessments for stocks listed as overfished or subject to overfishing to verify that overfishing has ended.

In the Pacific Northwest, lingcod was designated as overfished in 1999, with overfishing occurring for several years. A variety of restrictions ended lingcod overfishing in 2005, and the stock was rebuilt several years ahead of schedule. Atlantic sea scallops were once severely overfished, but with cooperation from scallop fishermen the stock was rebuilt in 2001 and is now the top-valued fishery in the United States. Compared to the 1990–1999 time period when scallops were overfished, New England scallop fishermen are now sustainably harvesting an additional 17.5 million metric tons per year and ex-vessel revenues have increased by \$93 million annually.²

NMFS has estimated that if all stocks were rebuilt and harvested at their maximum sustainable yield, this could increase ex-vessel value by as much as \$2.2 billion, which would generate \$31 billion in sales impacts and support 500,000 jobs across the broader economy. Sustaining the science to understand stock dynamics and document stock status is paramount to reaching these goals.

The July/August 2011 issue of *Sport Fishing* contains two "Bright Spots" articles touting the benefits of eleven different conservation efforts that enabled stocks to recover from periods of low abundance. These range from flounder to salmon to billfish; from the Pacific Northwest, to the Gulf of Mexico, to the Northeast.

Ending overfishing, rebuilding stocks and managing on a sustainable basis using sound science will have real benefits to the fishing and the communities that depend on fishing for employment.

Thank you again for the opportunity to discuss NMFS's fishery science. We are available to answer any questions you may have.

Mr. FLEMING. Thank you, Mr. Schwaab. Next, Mr. Harris, you have five minutes.

STATEMENT OF DUANE HARRIS, MEMBER AND PAST CHAIRMAN, SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

Mr. HARRIS. Thank you, Mr. Chairman and Members of the Subcommittee. Thank you for allowing me to appear before you today to address the science required to support the mandates of the 2006-2007 amendments to the Magnuson-Stevens Fishery Conservation and Management Act, and how the lack of basic science

²National Marine Fisheries Service, Office of Science & Technology, Annual Commercial Landings Statistics, available at http://www.st.nmfs.noaa.gov/st1/commercial/landings/annual_landings.html.

has affected fishermen in fishing communities in the South Atlantic. My name is Duane Harris, and I represent the State of Georgia on the South Atlantic Fishery Management Council.

The 2007 amendments have had a profound effect on fisheries management. The Council no longer has the ability to deviate from scientific recommendations, even when those recommendations are acknowledged to contain considerable uncertainty. The provisions to end overfishing immediately upon implementation, combined with the requirements of the scientific and statistical committee establish the limits that prevent overfishing remain the most important changes affecting management in the South Atlantic.

In testimony I presented in 2009 before this Subcommittee, I used red snapper to illustrate problems as a result of the amended Act. That example is still pertinent to the issues I am addressing today. Initial red snapper stock assessment suggested large cuts in harvest were necessary to end overfishing, despite evidence that the stock was improving under regulations that reduced but did not eliminate overfishing.

Although options existed that would achieve the rebuilding strategy while greatly reducing impacts on fishermen, they were not available to the Council because they would have resulted in continued overfishing on red snapper beyond the date when overfishing was mandated to end. Our scientific and statistical committee has struggled as it attempts to comply with a mandate to provide recommendations to end overfishing and rebuild overfished stocks in the absence of necessary information and stock assessments.

As a scientific body, the SSC is hesitant to provide scientific advice when there is no science to support it. Under the amended Act, this is exactly what the SSC is required to do for the majority of species managed by the Council. This leads the SSC to provide very precautionary catch levels that may have significant impacts on the fishing industry.

Forcing a scientific body to make recommendations to the Council in the absence of necessary data and stock assessments does a disservice to and threatens to undermine the integrity of the entire management system.

Since the red snapper fishery closure, the Southeast Fishery Science Center has received additional funding to develop and implement a comprehensive fishery independent survey. This is a positive step forward. Without such a survey, the Council will have no way to evaluate improvements in the red snapper fishery or to compensate for the information lost as a result of the closure.

Commercial fishing quotas are an essential management tool. However, unless commercial landings are tracked efficiently and correctly, the system breaks down. Fortunately, a system exists which will dramatically improve this program at no cost to NOAA Fisheries. That program is the more efficient Atlantic Coast Cooperative Statistics Program. The Southeast Fisheries Science Center needs to embrace and adopt this system.

In 2008, a Spanish mackerel stock assessment was rejected by a panel of independent experts. That left Spanish mackerel without a recent stock assessment. As a result, the scientific and statistical committee selected a very precautionary allowable biological catch.

Consequently, the Council's proposed Spanish mackerel annual catch limit would be expected to result in reduced ex-vessel revenues to commercial fishers of approximately \$680,000 due to a reduction in commercial harvest.

These reduced revenues could result in the loss of an estimated 17 harvester and 10 dealer processor full-time equivalent jobs. The Council supports efforts underway to resolve recreational data collection issues through the Marine Recreational Information Program, and we hope and trust this program will not only reduce uncertainty in estimates and considerably improve the timeliness of their availability, but also take advantage of technology to address fishermen's willingness to submit information.

In summary, the goal of the 2007 amendments to the Act to end overfishing is absolutely necessary to recover stocks and provide additional opportunities for commercial and recreational fishermen. Despite the difficulty of the task at hand, ending overfishing is in the best interests of the Nation. But there is definitely a cost associated with ending overfishing in the other requirements of the amended Act.

Data provided by NOAA Fisheries are currently insufficient for the majority of the stocks we manage. In some instances, the Council's mandated management actions have impacted fishermen and fishing businesses, resulting in reduced revenues and/or job losses. However, there have been improvements in the last couple of years in a number of areas, such as development of fishery-independent surveys, hiring more stock assessment scientists, and working with fishermen to collect scientific data through cooperative research programs.

There is still much improvement needed. Improving the data on which stock assessments are based, both fishery-dependent and fishery-independent data is essential if we are to gain back the trust of the fishing public.

Thank you, Mr. Chairman and Members of the Committee. I appreciate your time.

[The prepared statement of Mr. Harris follows:]

**Statement of Duane Harris, Past Chairman,
South Atlantic Fishery Management Council**

Mister Chairman and members of the Subcommittee, thank you for allowing me to appear before you. My name is Duane Harris and I represent the State of Georgia on the South Atlantic Fishery Management Council (Council). Today I will address the questions posed and provide the information requested by the Subcommittee. All of my comments are made with the sincere intent of providing a clear understanding about how the 2007 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (Act) have affected our Council's management of the marine fisheries resources in the South Atlantic. I will also address the NOAA Fisheries science required to support the mandates in the amended Act and how the lack of needed information has affected fishermen and fishing communities.

1. How Magnuson-Stevens Fishery Conservation and Management Act amendments have affected fishery management.

The 2007 amendments have had a profound effect on fisheries management. The Council no longer has the ability to deviate from scientific recommendations, even when those recommendations are acknowledged to contain considerable uncertainty, be based on out-of-date or "stale" information that may be contradicted by more recent anecdotal observations, or may result in numerous known and, in some cases, unintended consequences for fishermen and fishing communities. The provisions to end overfishing immediately upon implementation, combined with the requirements that the Scientific and Statistical Committee (SSC) establish the limits that prevent

overfishing, remain the most influential changes affecting management in the South Atlantic.

In testimony I presented on October 27, 2009 before this Subcommittee, I used red snapper to illustrate problems the Council was encountering as the result of amendments to the Act, and the red snapper example still is pertinent to the issues I am addressing today. An initial red snapper stock assessment suggested large cuts in harvest were necessary to end overfishing, despite evidence that the stock was improving under existing regulations that reduced but did not eliminate overfishing. The only way to achieve the mandated reductions was to prohibit directed harvest of red snapper and to shut down all effort in the multi-species snapper grouper complex fishery where red snapper were concentrated. Although options existed that would achieve the rebuilding strategy, while greatly reducing impacts on fishermen, they were not available to the Council under the amended Act because they would have resulted in continued overfishing on red snapper beyond the date for which overfishing was mandated to end. As would be expected, such measures were met with considerable opposition by a public experiencing the best red snapper fishing in over a decade. This led the Council to request a delay in closing a large area off of south Georgia and northeast Florida until the public's anecdotal observations could be vetted through our stock assessment process.

A new stock assessment conducted in 2010 agreed in part with the observations of the fishermen and verified that a large year class of red snapper had entered the fishery. The biomass increased sufficiently for the Council to take action to recommend the Secretary of Commerce not implement the large area closure off of Georgia and Florida. However, the new stock assessment results indicated the prohibition of harvest on red snapper was still needed to end overfishing. Prior to the recent Magnuson-Stevens Act amendments, the Council could have chosen that option initially and developed regulations to phase out the overfishing over several years and in doing so balance the needs of the stock with those of the fishery. During this time, progress on other much needed stock assessments was delayed to accommodate resources directed toward red snapper. The Council also expended considerable time and effort evaluating numerous alternatives in its attempts to address the enormous social and economic impacts and public dissatisfaction. Public faith in the process declined considerably as the red snapper issue dragged on and still continues today.

2. Increased role of the Scientific and Statistical Committee

The South Atlantic Council's Scientific and Statistical Committee (SSC) has always played a strong role in the management process, with the Council typically adopting regulations consistent with SSC recommendations even prior to the recent amendments to the Act. However, the SSC has struggled as it attempts to comply with the mandate to provide recommendations to end overfishing and rebuild overfished stocks in the absence of the necessary information and stock assessments. For many species stock status or relationships between current landings and stock abundance and productivity are not available. As a scientific body, the SSC is, not surprisingly, hesitant to provide recommendations that will be considered scientific advice when there is no science to support them. However, under the amended Act, this is exactly what the SSC is required to do for the majority of the species managed by the Council. These circumstances lead the SSC to provide very precautionary catch levels that generally have significant impacts on the fishery.

We have several Fishery Management Plans (FMPs), including Coral, Sargassum, Golden crab, and Dolphin Wahoo, that lack reliable data on landings, effective effort, and the basic survey information that is considered necessary for proper management. This is also true for many species in the Snapper Grouper FMP. Despite the lack of scientific information indicating the level of landings that would result in overfishing, the amended Act requires the SSC to provide an Allowable Biological Catch that will prevent overfishing from occurring. Forcing a scientific body such as the SSC to make recommendations to the Council in the absence of the necessary data and stock assessments does a disservice to the entire management system and threatens to undermine the integrity of all scientific recommendations.

3. Mechanism for establishing Annual Catch Limits (ACLs) to prevent overfishing.

The mechanism we use for establishing Annual Catch Limits to prevent overfishing begins with our stock assessment process called the SouthEast Data, Assessment, and Review or SEDAR. SEDAR is a cooperative fishery management council process initiated in 2002 to improve the quality and reliability of fishery stock assessments in the South Atlantic, Gulf of Mexico, and US Caribbean. The improved stock assessments from the SEDAR process provide higher quality information to

address fishery management issues. SEDAR emphasizes constituent and stakeholder participation in assessment development, transparency in the assessment process, and a rigorous and independent scientific review of completed stock assessments.

SEDAR is organized around three workshops. First is the Data Workshop, during which fisheries, monitoring, and life history data are reviewed and compiled. Second is the Assessment process, which is conducted via webinars, during which assessment models are developed and population parameters are estimated using the information provided from the Data Workshop. Third is the Review Workshop, during which independent experts review the input data, assessment methods, and assessment products. SEDAR is a good stock assessment process. Unfortunately in most instances the data to feed the processes is lacking.

After completion of a SEDAR stock assessment, all three workshop reports and all supporting documentation, including the findings of the independent experts relative to the status of the stock, is then forwarded to the Council's Scientific and Statistical Committee for certification as appropriate for management based on the "best scientific information available". The SSC then meets and develops specific management recommendations, including such things as Overfishing Level (OFL) and Allowable Biological Catch (ABC), as appropriate. For the species that have not had a stock assessment or for stocks considered data-poor, the SSC and Council have developed a control rule that provides a mechanism for providing an Allowable Biological Catch level. However, the problem this mechanism creates is when data are insufficient to determine what level of harvest will ensure that overfishing does not occur, the SSC must use the precautionary approach in developing its management recommendations to the Council, which results in very low Allowable Biological Catch.

The SSC recommendations are provided to the Council and from these the Council must develop the Annual Catch Limit. Prior to the recent amendments to the Act, the Council was not bound by the SSC's recommendations and had more flexibility in establishing catch levels. We could consider such things as uncertainty in the stock assessment, the specific life histories of the stocks and characteristics of the fishery itself in establishing what could be done to rebuild fisheries and at the same time mitigate the social and economic impacts on the fishermen and fishing communities. The Council no longer has that flexibility and must establish Annual Catch Limits that do not exceed the Allowable Biological Catch recommendation of the SSC, regardless of the social and economic impacts.

4. Whether data generated by NOAA are adequate.

Data provided by the NOAA Fisheries are currently insufficient for the majority of the stocks in our jurisdiction. Stocks with reliable catch statistics, adequate biological sampling and measures of population abundance comprise only a very small percentage of the stocks managed by the Council. To compound this problem, many of the remaining stocks suffer from a lack of data in more than one of the necessary areas (catch, biological characteristics, and abundance measures). Because of this, data-poor approaches developed in other parts of the country to provide Allowable Biological Catch for unassessed stocks have not helped the situation in the southeast.

In recent years there have been some improvements. Catch statistics have become more reliable. However, there is still a lack of resources to provide for much needed fisheries observers in the southeast. Without observer coverage, it is difficult to determine the accuracy of self-reported landings in logbooks. Biological data collection has increased considerably also, especially for age structures of fish (otoliths). Unfortunately, in many cases there are inadequate personnel resources available to analyze these otoliths. There have been improvements in the fisheries surveys conducted by NOAA Fisheries, but currently they are only a small fraction of what is truly needed for management.

Since the red snapper fishery closure, the Southeast Fisheries Science Center has received additional funding to develop and implement a comprehensive fishery independent survey. This is a positive step forward. Without such a survey the Council will have no way to evaluate improvements in the red snapper fishery or to compensate for the information lost as the result of the closure. The importance of this survey to the future success of the Council's management program cannot be overstated and funding must be maintained.

Another positive effort in recent years has been the Cooperative Research Program, where funds have been appropriated to enlist commercial and recreational fishermen to help with data collection. This program has been beneficial in a number of ways. Not only has it provided more resources for gathering information in terms of people and vessels, but perhaps most importantly it has increased the

credibility of data collection in the eyes of the fishermen. Funding for this program should be continued.

In addition, the Council has recommended developing a comprehensive biological sampling program. At the most basic level the program should include hiring additional port samplers to monitor commercial and for-hire fisheries throughout the region as well as increasing sampling from recreational catches. Also, the Southeast Fisheries Science Center should become part of the Atlantic Coast Cooperative Statistics Program. There are two additional areas we believe that NOAA Fisheries should address: First is quota monitoring. The existing Atlantic Coast Cooperative Statistics Program (ACCSP) Commercial Quota Monitoring Program that operates in the states of North Carolina northward could be extended to the states of South Carolina, Georgia, and Florida at no cost for software. This ongoing ACCSP program provides automatic daily reports on species with a commercial quota. Contrast this with the existing system used by NOAA Fisheries in the southeast using black sea bass as an example: On July 6, 2011 the Council received a memo from the Regional Administrator to our Executive Director showing preliminary black sea bass landings of 139,052 pounds (45% of the quota) being landed as of June 30, 2011. On Friday July 8, 2011 we received a notice that the commercial black sea bass fishery would close on July 15, 2011, culminating in a 45 day season. This fishery will not reopen until June 1, 2012. The estimated level of landings for the season or what the revised quota was based on the commercial overage last season is still not available. It is unfair to have the fishermen pay the price for an ineffective quota monitoring program through payback of overages when the more efficient ACCSP system could have been used at no cost to NOAA Fisheries. We are concerned that once our Comprehensive Annual Catch Limits Amendment is implemented, which will add more species to the quota monitoring program, the NOAA Fisheries current system will crash and it will be the fishermen and the resource paying the price.

The second area that should be addressed is bycatch monitoring. The existing NOAA Fisheries data programs do not provide estimates of bycatch mortality that can be used to calculate total mortality for use in tracking Annual Catch Limits. This has led our Council to specify Annual Catch Limits in terms of landings only and then examine the impacts of the unaccounted for bycatch mortality when stock assessments are conducted. To help resolve part of the problem in the snapper grouper fishery, NOAA Fisheries should increase the current 25% bycatch logbook coverage to 100% logbook coverage. In the absence of a fishery independent data program, 100% logbook coverage would greatly improve the current 25% coverage. The Council cannot meet the Magnuson-Stevens Act requirement to specify Annual Catch Limits to account for all sources of mortality with the existing data programs.

5. Agency guidance on use of old or stale data.

Overall, there has been very little guidance from NOAA Fisheries relative to use of "old" or "stale" data. Generally, because of the lack of data noted earlier, the Council is forced to use the information that is available regardless of how old or stale it may be considered. It is either that or nothing.

6. Is the precautionary approach combined with decreased funding and depressed harvest levels impacting jobs and communities?

Most of the stock assessments in the South Atlantic must rely largely on harvest data from the fishermen. These "fisheries dependent" data can give an accurate representation of what is being taken out of the water; however, they may not yield reliable information on the status of the stock. Without reliable fisheries independent and dependent data streams, true stock status cannot be determined. This is the scenario the Council and Scientific and Statistical Committee find themselves in many instances, dictating a precautionary approach to management. This generally results in low Allowable Biological Catch and Annual Catch Limits, ultimately restricting harvest, not because the stock status is known to be in bad shape, but because not enough information is available to make an accurate assessment. Error on the side of conservation is the phrase often used. We are already paying the price on stocks like red snapper, black sea bass and Spanish mackerel for inadequate sampling in the past that has led to the current precautionary management strategies.

A recent example of how the lack of adequate data resulted in extremely negative impacts on commercial fishermen involves two minor fish stocks, speckled hind and Warsaw grouper. Both stocks were declared to be undergoing overfishing and overfished back in the early 1990's by NOAA Fisheries, based on annual trends in fishermen's catches alone. At the time the Council took action to protect these species by eliminating all directed harvest, however, some incidental catch was allowed. No stock assessment has been completed on these stocks since the initial determination.

The only data available since the 1990's have been derived from the very low incidental catches that have occurred. The directed fishery for these species has been closed nearly 20 years. Without data and a new stock assessment, there is no way of knowing whether the stocks have rebuilt, are rebuilding, or continue to undergo overfishing and are overfished. Stock assessments have been scheduled for these species; however, these assessments have been postponed to deal with higher priority species such as red snapper, black sea bass, etc.

The most recent revisions to the Act required the Councils to end overfishing by December 31, 2010 for all stocks that are undergoing overfishing. Without data to know whether or not overfishing had ended for speckled hind and Warsaw grouper and if they were still overfished or not, the Council's Scientific and Statistical Committee was required to set Allowable Biological Catch so that no landings of these species would be allowed. Subsequently, when setting the Annual Catch Limits, the Council was obliged to ensure that harvest of these two species be avoided. Fish that live at the depths inhabited by speckled hind and Warsaw grouper are almost always dead when brought to the surface, therefore fishing in areas where speckled hind and Warsaw grouper might be caught had to be closed. Based on the information available, the Council believed the only way to accomplish this was to close all bottom fishing from a depth of 240 foot seaward. This action in effect closed off more than half of the EEZ to bottom fishing, and resulted in significant losses to commercial and recreational fishermen (primarily fishing for blueline tilefish) and fishing dependent businesses. Due to lack of information, the impact of this closure was much greater than anticipated. The Council is just now completing an amendment that will rectify the current situation by reopening the closed area, and developing plans to implement other measures to protect speckled hind and Warsaw grouper.

A specific example of how jobs can be affected when NOAA science is lacking occurred in the Spanish mackerel fishery. In 2008, a Spanish mackerel stock assessment was conducted. However, during the stock assessment process review phase (the final peer review phase) the stock assessment was rejected by the panel members due to too many uncertainties in the biomass values from the assessment. That left Spanish mackerel without a recent stock assessment, requiring the Scientific and Statistical Committee to use the data poor control rule to derive a precautionary Allowable Biological Catch. Consequently, the Council's proposed Spanish mackerel Annual Catch Limit would be expected to result in a reduction in ex-vessel revenues to commercial fishers of approximately \$680,000 due to a reduction in commercial harvest and the accountability measure requirement that harvest, possession, and sale of Spanish mackerel be prohibited when the commercial quota is met. If compensating revenue is not obtained from alternative species, these reduced revenues could result in the loss of an estimated 17 harvester and 10 dealer/processor full-time equivalent jobs.

7. Is the requirement to use the best available information becoming an excuse to use old data rather than collect more data?

I do not believe NOAA Fisheries reliance on using the best scientific information available is an excuse to use old data rather than collect more data. The impediment, at least in the southeast region, simply seems to be resources. Although recent budgets have provided more funding for data collection in the southeast, funding levels are still insufficient to resolve the lack of data needed for management.

The Southeast Fisheries Science Center has shown a willingness to collect more data, e.g. added logbook discards for both commercial vessels and headboats, increased trip interview sampling, initiated a fisheries independent survey, expanded the Marine Resources Monitoring, Assessment, & Prediction Program (MARMAP) and the Southeast Area Monitoring and Assessment Program (SEAMAP) and added new stock assessment scientists. The problem is that all of these efforts still fall short of meeting identified needs due to funding shortages.

8. Views on Marine Recreational Information Program, improving data collection but perhaps falling short of providing info for in-season adjustments, thus impacting planning by industry.

Concerns with recreational statistics provided through the old Marine Recreational Fisheries Statistics Program (MRFSS) are well documented by many sources and need not be repeated here. The Council supports efforts underway to resolve recreational data collection issues through the Marine Recreational Information Program (MRIP), and the Council hopes that Marine Recreational Information Program will not only reduce uncertainty in estimates and considerably improve the timeliness of their availability, but also take advantage of current technology to address fishermen's willingness to submit information.

Recreational data collection improvements through the development of Marine Recreational Information Program are necessary to improve management under the amended Act. Precision and reliability are bigger concerns than timeliness in the South Atlantic, perhaps because many of our stocks have suffered from high uncertainty in old Marine Recreational Fisheries Statistics Program estimates. Whether the Marine Recreational Information Program will fall short of providing information to accommodate in-season adjustments remains to be seen. However, when the program is implemented, it will be the timeliest data on recreational catch and discard rates available to us.

In some cases the recreational allocation for some of the stocks managed by the Council is very low. In the South Atlantic, the recreational fishing sector Annual Catch Limits for snowy grouper was 523 fish per year under the rebuilding plan. Even under Marine Recreational Information Program, NOAA Fisheries will not be able to monitor the recreational catches in a timely manner. In 2010, recreational anglers were estimated to have caught more than 1,500 snowy grouper. With Council required fishing sector paybacks (accountability measures) for overfished stocks, this could result in the recreational fishery for snowy grouper being closed for two years.

Let me summarize the main points in my testimony this afternoon. First, the goal of the 2007 amendments to the Act to end overfishing is an absolute necessity to recover stocks and provide additional opportunities for commercial and recreational fishermen. Despite the difficulty of the task at hand as illustrated by the South Atlantic red snapper fishery closure, ending overfishing, is, without question, in the best interest of the nation. But there is definitely a cost associated with ending overfishing and many of the other requirements.

Data provided by NOAA Fisheries are currently insufficient for the majority of the stocks we manage. In some instances, the Council taking mandated management actions without the accurate and timely data needed has impacted fishermen and fishing businesses, resulting in reduced revenues and/or job losses. However, there have been improvements during the last couple of years in a number of areas, such as development of fisheries independent surveys, hiring more stock assessment scientists and working with fishermen to collect scientific data through cooperative research programs. There is still much improvement needed. NOAA Fisheries must continue to improve fisheries data collection that is essential for providing accurate and timely stock assessments. Conducting a stock assessment for a species like red snapper every five or six years is not acceptable. The Science Center staff of stock assessment scientists needs to continue to be increased in order to provide this information. Improving the data on which stock assessments are based, both fishery dependent and fishery independent data, is essential if we are to gain back the trust of the fishing public. We cannot continue in the adversarial role that has been created between the Council and fishermen as the result of our recent management actions.

The Southeast Region of the U.S., including the South Atlantic, Gulf of Mexico, and Caribbean, has not been funded at the level needed to provide data and stock assessments on as timely a basis as is needed for the three councils in this region to effectively and efficiently do their job. The budgets of the Southeast Fisheries Science Center and the Southeast Regional Office must be reviewed and increased as necessary to provide timely stock assessments on which the councils base management recommendations.

Mister Chairman, in closing I would like to again thank you and the Subcommittee for allowing me to appear before you on behalf of the South Atlantic Fishery Management Council. We appreciate you holding this hearing and for your Subcommittee's interest in NOAA's fisheries science and how the lack of necessary data to effectively manage is impacting fishermen and fishing communities.

Mr. FLEMING. Thank you, Mr. Harris. Next we have Ms. Morris. You have five minutes, ma'am.

STATEMENT OF JULIE MORRIS, ASSISTANT VICE PRESIDENT FOR ACADEMIC AFFAIRS, OFFICE OF THE PROVOST, NEW COLLEGE OF FLORIDA, FORMER MEMBER, GULF OF MEXICO FISHERY MANAGEMENT COUNCIL AND MEMBER OF THE SECRETARY'S MARINE FISH ADVISORY COMMITTEE

Ms. MORRIS. Thank you, Chairman Fleming and Ranking Member Sablan, for inviting me to speak to the Subcommittee this

afternoon. My name is Julie Morris. I live in Sarasota, Florida. My testimony today is based on 18 years experience with science-based fish and wildlife management. Most recently, from 2001 to 2010, I served as a member of the Gulf of Mexico Fishery Management Council, and I served terms as both vice-chairman and chairman of that group.

Today I want to address uncertainty in fisheries management, some of the challenges in recreational fisheries, and some concluding thoughts about the future of fisheries management. The re-authorized Magnuson-Stevens Act told the Councils that we really do need to end overfishing, and that science committees should play a key role.

It is common for science to include uncertainty. Let's think for a moment about political polling, which is very useful, even though the results are expressed with a certain margin of error. Fishery science is similar, but more complicated. And, of course, we can't pose questions to fish. Fishery science is not perfect, and frequently it is contested. But we know that it works.

Fishery scientists deal with uncertainty head-on. They measure it. They account for it. They study how to reduce it. On the other hand, policy folks are generally uncomfortable with uncertainty. When the Gulf of Mexico Science Committee estimates the harvest level, they also tell us how certain they are, what the margin of error is that their estimate is correct.

The logic is that we will be more certain about well-studied, highly valued species. And because we are more certain, we can fish closer to the highest sustainable level. Other species are poorly understood or quirky. Their size and age may not be correlated, or they may have strong year classes at unpredictable intervals with weak reproduction in between. For these species, the estimate of the tipping point between sustainable and unsustainable fishing levels is foggier. And like driving on a foggy road, we need to slow down a little, turn on the lights, and fish more cautiously.

In the Council's new method, the science committee will use standard stock assessment techniques to set acceptable catch levels. In cases where we have little more than a record of annual landings, and it is a little foggy, the science committee will set catch limits at the average landings until there is a signal that the stock is either plummeting or growing by leaps and bounds. This is a reasonable approach, and the science we have is sufficient.

We were given the flexibility to figure out how to keep uncertainty in mind when we set acceptable biological catches. We have worked on it for over three years, and the Council is scheduled to adopt its new process in August. Council and science committee members are reasonable people who don't want to make things harder for fishermen. After all, the majority of council members are in the fishery business.

At the same time, we know that fishing gets measurably better once we end overfishing. MSA holds the Gulf Council's feet to the fire on ending overfishing, and this will be good for fish and fishermen over the long term. That said, more data, especially fishery-independent data and observer data on catch and bycatch would be tremendously helpful. We look to Congress to provide funding for

this, and we look to NOAA to make effective use of additional funding.

Is precautionary fishery management leading to job losses? I don't see it in the Gulf of Mexico. First, our management is not very precautionary. Second, it has been a really tough decade for fishery jobs in the Gulf of Mexico, for reasons that have very little to do with fishery management. Fuel prices jumped. We had intense competition from imported seafood. Hurricanes wiped out our shoreside fishery infrastructure. Finally, the Deepwater Horizon disaster closed fishing grounds, contaminated some fisheries, and undermined the Gulf seafood brand in the eyes of the public.

Before closing, I wanted to make a few comments about recreational fishing. Recreational fishing is difficult to manage in the Gulf of Mexico, especially when there are many capable fishermen and too few fish. This is not the fishermen's fault. They are committed conservationists. Since we can't count and weigh every fish, we rely on surveys. The Marine Recreational Information Program, which we call MRIP, will improve our survey data. But we need to add new tools to our management toolbox.

There are good models from hunting that we can adapt to fishing. When greater than half the catch is recreational in several key Gulf species, the need for better tools has become acute.

In conclusion, policy and management decisions can't wait until the science is perfectly clear because it never will be. We push ahead and make timely decisions based on our understanding of what will be best for both the fish and the fishermen. The Magnuson Act is working and being applied in a reasonable manner in the Gulf of Mexico. Let's allow it to work.

Thank you, and I look forward to answering any questions you may have.

[The prepared statement of Ms. Morris follows:]

**Statement of Julie Morris, Former Member of
Gulf of Mexico Fishery Management Council**

Introduction

Thank you for the opportunity to speak to the Subcommittee on Fisheries, Wildlife, Oceans and Insular Affairs. My name is Julie Morris. I reside in Sarasota Florida, and I work at New College of Florida, a public honors college within the Florida State University System. My title is Assistant Vice President for Academic Affairs, an academic administrative position.

Since 1992, I have served in a series of decision-making positions for science-based management of fish and wildlife. I have been nominated/appointed to these positions by both Republican and Democratic Governors. From 1992–1999, I served as a commissioner of the Florida Game and Freshwater Fish Commission, Florida's Constitutional agency for all wildlife and freshwater fish. In 1999, an amendment to Florida's Constitution combined marine fisheries management with freshwater and wildlife creating a new agency, the Florida Fish and Wildlife Conservation Commission (FFWCC). I served as the first Chairman of the FFWCC from 1999–2000. In 2001, I was appointed by the Secretary of Commerce to be a member of the Gulf of Mexico Fishery Management Council (GMFMC). I was reappointed twice, serving on the Council until August of 2010.

Today's testimony is based on my 18-year experience in state and federal management of fish and wildlife. As a layperson, I have worked hard to understand fisheries and wildlife science. I've gained an understanding of fisheries science, fishery economics, the applicable law, and the process of management. Commissioners and Council Members we are provided scientific and economic analyses. They also listen to a wide range of public testimony. They integrate these both into reasonable, fair, and equitable management measures for sustainable fisheries.

In my testimony, I will make the case that the 2007 MSA amendments have resulted in positive changes for fisheries management in the Gulf of Mexico. More data would be a tremendous help and I support Congressional efforts to increase funding for fisheries data and assessment. That said, the GMFMC Scientific and Statistical Committee (SSC) has developed a reasonable methodology that uses available data to comply with the 2007 MSA amendments.

I do not believe that precautionary fisheries management has resulted in a significant loss of fishery jobs in the Gulf of Mexico. Fisheries jobs have been lost, but the primary drivers have been the high cost of fuel, the great recession, the Deep-water Horizon disaster (fishing closures, actual contamination, and the misguided public perception that Gulf fish and shellfish are tainted), competition from cheap imported seafood, hurricane damage to fisheries infrastructure, and harmful algal blooms.

I am convinced that we need better tools and better data to manage recreational fisheries in federal waters, especially in the Gulf of Mexico where recreational catches equal or exceed commercial catches in several key species.

The bedrock goal of MSA is to maintain sustainable harvests for the long-term benefit of the nation. The 2007 amendments reinforce this goal by strengthening the role of science in determining acceptable biological catches, and ending the practice of fishing at unsustainable levels. Once we end overfishing, rebuilt stocks will provide expanded opportunities for economic activity based on sustainable fishing.

How have the 2007 MSA Amendments affected domestic fishery management?

The GMFMC's management plan to set overfishing levels and the acceptable biological catch is scheduled for final adoption in August 2011. This culminates a three-year process, which included four public scoping meetings, nine public hearings, and numerous Council and SSC work sessions.

Management actions to end overfishing in four reef fish stocks were already underway prior to the 2007 MSA amendments. Between 2008- 2010, GMFMC adopted science-based catch limits and accountability measures for four overfished stocks (gag grouper, gray triggerfish, greater amberjack, and red snapper). As a result, overfishing has ended for gray triggerfish and red snapper. In anticipation of the 2007 MSA Amendments, the Council included accountability measures in these management actions.

The 2007 MSA amendments direct the Councils to set catch limits that do not exceed the advice of their SSC. This is an important change that will prevent overfishing and maintain sustainable harvests over the long term.

In response to the 2007 MSA Amendments, the GMFMC's Science and Statistical Committee (SSC) developed a consistent methodology (called the ABC Control Rule) to characterize the level of scientific uncertainty in their calculations of Overfishing Level (OFL) and Acceptable Biological Catch (ABC) for particular stocks. Estimating uncertainty is a normal practice in fisheries science.

At the same time, the Council determined that they could accept risk ranging from 10%-40% that the estimate of OFL was incorrect. For a fast reproducing species, the Council can accept a 40% risk that the OFL might be wrong. For a long-lived, slow to recover, and easily depleted species the Council wants a smaller risk. The SSC uses this risk range in their methodology to create a buffer between OFL and ABC.

Also in response to the 2007 MSA amendments, the Council added a new process for considering management uncertainty when setting catch limits. The new process will consider:

- How frequently the catch limit has been exceeded in the past 4 years
- The precision of landings data
- Whether in-season accountability measures are used.
- Overfished and overfishing status of the stock.

The GMFMC undertook a review of all of its managed species. This review led to a determination that about a third of GMFMC managed stocks no longer needed federal management. Species primarily caught in state waters will be managed by the states. Harvested stocks with annual catches below 15,000 pounds will no longer be managed. This is a useful streamlining of federal management.

Managed stocks have been organized into groups based on geographic distribution, life history, and vulnerability to fishery. Some groups include an indicator species, a species that has been addressed in a stock assessment. If catch limits for the indicator species are exceeded, there will be accountability measures for the whole group. Other groups do not include an assessed species, and accountability measures will kick in only when the catch limit for the whole group is exceeded. One data-

poor, minor species will not trigger a catch limit and accountability measure for the whole group.

Is the data generated by NOAA adequate for fishery managers to comply with these new provisions?

More data and more resources for stock assessments would be very helpful. In the Gulf of Mexico, we have a great need for fisheries-independent data to understand how stocks are changing independent of the social and economic factors that affect harvests and landings. We also need observers to improve our data on bycatch and dead discards. I understand that Congress is considering adding funds for ocean-related activities, including stock assessments. I wholeheartedly support additional funds.

In addition to NOAA, fisheries data comes from many sources, including state agencies, interstate commissions, universities, and private entities. The scientific basis for fisheries management has improved dramatically since I joined the GMFMC in 2001. We are gaining more information about the life history and reproductive potential of managed species. The models we use for stock assessments are constantly improving.

Fisheries data and stock assessments are always contested, especially when valuable, highly targeted species are involved. It is very important that our stock assessments are subject to scientific peer review and equally important that assessments include a full description of assumptions and uncertainties. The 2007 MSA amendments and the new GMFMC's ABC Control Rule reinforce these good practices.

In the plan scheduled for adoption this August, the SSC will have the flexibility to determine acceptable biological catches using one of three statistically sound methods in a tiered approach depending on type of data available.

- One method will be used when there is a standard quantitative assessment that estimates MSY (OFL) and includes a probability distribution around MSY (ABC) that reflects uncertainty.
- A second method will calculate MSY (OFL) and ABC based on a data-poor assessment methodology that can provide a quantitative measure of uncertainty
- A third method will calculate OFL and ABC based on landings history if no assessment is available. The SSC will use its expert opinion and standard statistical techniques to determine ABC at a level either above the mean observed landings (if it is not necessary to constrain catches) or at or below mean observed landings (if recent landings are likely unsustainable). The Council determines how much risk it will accept in setting ABC

What about NOAA guidance for using old or stale data?

Viewed in one way, data is not stale or old or misleading. Viewed in another way, all data is out-dated as soon as it is collected, and it is not possible to have completely current data.

At the outset of a stock assessment in the Gulf of Mexico, scientists thoughtfully consider how best to use available data. Available data is evaluated by the Southeast Data Assessment and Review (SEDAR) process. Historic data are valuable for understanding long-term trends and year-to-year variability. NOAA provides useful guidance for translating data collected under earlier protocols into a form that is comparable to data collected with current protocols. For the highly targeted and valuable species in the Gulf, data is regularly updated.

There are always time delays between the collection of data and management actions. It takes time to collect data, analyze data, run data through assessment models, and conduct rigorous peer review of the assessment results. Once an assessment is complete, the Council process of amending a management plan takes 1–2 years, even longer if the management action is controversial. This is a frustrating reality of federal fisheries management.

Is the precautionary, risk-adverse approach combined with decreased funding for fishery research and cooperative research resulting in unnecessarily depressed harvest levels affecting economy and jobs?

I do not believe that precautionary fisheries management has resulted in a significant loss of fishery jobs in the Gulf of Mexico. Many fisheries jobs have been lost, but the primary drivers have been the high cost of fuel, the great recession, competition from cheap imported seafood, hurricane damage to fisheries infrastructure, harmful algal blooms and the Deepwater Horizon disaster (temporarily closed fishing areas, actual contamination, lingering misguided perceptions that Gulf seafood is tainted),

Furthermore, a GMFMC staff analysis compared the current method for setting quota for grouper and tilefish with the method in the new management plan. The new method results in slightly higher quotas for these fisheries.

REEF FISH	Million pounds gutted weight			
	Current 2012 Quota	Proposed 2012 Quota	Difference mp	Difference %
Other shallow water grouper	0.41	0.524	0.114	28%
Deep water grouper	1.02	1.13	0.11	11%
Tilefishes	0.44	0.582	0.142	32%

The management actions that ended overfishing of Gulf red snapper in 2008 were taken based on the MSA requirements and NOAA guidance that existed prior to new risk-adverse approaches. Ending overfishing in red snapper was not precautionary. It was consistent with the long-standing MSA requirement for harvests to be sustainable. A 2007 stock assessment indicated that unsustainable catches of red snapper in the northern Gulf were preventing the depleted stock from rebuilding. Red Snapper immediately started to rebuild once overfishing ended, with allowable catches increasing from 5 million pounds in 2009 to 7.185 million pounds in 2011.

Does the MSA requirement for use of best available scientific information in management decisions become an excuse for using incomplete or old data in management decisions rather than gathering new data?

In my experience, the requirement for use of best available scientific information has not become an excuse to avoid gathering new data.

There is a well-established legal standard that “best available scientific information” is an acceptable basis for management. The use of “best available scientific information” is essential for Councils to fulfill their responsibility to make timely management decisions. At times, fishermen oppose changes in management and urge the Council to delay action until there is a new assessment or new update in hopes that the science advice will change. This can be an additional source of delay for scientifically defensible management actions, actions that are necessary to reach sustainable harvests.

During the Council process, it is not uncommon for additional analyses to be run with updated information to address questions that come up in public testimony and committee deliberations.

What are my views on new recreational data collection program, to provide better information for fishery managers, but not providing data for in-season management adjustments?

When stocks are fully recovered, annual catches will gain stability and the year-to-year uncertainty of recreational fishing season length, bag limits and size limits will be minimized.

Recreational fishermen are strong conservationists, interested in the biology of the fish, and committed to increasing the health of the fishery. They highly value the experience of catching and eating wild, beautiful fish. It is not their fault that recreational fishing is difficult to manage.

Our tools for managing recreational fishing fall short in several ways. We need a management system that can respond quickly using timely in-season data. We need a system in which recreational fishermen can accurately report their catch and their discards and limit their catches to acceptable levels. These shortcomings in our management of recreational fishing have a significant negative impact on the health of the Gulf of Mexico reef fish fishery. It is a frustrating and uncomfortable situation for both anglers and managers.

When a recreational fishery has the capacity to catch unsustainable numbers of fish, the traditional tools of bag limits, size limits, and open and closed seasons are not adequate to manage the fishery. In the GMFMC, recreational harvest accounts for half or more of the catch in three of our most valuable fisheries (red snapper, gag grouper, and King mackerel).

We need to develop new management tools to increase accountability and management certainty for recreational fishing. Potential tools to explore (many drawn from recreational hunting models) include: fish tags, lotteries, catch shares for charterboat and headboat operators, specified catches that can be shared by members recreational fishing clubs or a particular charterboat fleet, real time electronic reporting of recreational catches, and improved estimation models and data collection methods for recreational catch and effort. I believe MRIP will greatly improve

our understanding of the Charterboat and Headboat recreational catches, and will take us closer to in-season management measures in this sector of the recreational fishery.

Additional Comments

The new methodology developed by the GMFMC to determine the buffer between overfishing level and the acceptable biological catch is scientifically defensible and an improvement compared to current practice. However, it is difficult for non-scientists to understand. In the Council process, one of our goals is to help the affected public understand why we take a particular management action. The ABC control rule is a hard one to explain.

When the Council has very little data about a managed species, it is hard for our science committee to know what the right catch limit should be. In these situations, the GMFMC makes the reasonable choice of allowing current catches to continue; until there is a signal that something has changed in the fishery. Though reasonable, this approach is not really precautionary. It is an open question whether the Council process will be able to respond quickly to these signals.

Mr. FLEMING. All right. Thank you, Ms. Morris. Next, Mr. Cadrin. You have five minutes, sir.

STATEMENT OF STEVEN CADRIN, Ph.D., ASSOCIATE PROFESSOR, DEPARTMENT OF FISHERIES OCEANOGRAPHY, SCHOOL FOR MARINE SCIENCE AND TECHNOLOGY, UNIVERSITY OF MASSACHUSETTS DARTMOUTH, MEMBER, SCIENCE AND STATISTICAL COMMITTEE, SOUTH ATLANTIC AND NEW ENGLAND FISHERY MANAGEMENT COUNCILS

Dr. CADRIN. I thank the Members of the Subcommittee for the invitation to testify. My name is Steven Cadrin. I am a professor at the University of Massachusetts School for Marine Science and Technology. I was asked to address how the 2007 amendment to the Magnuson-Stevens Act affects fishery management; more specifically, whether the data generated by NOAA are adequate for fishery managers to comply with the new requirements, and if using outdated information is affecting fishery-dependent jobs; second, if NOAA's reliance on using best scientific information available is a convenient excuse for defending outdated information; and finally, my views on the adequacy of data collection programs.

My response to the Subcommittee is that current scientific information is inadequate to meet NOAA's approach to implementing the Act. The problem is twofold. There are major deficiencies in the quality and frequency of stock assessments and fishery statistics. And second, National Standard guidelines for implementing the Act pose unrealistic demands on the scientific system.

In the context of decreased budgets, scientific resources need to be reprioritized. In addition, the national strategy for fishery management needs to be reconsidered so that demands on the scientific system are more suited to the current scientific capacity, and performance of the management system is more robust than the inherent uncertainties in fishery science.

New requirements of the 2007 reauthorization act impose substantially greater demands on the fishery science and management system. My written testimony describes several examples to demonstrate that scientific inadequacies negatively affect fishing communities. National standard guidelines on the catch limit mandate require frequent and accurate stock assessments, comprehensive

and real-time fishery monitoring, as well as risk analysis for each fishery.

The Act mandates that fishery management be based on the best scientific information available. Current practice implements the best science mandate by adhering to official peer review processes for each region. Some regional peer review processes do not currently meet the other requirements of the Act, such as frequent status determination and specification of annual catch limits.

A more efficient system of stock assessment and peer review is needed to increase scientific capacity. Scientific support for catch limits also involves in-season fishery monitoring that is timely enough to inform future catch limits and support fishery-dependent business decisions. Some components of total catch, such as commercial fishery discards and recreational fishery catch, are not well estimated, and estimates are not available in a timely fashion. Uncertainty and slow delivery of catch statistics precludes in-season management or adaptive fishing decisions to optimize catch allocations, incurring considerable cost to fishing communities.

In the context of inadequate scientific information, there are several potential solutions to help improve the scientific capacity for supporting annual catch limits. Scientific resources can be reprioritized to support more frequent and accurate stock assessments, as well as more timely and accurate fishery monitoring data. Peer review processes can be streamlined using external expertise to solve scientific problems.

NOAA's scientific capacity can be expanded and improved by partnering with universities and research institutes. Each regional scientific and statistical committee can be empowered to help serve the necessary peer review role and help solve scientific problems. The demands on fishery science can also be reduced in several ways. Exemptions from annual catch limits should be considered for those fisheries for which catch cannot be reliably monitored.

The mixed-stock exemption from catch limits and accountability measures should be considered for bycatch and rebuilding stocks to avoid the wasteful and costly consequences of applying those approaches to mixed stock fisheries. More strategically, alternative management procedures should be considered that take advantage of the best of fishery science, rather than emphasizing the worst of it.

In reply to the Subcommittee's specific questions, I conclude that the data generated by NOAA is inadequate for fishery managers to comply with the new requirements of the Act and associated National Standard guidelines, substantially and negatively affecting fishery-dependent jobs. NOAA's reliance on using best scientific information available is an inappropriate justification for defending outdated information. And finally, data collection programs are inadequate for providing in-season catch information, negatively affecting fishery-dependent business decisions and making fisheries accountable for scientific uncertainty.

Thank you, Mr. Chairman and the rest of the Committee.
[The prepared statement of Dr. Cadrin follows:]

**Statement of Steven X. Cadrin, Ph.D., Associate Professor, University of
Massachusetts Dartmouth, School for Marine Science and Technology**

I thank the Members of the Subcommittee for the invitation to testify before you today. My name is Steven Cadrin. I am an Associate Professor of Fisheries Oceanography at the University of Massachusetts Dartmouth, School for Marine Science and Technology. I have over twenty years of experience as a quantitative fisheries scientist with expertise in fish stock assessment and fishery management. I am proud to have been an employee of NOAA for the fifteen years before I started my current position. Although I am not representing any organization, my testimony draws on my experiences as chair of the New England Fishery Management Council's Scientific and Statistical Committee from 2008 to 2011, a member of the South Atlantic Fishery Management Council's Scientific and Statistical Committee and associated interactions with Fishery Management Councils in all other coastal regions of the U.S.

I was asked to address how the 2007 amendment to Magnuson-Stevens Fishery Conservation and Management Act affects domestic fishery management, with a focus on the new role of Scientific and Statistical Committees and the new requirement for annual catch limits to prevent overfishing. More specifically, the Subcommittee requested my views on:

- 1) whether the data generated by NOAA is adequate for fishery managers to comply with the new requirements, and in the context of decreased funding, if the application of a precautionary approach using outdated information is affecting coastal economies and fishery-dependent jobs;
- 2) if NOAA's reliance on using "best scientific information available" is a convenient excuse for defending outdated information; and
- 3) the adequacy of data-collection programs, including recreational fishery statistics, the inability to provide in-season catch information, and the effect of uncertain catch statistics on fishery-dependent business decisions.

1. Adequacy of Data Generated by NOAA

The current scientific information used to support fishery management decisions is inadequate to meet the NOAA's approach to implementing the Act. The problem is twofold: 1) there are major deficiencies in the quality and frequency of stock assessments and fishery statistics, and 2) National Standard Guidelines for implementing the Act pose unrealistic demands on the scientific system. In the context of decreased budgets, scientific resources need to be reprioritized. In addition, the national strategy for fishery management needs to be reconsidered so that demands on the scientific system are more practically suited to the current scientific capacity and performance of the management system is more robust to the inherent uncertainties in fisheries science.

My view is supported by two recent reviews that were commissioned by the National Marine Fisheries Service. A recent national review on scientific institution building concluded that "NMFS needs more national scientific leadership, and better management, information systems and organizational structures, to plan and implement national programs", and "this problem has ramifications with respect to the science based roots of the agency and science as the foundation for policy and management" (Sissenwine and Rothschild 2011). An independent assessment of the fishery management system in New England identified problems and challenges and formed recommendations including "conduct a comprehensive analysis of all NMFS data systems to identify areas that will improve data gathering, data management, data analysis and data use" (Touchstone Consulting Group 2011).

New requirements of the 2007 amendment to the Act impose substantially greater demands on the fishery science and management system. The current scientific capacity was more adequate for meeting the requirements of the previous version of the National Standard Guidelines which focused on status determination (i.e., relative stock size, sustainability of harvest) and general management advice. Even state-of-the-art fishery science cannot fully support the risk-based catch limits with accountability measures suggested in the current Guidelines.

I will describe several examples to demonstrate that the failure to effectively adapt to new requirements negatively impacts fisheries, fishery resources and the communities that depend on them. Although the examples are primarily from New England, many of them exemplify similar problems or potential problems in other regions. National Standard Guidelines suggest that catch limits should be based on an estimate of the catch associated with overfishing and uncertainty in the estimate of the overfishing limit, or the catch that will allow rebuilding of overfished stocks; and fisheries should be held accountable for exceeding catch limits (NOAA 2009). Such implementation of the catch limit mandate requires frequent and accurate

stock assessments, comprehensive and real-time fishery monitoring, as well as risk analysis for each fishery. Although the Act establishes National Standard 1 so that “Conservation and management measures shall prevent overfishing while achieving, on a continuing basis, the optimum yield from each fishery for the United States fishing industry”, deficiencies in the scientific basis of fishery management decisions can result in either foregone yield or overfishing, both of which are costly to fisheries and fishing communities.

As implemented in the National Standard Guidelines, specification of annual catch limits requires frequent stock assessments and projected catch over a short period (e.g., one to three years). Stock assessment involves an update of the most recent fishery statistics and resource surveys to evaluate stock status and provide a basis for catch forecasts. Catch limits that are based on recent stock assessments and short-term projections take advantage of the strengths of conventional fishery science, in which catch forecasts are almost entirely based on a synthesis of updated fishery and survey observations. Conversely, catch limits based on longer-term predictions (e.g., greater than three years) are based largely on assumed population dynamics rather than on current data. Long-term predictions rely on the ability to predict annual recruitment of young fish and their future vital rates, which is one of the most challenging problems in fishery science.

Example 1—New England groundfish, our nation’s oldest commercial fishery and one of its most productive, serves as an example of the inadequate frequency of stock assessments provided by NOAA for fishery management decisions. NOAA concluded that it did not have the capacity to provide annual stock assessments for all northeast fisheries (Northeast Fisheries Science Center 2009). The Northeast Regional Coordinating Committee is in the process of revising its assessment and peer review process, because the requirements of the catch limit system far exceed NOAA’s scientific capacity. As a result of this deficiency in scientific resources, the planned approach for specifying catch limits for the groundfish fishery from 2012 to 2014 is medium-term catch forecasts, five to seven years from the 2008 stock assessments. The New England Fisheries Management Council’s Scientific and Statistical Committee advised NOAA and the Council that such medium-term projections would not be an adequate basis for specifying catch limits. The Council is now faced with the difficult task of specifying effective catch limits based on outdated assessments and unreliable catch projections, and the uncertainty will be reflected in precautionary catch limits.

In addition to the need for stock assessments to be frequent, accuracy is also required to determine appropriate catch limits. Only a small portion of stock assessments can accurately project catch associated with overfishing and its uncertainty, which is the technical basis of the National Standard Guidelines for deriving annual catch limits. Many assessments are data-poor, and are not informative enough to reliably evaluate stock size, fishing mortality, maximum sustainable yield reference points or catch projections to determine catch associated with overfishing. National Standard Guidelines suggest that Councils should be more precautionary in the face of such uncertainty, leading to lower catch limits and potential economic impacts as a result of scientific uncertainty. Despite the obvious deficiencies of data-poor stock assessments, the National Standard Guidelines require annual catch limits for all stocks, with few exceptions.

Example 2—The New England skate complex offers an example in which fishery landings cannot be identified by species. Mixed-species catch limits are required to meet separate-species management objectives for ending overfishing and rebuilding overfished stocks. In such data-poor situations, catch limits are largely based on expert opinion, and their performance for meeting fishery management objectives is unknown. Despite these major uncertainties in the stock assessment of skates, the fishery is accountable for overfishing, and fishing communities are impacted from conservative catch limits in the face of scientific uncertainty. The fishing industry has incurred substantial costs in the form of lost jobs and income as a result of inadequate scientific information. Precautionary limits to the skate fishery caused 300 workers to be laid off from seafood processors in New Bedford (Whiteside 2011).

Other stock assessments are more informative than those for data-poor stocks, but still have substantial uncertainties that cannot be quantified or used to determine catch limits. A troubling feature of many stock assessments in each coastal region of the U.S. is the lack of consistency from one stock assessment to the next. Retrospective inconsistency is the change in perception of previous stock size or fishing mortality when new data are added to the assessment. Managing a fishery based

on an assessment with retrospective inconsistency involves setting an apparently appropriate catch that in retrospect caused substantial overfishing or foregone yield.

Example 3—The fishery for Georges Bank yellowtail flounder, one of the principle groundfish stocks off New England, is an example of the frustrating and costly impact of retrospective inconsistency. From 2006 to 2009, the fishery caught less than the catch limit advised by the scientific process in each year. However, the 2011 stock assessment indicates that those apparently appropriate catches produced overfishing each year, in some years more than five times the overfishing threshold (Transboundary Resources Assessment Committee 2011). Despite efforts to correct the stock assessment, the retrospective problem continues to obfuscate perceptions of stock status and obstruct attempts to manage the fishery or rebuild the resource. After decades of overfishing, in the face of severe restrictions to the fishery, the stock cannot rebuild within the desired time frame, even with no fishery. Adequate scientific information would have prevented these fishery management failures.

The implications of uncertain, infrequent stock assessments and inadequate fishery monitoring create potential economic impacts on fishing communities. National Standard Guidelines suggest partitioning scientific uncertainty from management uncertainty so that fisheries are only accountable for the latter. However, that approach is only successful for data-rich assessments that are frequently updated and accurately quantify scientific uncertainty. The examples above demonstrate that inaccurate stock assessments, infrequent updates and unquantified uncertainties can hold fisheries accountable for scientific uncertainty.

2. NOAA's Reliance on "Best Scientific Information Available" as an Excuse for Inadequate Information

The Act mandates that fishery management be based on the "best scientific information available", which is defined for application to fisheries by the National Research Council (2004) and Sullivan et al. (2006). Current practice and draft guidelines for National Standard 2 implement the "best scientific information available" mandate by adhering to official peer review processes for each region. Some regional peer review processes do not currently meet the other requirements of the Act, such as frequent status determination and specification of annual catch limits. The two aspects of stock assessments required by the implementation of catch limits (greater frequency and higher-quality) are competing needs that draw on the same scientific resources. A more efficient system of stock assessment and peer review is needed in all regions to increase the capacity of the scientific system.

Although independent peer review is an essential element of operational science, some regional peer review processes have produced inadequate information for implementing the catch limit management system, because it is not frequent enough and not reliable enough. Many regional peer review processes are slow to respond to new information and are generally unsuccessful for solving stock assessment problems. Some regional peer review processes focus on a few stocks each year and add a great deal of time to the fishery management system while adding little scientific value. A more streamlined peer review process that uses external scientific expertise to solve problems would be more suited to the catch limit system than some of the regional peer review processes.

Example 4—The stock assessments produced by the Northeast Regional Stock Assessment Workshop in the last year illustrate the need for a more effective and efficient peer review system. The 51st Stock Assessment Workshop attempted to develop analytical assessments for silver hake, red hake and offshore hake (Northeast Fisheries Science Center 2010). Despite decades of fishery monitoring and survey data as well as months of work from dozens of scientists and support staff, the Workshop was not successful in developing stock assessments for any of those stocks that could adequately meet the requirements of the catch limit system. The 52nd Stock Assessment Workshop was similarly unsuccessful in developing an analytical assessment for Gulf of Maine winter flounder, a critical stock in the New England groundfish fishery. In each of these cases, the Council is faced with the difficult task of specifying a catch limit based on inadequate scientific information.

One provision of the Act offers a resource for efficient peer review and creative problem solving but is currently under-utilized. Each regional Fishery Management Council has established a Scientific and Statistical Committee to help develop, evaluate, and peer review scientific information for fishery management. Although catch limits are bound by the Committees' recommendations, some regional offices of NOAA and Councils insist on prioritizing the peer review process. The scope of

Scientific and Statistical Committee responsibilities are often limited to applying results from the official peer review process without deviation from accepted methods and approaches. The defense of outdated science and problematic methods has precluded creative problem solving or responsive decision making. Empowering Scientific and Statistical Committees would improve the scientific basis for fishery management while serving the role of checks and balances.

Example 5—Recent management decisions for the New England sea scallop fishery provide an example of the limitations placed on Scientific and Statistical Committees and the resistance to deviate from the official peer review recommendations. In 2009, the New England Scientific and Statistical Committee recommended catch limits for sea scallops that were based on a stochastic estimate of the overfishing definition. The Northeast Regional Office of NMFS concluded that the Committee did not have authority to revise the overfishing definition, and catch limits should be based on the overfishing threshold recommendation from the most recent official peer review. Subsequent peer review of the sea scallop stock assessment by the 50th Stock Assessment Workshop confirmed that the stochastic estimate was the best scientific information available (Northeast Fisheries Science Center 2010). The cost of using outdated recommendations for managing the sea scallop fishery was estimated to be over \$60 million and 500 jobs (Georgianna 2010).

3. Adequacy of Data Collection Programs

Beyond the need for frequent and accurate stock assessments, scientific support for catch limits involves in-season fishery monitoring that is timely enough to inform future catch limits and support fishery-dependent business decisions. Several transitions to electronic monitoring have improved the timely collection and reporting of landings from commercial fisheries. However, other components of total catch such as commercial fishery discards and recreational fishery catch are not well estimated, and estimates are not available in a timely fashion. Uncertainty and slow delivery of catch statistics precludes in-season management or adaptive fishing decisions to optimize catch allocations, incurring considerable costs to fisheries and fishing communities.

Accountability for overfishing is being implemented in a way in which fisheries ‘pay back’ any catch that exceeds the annual catch limit in the form a reduced catch limit in the subsequent year. Such an implementation requires accurate in-season monitoring to allow fisheries to manage their own catch and avoid accountability measures. Therefore, in situations of slow or inaccurate monitoring, fisheries are indirectly accountable for scientific uncertainty.

Example 6—Inadequate catch monitoring is demonstrated by estimates of discards in New England. The Northeast Region has adopted a Standardized Bycatch Reporting Method for commercial discards that is based on data from at-sea observers (Wigley et al. 2007). The stratification for observer sampling is stock area and fleet, which is too coarse to efficiently estimate discards, often inferring ‘phantom discards’ (i.e., estimates of discarded catch that are artifacts of the methodology rather than a reflection of actual catch). Many groundfish sectors are charged with discards against their allocation based on the Standardized Bycatch Reporting Method, but the stock-wide estimators assume that each vessel in the sector has the same discard patterns. Some vessels have rare discards that have been documented by NOAA observers and the NOAA study fleet, but these vessels are charged the fleet-wide stock-wide discard rate, and the sector is accountable for exceeding their catch allocation, even if the overage is an artifact of an inaccurate discard estimate. Furthermore, the Standardized Bycatch Reporting Method removes any incentive for individual fishermen to reduce bycatch.

The Standardized Bycatch Reporting Method for yellowtail flounder bycatch in the scallop fishery is both slow and biased. Estimates of yellowtail bycatch are not available on a timely basis, and the annual estimate of bycatch is not provided until months after the fishing year ends. The estimate of yellowtail discards in the scallop fishery is biased, because observers are more likely to sample southern New England, where there are more yellowtail, than the Mid Atlantic Bight, where there are few yellowtail. When the observer data are used for a stock-wide, fleet-wide estimate of discards, the estimate of discards is more influenced by the southern New England bycatch rate. When the same observer data are appropriately stratified by region, the estimate of yellowtail discards decreases. The Standardized Bycatch Reporting Method indicates that the scallop fishery

substantially exceeded their allocation of yellowtail in 2010, which they will be accountable for in the future, but alternative stratifications that recognize regional patterns indicate that there was no overage or only a slight overage. This example demonstrates how fisheries are accountable for scientific uncertainty.

Example 7—Recreational fishery statistics also demonstrate slow delivery of uncertain catch estimates and how the catch limit with accountability system implemented by the National Standard Guidelines poses unrealistic demands on scientific monitoring programs. For example, the recreational fishery has contributed approximately 20% to 30% of the total catch of cod in the Gulf of Maine over the last decade, and that portion is reported to have increased substantially since the last stock assessments. However, estimates of recreational catch are not available for the analysis supporting 2012–2014 catch limits for groundfish. Uncertainty in recreational fishery statistics negatively affects catch limit monitoring as well as stock assessments. Some components of catch are not being adequately monitored to determine future catch limits, and fishery-dependent businesses that are accountable for exceeding catch limits cannot plan according to timely catch statistics. Alternative management procedures (e.g., size limits, bag limits, gear restrictions, time/area closures) would be more suited to the properties of recreational fisheries and more robust to the problems associated with monitoring catch from recreational fisheries.

The fishery's accountability for scientific uncertainty is particularly a problem for bycatch species and rebuilding stocks. The catch limit system is most efficient when specific stocks can be targeted or the stock-specific limits reflect the mix of stocks available on the fishing grounds. When catch limits do not match the multispecies availability, catch limits for one stock constrain the ability of the fleet to catch the full allocation of healthy species. Several aspects of scientific uncertainty exacerbate the mixed-stock problem. When stock assessments underestimate stock size, catch limits are lower than they should be, and fishermen have difficulty avoiding the species that have artificially low catch limits. Furthermore, when some stocks are rebuilding, their catch limits remain relatively low while the stock rebuilds, increasing the challenge to avoid rebuilding stocks while targeting other stocks. These problems are intensified when accountability measures further reduce the catch limits on rebuilding bycatch stocks, thereby increasing the mismatch between the catch limit and the species mix on the fishing grounds. Therefore, scientific uncertainty and catch limits with accountability prohibit mixed-stock fisheries from harvesting their allocated catch limits and form a wasteful management strategy with huge economic losses.

Example 8—The mixed-stock problem, intensified by scientific uncertainties, severely limits the New England groundfish fishery from landing its total multispecies allocation. For example, southern New England winter flounder are behind schedule in the agreed rebuilding plan largely because of scientific uncertainties in the stock assessment, and only an incidental bycatch is allowed. According to the National Standard Guidelines, this restrictive approach to catch limits needs to be maintained until the stock is completely rebuilt. If rebuilding is successful, the challenge of avoiding winter flounder will be exacerbated. Furthermore, if catch limits are exceeded, the fishery will be held accountable in the form of further reductions in catch limits of a rebuilding stock. This example shows that scientific deficiencies for meeting the the catch limit and accountability system implemented by National Standard Guidelines impose substantial costs to the fishery. As a result of the mixed-stock problem, the groundfish fishery only caught 35% of the allocated catch in 2010, and employment decreased by nearly 13,000 crew days from 2009 to 2010 (Kitts et al. 2011).

National Standard Guidelines suggest that catch limits should be based on each regional Fishery Management Council's desired risk tolerance for overfishing. However, such risk management decisions require evaluation of economic costs and benefits that are not routinely provided by the scientific process. Although some economic data are collected from fisheries, the information is not comprehensive enough to evaluate costs and benefits of alternative catch limits, and economic analyses are limited to impact statements that are completed after management actions are decided. A broader approach to informing risk tolerance would be management strategy evaluation, which has only been applied to few U.S. fisheries in a cursory way. Ignoring economic aspects of alternative catch limits poses unknown costs to fisheries.

Example 9—The first iteration of the national catch limit system was implemented in 2010 and 2011, and catch limits have been largely driven by

scientist's estimates of limits and recommended probability of overfishing, or expert judgment for the many stocks that have data-poor or problematic assessments. Implicit risk tolerance ranges from 10% to near-50% probability of overfishing, but most catch limits are not based on explicit risk decisions. More extensive risk management would include cost-benefit analyses, in which multiple utilities (revenue, profit, employment, etc.) and consequences of events (e.g., cost of overfishing, cost of triggering a rebuilding plan, cost of foregone yield) would be considered in the evaluation of risk tolerance. National Standard Guidelines need to be expanded to include these important scientific analyses as a routine aspect of deriving annual catch limits to help maximize benefits, minimize costs and achieve optimum yield.

In the context of inadequate scientific information provided by NOAA, there are several potential solutions to help improve the scientific capacity for supporting annual catch limits. Solutions can address both aspects of the problem: the adequacy of scientific information and the implementation of the catch limit mandate.

- 1) Scientific resources can be reprioritized to support more frequent and accurate stock assessments as well as more timely and accurate fishery monitoring data.
- 2) Peer review processes can be streamlined, using external expertise to solve scientific problems.
- 3) NOAA's scientific capacity can be expanded and improved by partnering with universities and research institutes that have the human resources and infrastructure to help bear the burden of the new requirements of catch limits.
- 4) Each regional Scientific and Statistical Committee can be empowered to help serve the necessary peer review role and more importantly help solve some of the major scientific problems in stock assessments.

The demands on fishery science can also be reduced in several ways.

- 1) Exemptions from annual catch limits should be considered for stocks and fisheries for which catch cannot be reliably monitored.
- 2) The mixed-stock exemption from catch limits and accountability measures should be considered for bycatch and rebuilding stocks to avoid the wasteful and costly consequences of mixed-stock fisheries.
- 3) More strategically, alternative management procedures, such as data-driven catch limits that are regularly reconsidered through management strategy evaluation, should be considered that take advantage of the best of fisheries science rather than emphasizing the worst of it (e.g., Butterworth and Punt 1999).

In summary, I conclude that the scientific information provided by NOAA is inadequate to meet the needs of the catch limit system as currently implemented, and the inadequacy of science is costing jobs. Most stock assessments are too infrequent and too inaccurate to derive annual catch limits that avoid overfishing while allowing optimum yield. Major components of total catch, such as commercial fishery discards and recreational fishery catch, are imprecisely estimated and not monitored in a timely way to support in-season management and business decisions. Economic data and analyses are insufficient to evaluate risk-based catch limits. In many cases, fisheries are accountable for scientific inadequacy, with major costs to fishing communities. The scientific information required to support the fishery management system specified in the National Standard Guidelines is much greater than NOAA's current scientific capacity.

In reply to the Subcommittee's specific questions, I conclude that:

- 1) The data generated by NOAA is inadequate for fishery managers to comply with the new requirements of the Act and associated National Standard Guidelines, substantially and negatively affecting coastal economies and fishery-dependent jobs;
- 2) NOAA's reliance on using "best scientific information available" is an inappropriate justification for defending outdated information and avoiding creative problem solving; and
- 3) Data-collection programs are inadequate for providing in-season catch information, negatively affecting fishery-dependent business decisions and making the fishery accountable for scientific uncertainty.

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Mr. FLEMING. Well, I think you, Mr. Cadrin, and thank you, panel, for your questions. At this point, we will begin Member questions for our witnesses. To allow all Members to participate and to ensure we can hear from all of our witnesses today, Members are limited to five minutes for their questions. However, if Members have additional questions, we can have more than one round of questioning. I now recognize myself for five minutes.

Let’s see. Mr. Schwaab, on several questions you have said that if stocks were rebuilt, it would increase the value of fisheries by more than \$2 billion annually. However, when your agency requires significant, in some cases as many as three separate calculations levels, that is, of precaution, calculations levels of precaution, it significantly reduces the economic activity. So you can see kind of the conundrum that we get in there, is, yeah, when the fish levels get high, that opens up the economic benefits. But at the same

time, if we are constantly underestimating the fish levels out there, then obviously we are sort of hurting ourselves economically.

So is your calculation really relevant?

Mr. SCHWAAB. Thank you, Mr. Chairman. I would make a couple of comments. First, the uncertainty that is factored into the management decisions, the catch limits and the management decisions that are made in the short term are designed to reflect the uncertainty that is inherent either in the scientific process, the ability to measure the number of fish out there, or the uncertainty that is inherent in our ability to execute the management approaches that are put in place.

I don't think that there is necessarily a disconnect between factoring in that uncertainty in the short term in a way that ensures that we reach the longer-term goals. So in fact, by factoring in uncertainty at the appropriate level in the short term, we increase the chance of achieving the longer-term goal that I spoke to that yields the kind of benefits I described.

Mr. FLEMING. OK. If all of the economic restrictions to fisheries caused by ESA restrictions were added up, how much do you think it would total per year?

Mr. SCHWAAB. I have no idea, Mr. Chairman.

Mr. FLEMING. OK. All right. Let me go on to another question, another angle here. Congress appropriated more than \$50 million each for four new fishery research vessels, and now the Fiscal Year 2012 projections are only to be used for only 140 days at sea, previously 411 in Fiscal Year 2008. That means each vessel will be tied up for 225 days each year.

Is it true that you maintain two separate crews for each vessel?

Mr. SCHWAAB. Mr. Chairman, I am not familiar with the operations of the individual vessel crews, so I can't speak to the type of crew patterns that exist there. I can affirm generally the days at sea numbers that you described under current budget circumstances.

Mr. FLEMING. Can you get those numbers back to us offline?

Mr. SCHWAAB. Yes, sir. I would be happy to.

Mr. FLEMING. We would appreciate that. OK. Now, what do both crews do when the ship sits idle—or assuming there are two crews out there. What does both or at least one do when the ship is idle?

Mr. SCHWAAB. I will be happy to provide that information with you as well in that followup.

Mr. FLEMING. OK. So you don't have any idea at this point what they do when the ship is tied up.

Mr. SCHWAAB. No, sir. The actual operation of the ships is conducted by a separate line within NOAA. And while there are certainly people that would have that level of understanding, I am not one of them.

Mr. FLEMING. OK. How many fishery surveys are currently being done using non-NOAA vessels?

Mr. SCHWAAB. Well, I can't give you an exact number. I can tell you that there are quite a few fishery surveys that are being done through contract vessels. There are fishery surveys that are being done that feed into the assessment process through indirectly a number of academic institutions as well, and there are certainly

fishery surveys that are underway across State-level jurisdictions as well.

Mr. FLEMING. Have you looked at the cost effectiveness of using the contractors or outside vessels and crews versus ones that you have in-house?

Mr. SCHWAAB. Yes, sir. In a number of cases we do because of the cost effectiveness use either some of those other mechanisms that I spoke to, contract vessels. We certainly depend upon where data is produced by research institutions or State-level investigations, and those data are available. They are incorporated into the assessment process as appropriate.

Mr. FLEMING. OK. All right. Thank you. My time is up. I yield then to the Ranking Member, Mr. Sablan.

Mr. SABLAN. Thank you. Thank you, Mr. Chairman. Mr. Schwaab, recently there has been concern over how to manage the so-called data-poor species. Is it possible to manage fisheries in a sustainable manner without a full-scale stock assessment? Can you provide us with some example of how your agency is setting annual catch limits and accountability measures for data-poor species? And could you elaborate on what happens with some of the stocks when the accountability measures are triggered?

Mr. SCHWAAB. I am sorry. I missed the last part.

Mr. SABLAN. Could you elaborate on what happens with some of these stocks when the accountability measures are triggered?

Mr. SCHWAAB. Yes. So the data-poor situation first. There are, as you would note from at least our written testimony, a number of data-poor situations that exist out there. The agency and the Councils are challenged by those circumstances. We have been for a number of years now working very closely with the Councils' Scientific and Statistical Committees on an annual basis on a number of key issues. One of those issues of focus has been the issue of what to do with data-poor stocks.

There are a number of techniques that have been employed, and they vary dramatically from stock to stock based upon the amount of information that is available and what types of circumstances might exist around that fishery. But, for example, we have worked very closely with the Councils in the setting of catch limits, for example, that are based on some representation of recent history, historical landings, where fishery-dependent data that would support that exists. There are other techniques also that we might employ.

As to accountability measures, generally when catch limits are set, and those catch limits are reached, again from fishery to fishery, there are a number of techniques that might be employed. Some of those are just very simply a closure of a fishery. In others, there might be some anticipated further restrictions in, for example, recreational fisheries, seasons, or krill limits or bag limits. There are any number of accountability measures that might be employed as catch limits are approached or reached.

Mr. SABLAN. All right. And we may get back to that, but I have another question, Mr. Schwaab. We are on the verge of a major accomplishment here, I think, setting catch limits and accountability measures for all Federally managed stocks. Will these management measures prevent overfishing and avoid the overfishing problem

that has plagued our domestic fisheries for decades, costing major losses in jobs and revenues?

Mr. SCHWAAB. Mr. Sablan, I think you are exactly right. By reaching the full potential of the 2006 reauthorization, at the end of this year—at the end of last year, for stocks that were undergoing overfishing and at the end of 2011 for all other Federally managed species the Councils will have put in place catch limits and accountability measures that will ensure sustainable fishing, and in the cases where rebuilding is required, an appropriate rebuilding trajectory.

This will, by every estimation, lead to much higher levels of productivity on a more sustainable basis across domestic fisheries over time.

Mr. SABLAN. All right. Thank you, Mr. Schwaab. Ms. Morris, in your written testimony you mentioned a few new management tools to improve accountability on the recreational sector. Can you expand on a few of those?

Ms. MORRIS. Well, we should definitely be taking advantage of everybody's electronics for individual recreational fisherman to be able to timely report their catches. And, you know, there is an issue with verification of that, but I think that is one area where we can make tremendous progress.

I think with the charter boat and head boat section of the recreational fishery, they are sort of coming together and organizing and wanting to come up with their own mechanisms using e-log books and weighing their catch, counting their catch, reporting their catch very accurately. I think with the MRIP surveys, we will start to get a much better sense about accountability in that fishery.

And then if you look at models from hunting, there are tags, lotteries, lots of different fertile ideas that we can adapt from hunting, potentially for recreational fishing.

Mr. SABLAN. Thank you very much. Thank you, Mr. Chairman.

Mr. FLEMING. The gentleman yields back his time. Next up we have Mr. Duncan from South Carolina.

Mr. DUNCAN. Thank you, Mr. Chairman. Up until being elected to the U.S. Congress, I served as the chairman of the Agriculture and Natural Resources and Environmental Affairs Committee in the South Carolina House of Representatives, and had a lot of opportunity to speak with fishermen. And let me just say I am an avid fisherman myself. I enjoy going offshore, enjoy inshore. Living two and a half hours from the coast, it is a little difficult, more difficult for me than maybe the gentleman sitting to my right, to get on a boat and go out and catch red snapper or grouper or even an occasional sailfish off the coast.

But I do have a lot of friends that do it on a regular basis, and I talk with a lot of the captains and others. So in the spring of last year, 2010, I chimed in as the chairman of that committee against the closure of the South Atlantic for red snapper, and that is the issue that I have on my mind today because talking with the captains and looking at the SEDAR 15 and SEDAR 24 data, and trying to extrapolate from that where the commonsense was used in the data entry in coming up with some of the original baseline numbers—and I have to say that it appears to me that you have

no idea how many fish are out there, because you are relying on a computer model that has a flawed baseline.

And so I would suggest that before we close the fishery in the South Atlantic, that we would do more to get out to the docks and to build the relationships with the fishing boat captains, get on their boats as observers. I am not talking about just the head boats that are going out 30 miles. I am talking about the guys that are going out farther than that and fishing the reefs all down along the coast, not just off the coast of South Carolina, and collect the real data, and then use the 300 days at sea in the Atlantic area—I lost that chart, but to do the long lines, not just in the, you know, 50, 75, 100 foot depths, but get out to 200, get out to 250, get out to 300 feet deep along the coast where the snapper are and really determine what is there as backup to what you are hearing from the head boat captains and the party boat captains and the guys that are out there doing it whose livelihoods are dependent upon days at sea taking sports out there to fish.

And I can tell you, I am going to let Mr. Southerland talk about some data that was given to us that shows that the conclusions of only 500-and-something-thousand fish supposedly remaining in the South Atlantic, and if you take the actual catch data from the captains, there is no way, no way, that it adds up.

And so I will use—Mr. Harris, you said April 2010 as chair of the South Atlantic Council you wrote to Secretary Locke and said that fisheries management in the South Atlantic suffers from a chronic yet well documented lack of basic data, which hampers scientists' ability to evaluate exploited population and a manager's ability to develop and ensure accountability with management measures, and this lack of data adds uncertainty at all levels of scientific and management process.

So my question to you in just a second is do you still feel this is true because I am comparing this to, Mr. Chairman, the data that was used by the International Panel on Climate Change to come to a conclusion within the United Nations, fabricating data or using some sort of preconceived idea of what the baseline should be, and then extrapolating an end result.

An example of the fishery data that is used in my district, or excuse me, in my State, the Catawba River, they are closing or holding up a permit for a dam that generates power on the Catawba River because there might be a shortnose sturgeon that hadn't been seen in that river system in over 70 years, because nobody has gone out there to look for it. But yet it might be there, so we are not going to allow the power process to go forward.

And so, Mr. Harris, do you still stand by that statement?

Mr. HARRIS. Yes, Congressman, I do. And I agree with your statement that we should go out and collect more data using the fishing public to add to the data that we already have. We have a good stock assessment process in the South Atlantic, however. And I will stand by that stock assessment process. It is not great, but it is the best we have had in a long, long time. We have a data workshop, an assessment workshop, and then we have a panel of independent experts that come in and review the results of those workshops and determine whether those data should be used—

whether the stock assessment should be used for management or not.

And you heard me say in the case of Spanish mackerel, they rejected it. And so we don't have a current stock assessment for Spanish mackerel because the independent experts rejected the stock assessment. We have to have more stock assessments. We have to have more data. We have to use the fishermen to help us collect those data. We have to do it throughout the entire range of the fishery in all depths. And once we can do that, then I think we can feel a lot better about the stock assessments that we have today. But we do have a good process in the South Atlantic.

Mr. DUNCAN. Thank you, Mr. Chairman. I yield back.

Mr. FLEMING. The gentleman yields back. Next up is Mr. Runyan. You have five minutes, sir.

Mr. RUNYAN. Thank you, Mr. Chairman. Mr. Schwaab, for the best decade, the Atlantic monkfish industry has been extremely important in New Jersey and several other States on the East Coast, and is valued at over \$380 million between 1995 and 2004, according to your agency's figures. But despite the value of the fishery, the species is still considered data-poor. It has been a struggle to get your agency to spend a million and a half dollars every three years to conduct a monkfish-specific survey, yet you have spent \$15 million in the past seven years on Atlantic sturgeon research, for which you have never generated a stock assessment. We are not considering the Hudson River one a true stock assessment, for which there is no sturgeon.

We now face a situation where precautionary measures to protect sturgeon under the Endangered Species Act may harm the monkfish fishery and kill jobs and revenues in our coastal communities. Can you please justify the priorities and how to make sense for the scientific management and socioeconomic perspectives?

Mr. SCHWAAB. Thank you, Mr. Runyan. While I can't verify as I sit here the numbers that you just described, I don't have any reason to doubt them either. We have responsibilities under fisheries management. We have responsibilities under Endangered Species Act implementation. We have very specific requirements under the Endangered Species Act to investigate species status, particularly in response to listing requests.

In the case of sturgeon that you described, that is exactly the process that we are in right now, conducting a listing investigation in response to a status request, a listing request.

Mr. RUNYAN. But what about the differential? You obviously have the monkfish that are a huge driver of the economy there, and you are putting a lot of money into something that isn't.

Mr. SCHWAAB. Again, the ways in which funds are allocated, we obviously allocate science fisheries management and research money across a wide variety of fisheries, of stocks. In the same way, we allocate Endangered Species funding across a wide variety of stocks that have either been proposed for or are already deemed to be appropriately listed.

You know, as to the apparent discrepancy that arises there, I can't really speak to them necessarily as an either/or situation there. They are responsibilities that we share and have to divide in the context of our statutory requirements.

Mr. RUNYAN. But it almost seems like it is defying common sense to where there is a fishery there that has a huge revenue—your office has admitted that—and the data is not there to allow something like that to continue to allow the industry to thrive. That is part of the reason why we are here frustrated.

I mean, and it also carries over into other things. You have instances where you have snapper and sea bass, where they are not necessarily being overfished, but they are being taken out too quickly. There is no flexibility within this. You are just going to shut it down and walk away from it, not all instances, but certain instances. And this is where—and I think Mr. Frank kind of commented on it in the first panel. I don't think we are taking a commonsense approach to this. We are just saying yes or no, and again we are doing it all with bad data.

It is frustrating, and it is frustrating to me, let alone the fishermen I interact with all the time, that they just don't get it. I don't even think you can respond to it because it is frankly frustrating. And obviously, the data is not there to back any of this up either way. And I think that is the frustrating part because as I said in the first question, we have a lot of money committed to this with no results coming out of it.

Mr. SCHWAAB. I would just comment, sir, that we are certainly not doing it all with bad data. There are significant good data in these decisions. Are there stocks where we would like to have more data? Absolutely. Are there places where having more data would allow us to reduce some of the uncertainty buffers? Absolutely. But there are also many circumstances where good data has contributed to ending overfishing to rebuilding fisheries, and to creating more sustainable opportunity for both commercial and recreational fisherman.

Mr. RUNYAN. Thank you. My time has expired. I yield back.

Mr. FLEMING. The gentleman from New Jersey yields back. Next, the gentleman from Virginia, Mr. Wittman.

Mr. WITTMAN. Thank you, Mr. Chairman. I would like to thank the panel members for joining us. I am going to begin with Mr. Schwaab, and this is a simple yes or no answer. Is NMFS going to have completed stock assessments for all 528 of the stocks under Federal jurisdiction by the end of this year, and within six months, as required under the 2007 Magnuson amendments, before you put in place annual catch limits?

Mr. SCHWAAB. No, sir.

Mr. WITTMAN. OK. All right. How then are you going to deal with the 400 species that you don't have stock assessments for, but you have to put in place an annual catch limit?

Mr. SCHWAAB. Through a variety of proxies that depend in some cases on catch histories, in other cases on other sources of data.

Mr. WITTMAN. Let me ask this then. I want to talk about a specific stock. And it is my understanding that the South Atlantic Fisheries Management Council is going to drop 39 of the 73 species from their snapper/grouper fishery management unit, effectively removing them from Federal jurisdiction. Is removing fish species from any and all Federal management one of these alternative approaches? And is NOAA going to be forced to take these approaches because of the impending ACL deadline?

Mr. SCHWAAB. So there is already, Mr. Wittman, a process for an ecosystem component species, which is one that is not generally retained in the fishing process, and those ecosystem component species can be retained within the auspices of a fishery management plan. As to taking species that might be generally retained, thereby not falling within that definition, and moving them outside of the management plan for the purposes of meeting the requirement, it is not something that we would favor.

Mr. WITTMAN. OK. Are the Councils, though, being forced to remove these species outside of management plans because of these ACL time constraints?

Mr. SCHWAAB. Not to my knowledge, sir. Some of the Council representatives might have a view to offer.

Mr. WITTMAN. Mr. Harris?

Mr. HARRIS. What we are doing is looking at all of the species in the snapper/grouper complex and determining how much of that catch occurs in State waters as opposed to Federal waters. And we have a variety of options that are on the table right now, and we will come to a conclusion at our August meeting with respect to those. But if you have a species, for example, that only 10,000 pounds are caught in Federal waters, does it make sense to go through this involved process of setting annual catch limits for that species?

And that is what the Council is debating right now. And we haven't come to a conclusion yet, but we have several options, 20,000 pounds, 50,000 pounds, 5,000 pounds. If so much of the catch comes from State waters, perhaps it is more appropriate for the State to manage those species rather than the Council.

Mr. WITTMAN. OK. Thank you. Mr. Schwaab, I want to read back to you one of your comments. You said one of the greatest challenges is in the data-poor fisheries, where assessments are not yet possible. Here the National Marine Fisheries Service is working on alternative approaches that provide preliminary determination of catch levels that will prevent overfishing.

Can you let us know, what are some of these alternative approaches that you are working on to address these data-poor stocks, and can you tell us a little bit about how you are able to impose scientifically legitimate catch limits without adequate assessments?

Mr. SCHWAAB. Yes, sir, Mr. Wittman. One example would be in a case where you have a stock that has sustainably produced or consistently produced at a particular level over a period of time, and you have some fishery-dependent reported data that can in fact confirm that level of productivity over a period of time. You can make some assumptions then about the ability of that stock to continue to sustain that level of production and set catch limits accordingly going forward.

Mr. WITTMAN. You talked about the need for resources to evaluate these stocks, and that that was a limiting factor. Are there alternative approaches that NMFS is considering that would be more cost effective, especially since we are talking about such a large number, in what you are talking about within a finite realm of resources?

Mr. SCHWAAB. Yes, sir. We spoke to some already in, for example, different platforms, use of contract vessels, relationships with academic institutions and the like. There are also new technologies that we are exploring, both to increase or to reduce cost, but in some cases to increase accuracy around certain species like reef fish that might be less appropriately surveyed through some of the traditional fishery-independent survey methods that have been in use.

So there are any number of things from alternative platforms to new technologies to new modeling approaches that might be appropriate to reduce costs and continue to provide the data we need.

Mr. WITTMAN. OK. Thank you, Mr. Chairman. I yield back.

Mr. FLEMING. The gentleman yields back. And I know the gentleman from Florida has an itchy trigger finger, Mr. Southerland. So we will give him five minutes as well.

Mr. SOUTHERLAND. Thank you, Mr. Chairman, and I thank all of the individuals here today. Thank you for your time and testifying today.

Ms. MORRIS, I want to ask you a question. I am from Panama City, Florida, live on the Gulf. I want to ask you, you are obviously familiar with the Gulf. Do you feel the level of actual survey data provided to the Gulf Council is adequate for management purposes?

Ms. MORRIS. For the well-studied species and the most highly valued species, I think the science is getting better all the time. I think it is sufficient, and so my answer would be yes. For the lesser known species, the species that aren't as highly valued, aren't as highly targeted, it would be great to have a lot more data. And we really do need more fishery-independent data. We need more observer data. It would be lovely to have the kind of observer data that they have in the North Pacific for our fisheries in the Gulf of Mexico. It would be very good to have more resources for data.

Mr. SOUTHERLAND. Do you agree that if the level of data provided to the Council increased, the likelihood of higher harvest levels would also increase? Or do you think they would decrease?

Ms. MORRIS. Well, you know, I think the logic of the MSA was that with better science we could fish closer to the highest sustainable levels. And I think that is true. I have heard some of the recreational fishermen and charter boat fishermen say that if we had real data on how much is being caught in the recreational fishery, it would be more than we are estimating is caught now. And that would present its own issues and problems.

So sometimes more data will lead to new challenges, new management challenges, new policy decisions.

Mr. SOUTHERLAND. Let me ask you, you stated here today that you had too many fishermen and too few fish. You actually said that today, so that kind of stuck. So should we continue to decrease the season for red snapper as well as the catch limits, based on your stated comment that we have too many fishermen and too few fish?

Ms. MORRIS. Just to clarify what I said is that when we have a fishery with lots of capable fishermen and too few fish for them all to catch their bag limits, we have a very difficult recreational fishery management situation.

Mr. SOUTHERLAND. OK.

Ms. MORRIS. And so if we have—I am sorry. Go ahead.

Mr. SOUTHERLAND. But are we in that situation now with red snapper?

Ms. MORRIS. Fortunately, the red snapper catches are increasing every year. As the stock begins to rebuild, it is very cruel and counterintuitive that we have to continue to have a short season because the average weight of each fish that is caught by the recreational fishermen is greater. And so when you count the pounds, we are allowing greater pounds of catch. But that is creating a shorter season, and that is one of the reasons that I think we really do need to think outside the box to get additional tools for managing recreational fisheries.

Mr. SOUTHERLAND. One of the things that—you know, we have obviously fishermen in Florida that are absolutely dying. They are losing everything they had. You alluded to the storms. You alluded to Deepwater Horizon. You alluded to a lot of things. And yet we are seeing evidence, great evidence, in these pictures that we are showing around—those are my three siblings, Tim, Suzanne, and Shane. Those are our children, the next generation. You know, we have been out four times this year, catch fish similar to that in about an hour and a half, back to the hill in time to mow the grass, wash the cars, actually put snapper on the grill.

And so instead of listening to people that seem to want to shrink the seasons, and they want to blow smoke—and you haven't done that necessarily in your testifying today. But please believe me, there are plenty who blow smoke and want to convince us that there are no fish in the Gulf of Mexico and want to continue to put pressure, in spite of pictures like this—and this is a weekly occurrence in our family. It is also family time, if you haven't noticed that. And so it is so aggravating to hear people come and testify before Congress blowing smoke that are not based—they don't have good data. They don't have good science. And yet we find that NOAA can have these partnerships with private individuals to get better data, and yet oftentimes we see shrinking budgets in those areas by choice.

And so, you know, I put this up there because I want people to know that we are catching big fish, OK? Now, if we are catching big fish, and the fisheries are healthy, regarding snapper in the Gulf and other species, then it is only right and just that the rules by which we oversee these fisheries would be loosened a little bit because we are in Florida at historic unemployment numbers. The economy is woeful. And yet I feel that the boot of government is continuing to press down on those that make their living fishing.

And so to have fish like these, OK—and in your words, you said you had too few fish, OK? I think these pictures beg to differ with that statement. And again, I didn't know any other way to do this, Mr. Chairman, than to actually bring some real data, OK? And so the only thing that I hate is that I am not in those pictures. But I didn't want to show you the ones that I was in.

But so, I mean, it is hard. And what I am trying to do is make an argument for every day citizen, OK, that is working hard all week to try to go offshore and fish, and the data that we see is that the fishery in red snapper is healthy. The numbers are large. The

fish are healthy, and it just is aggravating. So I guess I didn't really ask you a whole lot of questions. You answered the questions I did ask you, and I am over my time. So, Mr. Chairman, I yield back. I would love these pictures to be entered into the record.

Mr. FLEMING. Yes.

Mr. SOUTHERLAND. This would thrill my family.

Mr. FLEMING. Without objection.

[NOTE: The pictures have been retained in the Committee's official files.]

Mr. SOUTHERLAND. And if you would like us to, I would say, you know, I would love to bring some up because we can fry those up with some cheese grits, some hush puppies, and we will all enjoy.

Mr. FLEMING. Well, based on the size of the fish, from my observation, I would like to see the one that got away. That must have been really large.

Mr. SOUTHERLAND. They are big. They are large. Thank you.

Mr. FLEMING. All right. The gentleman yields. Next up is Mr. Landry.

Mr. LANDRY. Well, thank you, Mr. Chairman. I just walked in here, and I will be brief. I too share my distinguished colleague from Florida's regret in that I am not in that picture as well. I will tell you that I also echo his concern in that I can remember when I was young going out and doing snapper fishing, and it was everything we could try to get the bait below the trigger fish before—so we could get down to some snapper. And that is not the case anymore. The case is I think the snapper have eaten all the trigger fish because I can tell you that the guys that I am talking to who are fishing out there in the Gulf of Mexico this year, as a matter of fact—and I note that this is a year after Macondo are catching record-sized fish. And they too are concerned that we are not being generous enough. After we have been restrictive, I think the question is how do we find a balance. It seems like we swing from one end all the way to the other. And I am concerned about the guys out there who make a living catching this fish. And I just want you all to use sound scientific data.

And I can tell you that probably the best scientific data you can find is on the other end of a rod. So I would just like to echo his concerns as well and let you know that not only in Florida are they doing that, but in Louisiana they are having abundant catches. And I think that it is for two reasons. One, I think we have an abundance of snapper, and two, we have great structure. That structure comes in the form of oil and gas structure off the coast of Louisiana.

So with that, Mr. Chairman, I will yield back.

Mr. FLEMING. OK. The gentleman from Louisiana yields back. We have completed the first round of questions, and the panel has indicated interest to ask a second round. And if you are open to it, we will be happy to launch into it. With that, I will yield to myself.

Let's see. Mr. Cadrin, you indicated that you argue that the current level of scientific information is not available to meet the National Standard 1 guidelines. Do you believe it is statutory language or the agency's interpretation of that statute that is causing the problem?

Dr. CADRIN. Well, as I noted in both my written and oral testimonies, the problem is twofold. There are some inadequacies of science for any fishery management system. But those inadequacies are exacerbated by the National Standard guidelines and the way that the annual catch limit and accountability measures system is being implemented.

In some ways, we are taking the worst of fishery science and focusing on that. Most of our catch limits are based on short- to medium-term projections, and looking forward is always more difficult than looking back. In some ways, there would be alternatives that could take advantage of the strengths of fishery science. By shoehorning all of our stocks in fisheries into a catch limit and accountability system, it has disadvantages, and in some cases are wasteful.

So the problem is twofold, with scientific inadequacies exacerbated by the way the Act is being implemented.

Mr. FLEMING. OK. And I apologize, Dr. Cadrin. Excuse me for calling you Mister. But I am not sure if I am clear on your answer because the specific question is do you believe that it is the statutory language or the agency's interpretation. It is kind of a yes or no or A versus B question.

Dr. CADRIN. I would have to say it is the interpretation because if exceptions to the annual catch limit mandate were allowed, it would relieve many of these frustrations.

Mr. FLEMING. OK. Thank you. Another question for you. How do time requirements of NEPA hinder the SSCs from getting timely data or restrict timely management decisions?

Dr. CADRIN. NEPA is one constraint to the timeliness of the system and the decision making. However, there are ways of working within that system to have default catch limits that can be modified by current scientific information so that the NEPA process goes forward with a default catch limit that gets modified with subsequent information.

So I agree that is a major constraint, but one that can be dealt with in adaptive ways.

Mr. FLEMING. OK. All right. That completes my questioning, so I will yield back to the gentleman, Mr. Sablan.

Mr. SABLAN. Thank you very much, Mr. Chairman. Mr. Schwaab, how do investments in stock assessments translate into greater fishing opportunities, more economic benefits and reduced risk of overfishing?

Mr. SCHWAAB. Thank you, Mr. Sablan. The most direct way is in reducing these precautionary buffers. So we have requirements to end overfishing, to rebuild stocks in the cases where rebuilding is required, and we have some responsibility to achieve those goals with reasonable certainty given the science available. So that leads to where there is less precise or accurate science greater uncertainty, therefore buffers that are essentially left uncaught. Increased science allows those buffers to shrink in size, thereby allowing the greater harvest potential closer to the maximum yield to be accomplished in that individual's fishery.

There are also obviously issues relating to the ability to account for bycatch and other factors that change over time that have to

be accounted for that allow us to manage with more science on a more higher level and more sustainable basis.

Mr. SABLAN. All right. And what is your agency's plan for integrating the technological innovations in fisheries monitoring and data collection?

Mr. SCHWAAB. So we actually have a team that is looking specifically at some technological innovations and new applications. We dedicate a portion of our research funding each year to both direct in-house investigations of alternative techniques, as well as to provide some outside funding to support research institution endeavors in support of new technologies or new applications.

Mr. SABLAN. All right. Thank you. Ms. Morris, I have several questions for you, if I may. Some of the panelists have referred to data as stale. And do you agree with this characterization of data, or do you believe that this data can still inform the management process?

Ms. MORRIS. Well, so stale is sort of a negative way to cast data.

Mr. SABLAN. Yeah. When you talk stale fish, it is not good.

Ms. MORRIS. Yeah, right. So data is data. And historic data is really valuable for figuring out the trends in the fishery and the variability in the fishery. And so, you know, we do have annual catch data and landings for just about all of the species that we manage. And so I don't think it is really a matter of data being old because old data is valuable to establish those trends. I think we just want data that gives us more—different kind of data that gives us more insight into what is actually going on with the fish. And that is what is missing.

So there have been recent examples in the Gulf of Mexico where data that was collected under previous protocols and then new data is collected under newer protocols. NOAA gives us guidance about how to go back and translate the old data in a way that it can be compared with the new data and create a history that makes sense.

Mr. SABLAN. And you were just talking about the Gulf of Mexico Council?

Ms. MORRIS. Yes.

Mr. SABLAN. So we are also hearing how the lack of data is causing a decrease in annual catch fish in fisheries. But you stated—you just said that the Gulf Council allows current catches to continue in situations where data is limited. Can you explain this discrepancy?

Ms. MORRIS. Well, so Eric was talking about some of the strategies that the science committees use when they have species without much data. So one of the ways that the Gulf SEC is planning to handle that is if they have only landings and a record of landing for a species, they are going to sort of take the average catch over time and set the catch limit at that level, which seems like a pretty reasonable thing to do. And then if there is some indication in the future that either landings are really going down dramatically or there is a lot more fish out there than there had been previously, those will be reevaluated and changed at that time.

Mr. SABLAN. I yield back my time, Mr. Chairman.

Mr. FLEMING. OK. The gentleman yields back. We have Mr. Duncan from South Carolina.

Mr. DUNCAN. Thank you, Mr. Chairman. And I thank the panelists for hanging over for a second round of questioning. Mr. Schwaab, first off, what type of surveys are done in the South Atlantic by NOAA, and how often are they done?

Mr. SCHWAAB. So, Congressman, there are actually a number of historic surveys that did look at, for example, fishery-dependent data. Some of the newer innovations include a 2011 trap and video survey that actually just—it is currently underway. There is an annual—a new red snapper and shark bottom longline survey, which began this week in the South Atlantic from Cape Hatteras to Miami. Those are the two most notable that I would reference for you in the South Atlantic as it relates to red snapper.

Mr. DUNCAN. Looking at the fishing survey vessel days at sea, I notice that the East Coast has the Delaware II and the Bigelow, is the only ones I see on the East Coast. Can you tell me where those two boats are harbored?

Mr. SCHWAAB. In the Northeast. We also have the Pisces, which works in the South Atlantic as well, which is in Pascagoula.

Mr. DUNCAN. And it comes around Florida and does the South Atlantic there?

Mr. SCHWAAB. Yes, sir.

Mr. DUNCAN. OK. So you have basically one boat in the southern region, a lot of square miles for that boat to cover. I watch the “deadliest Catch.” I know how those boats go out there and just—

Mr. SCHWAAB. I could provide to you a more complete summary of vessels and their coverage over place and time.

Mr. DUNCAN. Yeah. I would love that, to see.

Mr. SCHWAAB. Thank you.

Mr. DUNCAN. And I want to emphasize again the relationships that are necessary. And I am sure you guys are doing this, but the relationships with the fishing boat captains and the guys that are out there doing it every day—and I just want to end in the little bit of time I have left, as the Chairman of the Ag Committee, I remember talking with a gentleman from New York who was over at the Ag Committee in the New York Legislature. And he was also a farmer.

In New York, the Department of Health and Environmental Control, whatever it is called there, instituted a ban on spraying herbicide, Roundup, within—at the original implementation of that reg, within 500 feet of a road. And he called the person that was over at that agency and said, meet me out at my farm. And so she came out there, and before she got there, he had one of his hands walk out 500 feet from the road and put a little flag, a little survey flag. And she got out of the car, and they walked. He said, we are going to walk out here to the flag. That is 500 feet from the road. And so they started walking, and she started looking over her shoulder at the road, and they kept walking, and she kept looking over her shoulder at the road. And she said, you know, what, I think 500 feet is a little excessive, when it should have been 50 feet or 30 feet, to protect the ditches and to keep that herbicide from getting in the drain.

And so the moral of that story and what I have remembered is a lot of times the folks that are inputting the data in the

SEDAR 15 or SEDAR 24, or whatever the next report is, need to realize that, you know, the real world is a little different than possibly the cubicle or the office here in Washington. And I think it is necessary for these guys to get out there to build those relationships, get out on the boats, go to the dock, wait on those fishing vessels to come in, talk to those anglers, talk to the association guys like Jeff Angers with CCC, and find out really the real-life impact of the regulations that are being created within the Beltway here and the real-life impact on the guys that are dependent upon the fishing, dependent upon the resource, and what the true data really is because it is obvious to anyone that looks at the SEDAR 15 or 24 that the changes there going back to the 1955, I believe it was, really is flawed.

And so before you close fishing in the South Atlantic—and went out last summer and fished, and we caught a beaucoup of fish. I questioned the data then, and I question it today, and I ask that you guys take in the real-life implications of the policies made here. And I yield back.

Mr. FLEMING. Thank you. The gentleman yields back. And next up again is Mr. Runyan.

Mr. RUNYAN. Thank you, Mr. Chairman. Mr. Schwaab, on May 4th a joint hearing of the Natural Resources and the Agriculture Committees submitted a number of important questions relating to NMFS' biological opinions for ESA-listed salmon. Can you pledge to provide answers to those questions in the next two weeks?

Mr. SCHWAAB. Yes, sir. I will be happy to check into the status of those, and if at all possible meet that timeline.

Mr. RUNYAN. I appreciate that. And just kind of going into—I have been kind of talking finances again, and I kind of want to touch on that because it is obviously clear that you don't have sufficient tools or resources to implement the scientific requirements of the Act that we are here discussing. But yet can you kind of explain how NOAA kind of internally diverts millions of dollars, whether it is coastal marine planning, regional ocean partnerships, marine protected areas, and catch share programs, when the basic core science all this is based on is not there.

Mr. SCHWAAB. Thank you, Congressman. I would first suggest that it is not something I would characterize as a diversion. It is something that I would characterize as an allocation to a variety of different responsibilities. As I spoke earlier of the challenges both in protected species work and in—and we have been talking all afternoon about the science, fisheries science challenges that we have. We have substantial management challenges that we share with the Councils.

So initiatives like supporting catch shares that are developed and adopted by the Councils are every bit as much a part of our responsibilities as securing some of the basic science that is needed to make some of these decisions. And in fact, one might argue, I think effectively, that putting, for example, catch share programs in place, where they are adopted and implemented locally, can yield improved management conditions that will actually reduce costs over time to the agency from a management perspective.

Similarly, working very closely with fishermen in the context of coastal and marine spatial planning to ensure that important habi-

tats, important fishing grounds are identified and addressed in the context of other uses that are being put into place on coastal and ocean waters is every bit as important in many regards as some of these science challenges that we are talking about.

So we have a number of different challenges, a number of ways in which we support fishermen and others that require us to allocate all too scarce resources, and we do the best we can.

Mr. RUNYAN. Well, to your knowledge, though, is there any hierarchy, more weight there to any one than the other of where you are going to allocate those funds?

Mr. SCHWAAB. I wouldn't describe it as a hierarchy or a weight per se. I mean, there are all sorts of judgments that are made in how to meet the best extent possible all of these responsibilities, and we do the best we can.

Mr. RUNYAN. Thank you, Chairman. I yield back.

Mr. FLEMING. The gentleman yields back. Next is Mr. Southerland.

Mr. SOUTHERLAND. Thank you, Mr. Chair. I want to thank you for giving me an opportunity to wish that I was with my family today. But I wanted to just ask a simple question. We make a lot of statements, obviously. Many of us are very aggravated where we find ourselves regarding our fisheries. And so you have the challenge of hearing that aggravation. But, you know, we have to find solutions based on what the problem is.

This town is not known for that oftentimes. We just create bigger problems. I mean, just quickly, OK, without me making a statement, regarding the data—OK, we have talked about partnerships. We have talked about what you can do with people that are in the profession. You know, I tell you, if you really want buy-in, then the people that these regulations affect have to be a part, OK? That is just a must. And that is not just good principles to building a family, I believe that that is a good principle to build a society. Let them have a part.

So with the time I have left, I would ask Mr. Schwaab regarding that, just real quickly, what is some low-hanging fruit here that is ready to pick? Here is your moment. I teed it up.

Mr. SCHWAAB. Thank you, Mr. Southerland. There are a number of things that we have talked about already with respect to data collection, and obviously any number of ways that we are already seeking to improve our collection from implementation of new surveys, some of which I have referenced in the South Atlantic, closer working relationships with academic institutions and with fishermen, which we are constantly trying to incorporate more effectively into the work that we do.

I will give you one specific—

Mr. SOUTHERLAND. One really good one. If you were king for a day, and you said, I am going to take this idea and implement it, what would it be?

Mr. SCHWAAB. Well, I was just going to give you one example that we have actually been pursuing very explicitly with recreational fishermen, primarily because of concerns in the Gulf and the South Atlantic, and that is, you know, how can we do a better job of managing discard mortality.

So if you have species that are protected, you don't want to, for example, if you can avoid it, close down a large area to fishing for other species because of incidental bycatch of those protected species. And we actually worked very closely with the Atlantic States Marine Fisheries Commission and leaders from the recreational community and academic institutions around the country to conduct essentially a bycatch workshop and look at techniques that we can identify and employ to allow fishermen to catch fish and then put them back in a way that doesn't yield 40 percent mortality.

Mr. SOUTHERLAND. Got you. Great idea. I think run with that. Run with that, OK? That should be your mantra.

Mr. Harris, I want to compliment you on your comment you made earlier about relying upon the States. What a novel idea. You would think that our Founding Fathers never thought of that. OK? The States know best. Government governs best when it governs closest to the people. For us to sit here in Washington and say that we know better than the 67 counties that make up the State of Florida is a bit arrogant.

So I commend you on that statement that you made earlier. I think that in regarding, you know, the data, we can really rely much more heavy on the States. And so I kind of picked yours out for you, Mr. Harris.

Ms. MORRIS, I mean, you have been in the Gulf, and so, I mean, obviously, you know our neck of the woods there. So you are king for the day. What would it be?

Ms. MORRIS. Data collection, right?

Mr. SOUTHERLAND. Yes.

Ms. MORRIS. Boy, if we could just really find a way for—

Mr. SOUTHERLAND. Without hurting people, by the way.

Ms. MORRIS. Yeah, without hurting people.

Mr. SOUTHERLAND. That is kind of a caveat.

Ms. MORRIS. If we could find a way for recreational fishermen to accurately report their catch by species, and also accurately report their discards, that would be wonderful.

Mr. SOUTHERLAND. That is a great idea, and I would be willing to bet if you made them feel like they were part of the solution, you would get buy-in, because I am also a hunter. And I fill my buck tags, I fill my doe tags, and I stay within the rules. You have the luxury of 18 seconds.

Dr. CADRIN. Thank you. One idea would be to develop a partnership with the fishing stakeholders that was a two-way partnership in which fishermen were provided incentives to providing more accurate data, and in turn getting more real-time fishery monitoring so that they could make fishery business decisions.

Mr. SOUTHERLAND. Excellent. And I would say you have people that enjoy fishing that want to preserve it. And I want to fish with my great grandchildren. You just saw my children. And so those are all great ideas. Thank you very much. Mr. Chair?

Mr. DUNCAN. Can I be king for a day?

Mr. SOUTHERLAND. You can be king for a day next.

Mr. FLEMING. The gentleman yields back. We have Mr. Landry of Louisiana.

Mr. LANDRY. Yes. Thank you, Mr. Chairman. Mr. Schwaab, I almost lost my bearing for a second as to exactly who was in front

of me. I thought maybe you were coming into our third panel. So let me quickly try to catch up with this issue that is very important to us down in Louisiana. You know, concern has been raised that an increase in sea turtle strandings is a result of there being a significant increase in sea turtles. More turtles would likely increase the interaction between turtles and fishermen. Is this likely? Because we seem to have a—my concern, I guess is a better way to put it, is that I understand there are some environmental groups that want to sue you all in trying to get our commercial fishermen to add additional tag devices because of lately some significant turtle deaths.

Mr. SCHWAAB. Thank you, Mr. Landry. This is something that we have been concerned about, increases in turtle strandings over the last couple of years. We have been working out of our regional office and through our enforcement personnel in the Southeast region very closely with the fishing industry to try to ensure maximum compliance with existing tag requirements. And at the same time, we have initiated a scoping process through a series of public meetings to talk about what if any additional steps might be appropriate to get a handle on turtle strandings.

Mr. LANDRY. Well, I am confused because it is my understanding that turtle nesting sites have gone from 800 to over 20,000 in 8 years. So, you know, that means that there are more turtles in the Gulf rather than less turtles in the Gulf. And my concern is that I don't think we need, especially at this time, to be placing any additional restrictions or regulations on my poor commercial fishermen down there, when in light of the fact that we had the Deep-water Horizon spill. We don't know what the impact of that is yet. I have my own opinion. But the biggest impact right now is from importation of domestic demand actually.

Well, let me ask this question. Do foreign shrimpers in other countries, do they put tags on their boats?

Mr. SCHWAAB. Mr. Landry, we actually have a process, and we have recently employed it with Mexico, to ensure comparable conservation practices to those that are in place here domestically for shrimp that are imported here.

Mr. LANDRY. Well, and that is my point. I want to make sure that my shrimpers down here get on a level playing field because, you know, long after, as we see, it doesn't take long for the cameras to leave the Gulf of Mexico, and people are putting my poor shrimpers out on TV and saying these guys are going to be just destroyed. And yet, you know what, before that spill, we had every shrimp boat from Grand Isle to Delcambre because we had run the price of diesel up to \$5 a gallon.

And so my point is that at a time when our shrimpers are struggling from a perception standpoint and shrimp imports are increasing, and we have shrimp in the Gulf of Mexico, we don't need to add additional regulations on them just because we got more turtles in the Gulf of Mexico.

Mr. SCHWAAB. So as it relates to your comment about a level playing field, I couldn't agree more. We certainly want to make sure that our domestic fishermen are on a level playing field with those who are importing product here. Obviously, with respect to turtle conservation, there is a responsibility that we carry there.

We do our utmost to work very closely with the commercial fishing industry to strike the right balance.

Mr. LANDRY. Well, have you all done an accurate—or when is the last time you did I guess a survey of turtles in the Gulf of Mexico before you reached this conclusion that maybe you need to do more enforcement? When is the last time we had an accurate I guess survey which told us how our turtle population is faring?

Mr. SCHWAAB. So we do annual nesting surveys to take counts. Those are imperfect because there is a lag time, obviously.

Mr. LANDRY. Right.

Mr. SCHWAAB. The Fish and Wildlife Service and our agency completed a five-year review for Kemp's Ridley turtles in 2007 as a part of a listing review. That would have been the most recent sort of comprehensive—

Mr. LANDRY. And what did that show? You know, where were we from five years ago to today from an increasing turtle population?

Mr. SCHWAAB. It simply affirmed the listing status that was in place at that time, which was endangered.

Mr. LANDRY. Well, wait a minute. It was endangered at 800 sightings, I guess is what you—I mean, turtle nesting sites. And now we have 20,000. How many do we got to have before it gets off the endangered species list? I mean, I don't know? When we got 100,000 nesting sites along the Gulf of Mexico? I mean, where is there a happy medium in this?

Mr. SCHWAAB. So I don't have in front of me the nesting trends leading up to that 2007 review point. We did have that high year in—at least recent high in 2009, with over 22,000 nests identified, although levels in 2010 and 2011 have been below that 2009 level.

Mr. LANDRY. By how much?

Mr. SCHWAAB. I don't have that information.

Mr. LANDRY. Well, how can you say that if you don't know it?

Mr. SCHWAAB. I can say that it was below the 2009.

Mr. LANDRY. But, I mean, like 19,000 is below 20,000. I mean, there is a big difference.

Mr. SCHWAAB. Yeah. I would be happy to provide you with some more—

Mr. LANDRY. Please. I would like to see it.

Mr. SCHWAAB.—explicit numbers. But I do not have them with me.

Mr. LANDRY. OK. Thank you.

Mr. FLEMING. The gentleman yields back. And that completes our second round of questioning. I want to thank the panel of witnesses for your great effort today, and thank you for your patience as we held you for a second round. So thank you. You can be excused, and we would ask the third panel to step forward.

[Pause]

Mr. FLEMING. Well, thank you, panel, for coming to be with us today. I can't see everyone's name tags, but they are a little bit different than my list here, so I will try to be sure and keep everyone in their proper order.

First among our panel, we have Mr. Harlon H. Pearce, Jr., LA Fish, member of the Gulf of Mexico—is that LA or Louisiana? Louisiana, that is right. We just chatted, OK. Louisiana Fish, member of the Gulf of Mexico Fishery Management Council and Chair of

the Council's Data Collection Committee; Mr. Jefferson Angers, President, Center for Coastal Conservation; Mr. Gregory DiDomenico, Executive Director, Garden State Seafood Association; Mr. David Nelson, a charter captain and commercial fisherman, Port Orange, Florida; and then on to Mr. John Gauvin, Fishery Science Projects Director, Alaska Seafood Cooperative; and then Mr. George Geiger, a recreational fisherman, Sebastian, Florida.

Like all witnesses, your written testimony will appear in full in the hearing record, so I ask that you keep your oral statements to five minutes, as outlined in our invitation letter to you and under Committee Rule 4(a). Our microphones are not automatic, so please press the button when you are ready to begin. You have probably had a chance to observe how our timing lights work. Very simply, it is a green light for the first four minutes, then a minute of yellow light. And when it turns red, you need to wrap up your testimony.

Mr. Pearce, you are now recognized for five minutes, sir.

STATEMENT OF HARLON PEARCE, JR., OWNER, HARLON'S LA FISH, LLC, MEMBER OF THE GULF OF MEXICO FISHERY MANAGEMENT COUNCIL AND CHAIR OF THE COUNCIL'S DATA COLLECTION COMMITTEE

Mr. PEARCE. Thank you, Chairman Fleming, Ranking Member Sablan, and Members of the Committee. My name is Harlon Pearce, and I am pleased to have this opportunity to testify before you today on several factors currently impacting seafood jobs in my home state of Louisiana.

I am the owner of Harlon's Louisiana Fish, a seafood wholesaler based in Kenner, Louisiana. I serve as the chairman of the Louisiana Seafood Promotion and Marketing Board. And since 2006, I have been a member of the Gulf of Mexico Fishery Management Council. In every one of these forums, I have always advocated for developing a strong and sustainable commercial fishing industry that properly utilizes the Gulf of Mexico's abundant natural resources while also ensuring the longevity of our strong fishing tradition. Louisiana produces one-third of the domestic seafood produced in this country. We are number one in shrimp. We are number one in oysters. We are number one in crawfish. We are number one in alligator, and number two in crab, number two in fin fish, which means \$2.4 billion to the economy of Louisiana yearly.

One in 70 jobs in Louisiana is related to the seafood industry, and the Gulf of Mexico seafood community contributes to the employment of over 885,000 people across the country. And with national unemployment hovering near double digits, strengthening this economic powerhouse should be a top priority.

As chairman of the Gulf Council's Data Collection Committee, I am supportive of requirements that the Regional Fishery Management Councils place an increased emphasis on data and science when determining catch limits to prevent overfishing. At the Gulf Council, we have instituted the use of annual catch limits based on recommendations from our science and statistical committee to prevent overfishing for several species. If the ACL is met or exceeded, accountability measures such as seasonal closures or quota closures are triggered.

While this management concept is preferable in theory, in reality NOAA's lack of timely and thorough fishery data means our ability to enact fair catch limits is severely restricted. While I support NOAA and the Regional Fishery Management Council's ability to institute catch shares programs as a management tool, I firmly believe that available data must be improved prior to moving forward with these decisions.

The Gulf of Mexico is a national treasure that belongs to every citizen, and we all have the right to utilize this resource. The inability of fishery managers to access needed scientific data and their continued reliance on best available science is doing the owners of our fishery a great disservice. When we rely on outdated science that does not reflect the health of certain rebounding stocks, a precautionary approach may be to set unnecessarily low catch limits that shortchange fishermen and consumers.

In the Gulf of Mexico, only 10 of 12 of our stocks are considered data adequate. Seventy to eighty species of our stocks are considered data inadequate. We lack current data on Goliath grouper, red drum, cobia, 4 grouper species, and 11 snapper species. Certain Gulf fisheries have been closed for over 20 years because there is insufficient data to conduct stock assessments.

The use of closures as a management tool because of insufficient data is simply unacceptable. All fisheries closures should be accompanied by a rebuilding plan in order to preserve sustainability of the stocks, as well as sustainability of American workers.

I have been called selfish at times because I want to get stock assessments for these fisheries, and I guess I am selfish. I am selfish for all your constituents that have ownership of that fishery that want to eat Gulf seafood at their table or eat at their favorite restaurant. I am selfish for all your constituents that want to come to the great Gulf of Mexico and fish on one of our great charter boats and catch the fish that they own. I am selfish for that private recreational fisherman that deserves access to his fishery in the Gulf of Mexico for the fishery that he owns. So I am selfish. I want our fishermen in the State to survive in a stronger way than they are today.

Another concern is the five-year lag time between data collection and final implementation of fishery management plans. Currently, Gulf Council science is using data collected in 2009 to conduct a 2011 stock assessments, which cannot be incorporated into final management plans until after consideration by the full council in a lengthy public period process, which will likely take until 2014 with 2009 data.

This five-year delay in translating the fisheries data into public policy is a serious concern. Yet we may be able to overcome this challenge with more cooperative research programs using fishermen that involve all fishing sectors. One key to the solution may be electronic recreational data collection programs. Development of a data collection program that provides recreational anglers with electronic reporting tools will fill in data collection gaps with real-time information and help resource managers to better understand all sectors of our fishery.

During our upcoming Gulf Council meeting in August, I will begin formulation of a new recreational data collection advisory

panel to better understand the specifics of this process. At this time, I am in full support of recreational data collection becoming part of our management solution as long as it is electronic.

Another way to ensure annual catch limits are established using the most current data maybe to grant NOAA and other departments more time in order to fulfill their data collection duties. I understand that Congressman Wittman has introduced legislation, the Fishery Science Improvement Act, which provides flexibility in the timelines required to establish annual catch limits in cases where there is inadequate data.

This measure may provide managers with much needed relief from the arbitrary December 31st, 2011, deadline for establishing catch limits where no scientific information exists on the health of the stock. In an effort to examine every possible solution to this problem, I would encourage the Committee to give this Fishery Science Improvement Act your full consideration.

Also, Senate Bill 1400 by Landrieu and Nelson allocating 80 percent of the penalty phase of the BP under the Water Management Act would give 5 percent of that money to the Gulf for research, sadly needed research. So I ask you to please support that bill so that we can get the money down to the Gulf Council.

The Administration budget priorities may also be hindering U.S. fishery reduction numbers and jobs. In light of recent budget shortfalls, NOAA may be shifting funding away from stock assessments in order to fund other priorities, including expedited initiation of catch share programs. Of course, I would strongly encourage this Committee to take every action possible to ensure the solvency of NOAA assessment programs.

And I agree with Representative Landry when it comes to the turtles. We have a problem with turtles, and we need to know what is out there with our turtles. And I am sure he will ask me some questions before this is over.

All of the concerns I have described today are forcing U.S. fishery production into a downward spiral. In my written testimony, I have included two charts provided by the National Marine Fisheries Service that are outline employment in both recreational and commercial fisheries across the Gulf of Mexico from 2006 to 2009. While the charts do not establish a causality, it is plain to see a dramatic decline in fishery jobs that should give us all cause for concern. A renewed emphasis on fishery data collection combined with a commitment to rebuilding Gulf Coast fisheries impacted by the Deepwater Horizon spill should go a long way toward reversing these troubling trends.

If we can Twitter and Facebook, we should be able to get electronic data into our fisheries, and get real-time data that we can really do a great job with at the Gulf Council. Thank you, Mr. Chairman.

[The prepared statement of Mr. Pearce follows:]

Statement of Harlon Pearce, Owner, Harlon's LA Fish LLC, Kenner, Louisiana, Representing the Louisiana Seafood Promotion and Marketing Board and the Gulf of Mexico Fisheries Management Council

Chairman Fleming, Ranking Member Sablan and Members of the Committee, my name is Harlon Pearce and I am pleased to have this opportunity to testify before you today on several factors currently impacting seafood jobs in my home state of

Louisiana. In order to give you the most accurate perspective on this issue, I will be wearing my seafood wholesaler hat today, although my forty year career in Louisiana's fisheries goes beyond that. I am the owner of Harlon's LA Fish, a seafood wholesaler based in Kenner, Louisiana; I serve as the Chairman of the Louisiana Seafood Promotion and Marketing Board; and since 2006, I have been a member of the Gulf of Mexico Fisheries Management Council. In every one of these forums, I have always advocated for developing a strong and sustainable commercial fishing industry that properly utilizes the Gulf of Mexico's abundant natural resources while also ensuring the longevity of our strong fishing tradition.

The state of Louisiana ranks as one of the United States' top seafood producers. Nearly one third of all domestic seafood consumed in the contiguous U.S. comes fresh from our waters. In addition to being the number one oyster producing state, Louisiana harvests more than 90% of our crawfish, 69% of our nation's shrimp, and more hard and soft shell crab meat than any other state in the country. As such, Louisiana's economy is highly dependent on a strong seafood supply chain. Nearly one in seventy jobs in Louisiana is seafood-related with a total economic impact of \$2.4 billion annually. Many of these jobs are in family-owned and operated companies that have been in business for generations. Nationally, a NOAA Economic Impact Study determined that the Gulf of Mexico seafood community contributes to the employment of over 885,000 people across the country. With national unemployment hovering near double digits, strengthening this economic powerhouse should be a top priority.

Despite our vigorous production numbers, the Louisiana seafood community has faced its share of challenges in recent years, most notably with the horrific hurricane season of 2005, the Deepwater Horizon spill last April, and most recently the flooding of the Mississippi River which may have serious impacts on our oyster and crab fisheries. There are also several regulatory obstacles facing our community including a shortage of accurate fisheries stock assessments and a lack of updated fishery data which lead to uninformed and often overly-restrictive management protocols.

At this point, a primary challenge to maintaining seafood jobs is the misperception that seafood from the Gulf of Mexico is tainted with toxins from the Deepwater Horizon oil spill. In a poll conducted by Louisiana State University on April 11, 2011, 69% of consumers express concern that seafood from the Gulf of Mexico might be tainted from the spill—a concern that is completely unfounded yet continues to plague our local economy. In fact, in October, 2010, the Food and Drug Administration (FDA), the Environmental Protection Agency (EPA) and NOAA announced that every seafood sample taken from the Gulf tested 100–1000 times lower than the safety thresholds established by the FDA for oil residues and that “American consumers can feel confident in the quality and safety of Gulf seafood.” Sadly, the American public is not getting the message.

In a misguided attempt to respond to these unfounded consumer concerns, several retailers and restaurants across the country have sworn off Gulf seafood entirely with some displaying signs telling their customers that they would not serve seafood from the Gulf of Mexico. On the supply side, as a result of precautionary closures of fishing waters during the spill, Louisiana seafood businesses lost continuity of supply and, in turn, lost our seat at the table with buyers. As a result of these combined obstacles, my business is down 25–35% and will take at least three to five years to fully recover.

In order to address lagging consumer perceptions of Gulf seafood, the five Gulf states have recently come together in an unprecedented fashion to form the Gulf Seafood Marketing Coalition. This Coalition was formed with a mission of working together to rebuild and enhance the image of Gulf seafood much like the beef, pork and milk industries have famously done in the past. The Coalition is currently undertaking extensive market research to help clarify exactly why consumers are shying away from our products and what it will take to bring them back. While this short-term work is imperative, restoring our brand internationally will take years and ensuring a steady stream of funding for this effort may prove difficult.

Fortunately, Congress has an opportunity to assist in the Gulf seafood marketing effort by passing legislation that will dedicate at least 80% of BP penalties paid under the Clean Water Act (CWA) to the Gulf states to restore the ecosystems and economies damaged during the spill. Specific to seafood marketing, S. 1400, the RESTORE Act, lists “Programs to promote the consumption of seafood produced from the Gulf Coast” among the authorized expenditures. This seafood marketing set-aside from BP's penalties would cost the taxpayers nothing yet would fund critical consumer research and messaging programs to help restore confidence in Gulf seafood. I am certain that if Congress approves this legislation with the seafood marketing component intact, our five-state Gulf Seafood Marketing Coalition effort will

prove to be a key part of the solution for strengthening the Gulf of Mexico seafood community well into the future.

I would like to spend the remainder of my time outlining a few key areas of our federal fisheries management regime that may have an equivalent impact on seafood businesses in Louisiana and across the Gulf coast.

As Chairman of the Gulf Council's Data Collection Committee, I am supportive of requirements that the Regional Fishery Management Councils place an increased emphasis on data and science when determining catch limits to prevent overfishing. At the Gulf Council, we have instituted the use of Annual Catch Limits (ACLs) based on recommendations from our Science and Statistical Committee (SSC) to prevent overfishing for several species. If the ACL is met or exceeded, accountability measures such as seasonal closures or quota closures are triggered. While this management concept is preferable in theory, in reality, NOAA's lack of timely and thorough fishery data means our ability to enact fair catch limits is severely restricted. While I support NOAA and the Regional Fishery Management Councils' ability to institute catch share programs as a management tool, I firmly believe that available data must be improved prior to moving forward with these decisions.

The Gulf of Mexico is a national treasure that belongs to every American citizen and we all have the right to utilize to this resource. The inability of fishery managers to access needed scientific data and their continued reliance on "best available science" is doing the owners of our fishery a great disservice. When we rely on outdated science that does not reflect the health of certain rebounding stocks, the "precautionary approach" may be to set unnecessarily low catch limits that short change fisherman and consumers. In the Gulf of Mexico, we only have adequate data on approximately 12 out of 80 species. We lack current data on goliath grouper, red drum, cobia, 4 grouper species, and 11 snapper species. Certain Gulf fisheries have been closed for over 20 years because there is insufficient data to conduct stock assessments. The use of closures as a management tool because of insufficient data is simply unacceptable. All fishery closures should be accompanied by a rebuilding plan in order to preserve sustainability of the stocks as well as the sustainability of American workers.

Another concern is the 5-year lag time between data collection and final implementation of fishery management plans. Currently, Gulf Council scientists are using data collected in 2009 to conduct their 2011 stock assessments which cannot be incorporated into final management plans until after consideration by the full Council and a lengthy public comment period—a process which will likely take until 2014.

This 5-year delay in translating fisheries data into public policy is a serious concern, yet we may be able to overcome this challenge with more cooperative research programs that involve all fishing sectors. One key to the solution may be electronic recreational data collection programs. The development of a data collection program that provides recreational anglers with electronic reporting tools will fill in data-collection gaps with real-time information and help resource managers to better understand all sectors of our fishery. During our upcoming Gulf Council meeting in August, I will begin formulation of a new Recreational Data Collection Advisory Panel to better understand the specifics of this process. At this time, I am in full support of recreational data collection becoming part of our management solution as long as it is electronic.

Another way to ensure annual catch limits are established using the most current data may be to grant NOAA and their partners more time in order to fulfill their data collection duties. I understand that Congressman Wittman has introduced legislation, the Fishery Science Improvement Act, which provides flexibility in the timelines required to establish annual catch limits in cases where there is inadequate data. This measure may provide fishery managers with much needed relief from the arbitrary December 31st, 2011 deadline for establishing catch limits where no scientific information exists on the health of the stock. In an effort to examine every possible solution to this problem, I would encourage the Committee to give the Fishery Science Improvement Act your full consideration.

The Administration's budget priorities may also be hindering U.S. fishery production numbers and jobs. In light of recent budget shortfalls, NOAA may be shifting funding away from stock assessments in order to fund other priorities, including expedited initiation of catch share programs. Of course, I would strongly encourage this Committee to take every action possible to ensure the solvency of NOAA's stock assessment programs.

Another challenge facing Louisiana's seafood community is the current debate over the usage of Turtle Excluder Devices (TEDs). As you may know, NOAA is considering new guidance governing the use of TEDs in the Gulf of Mexico shrimp fishery. This regulatory action is intended to address a recent uptick in sea turtle strandings which occurred in 2010 and the first half of 2011. While it is imperative

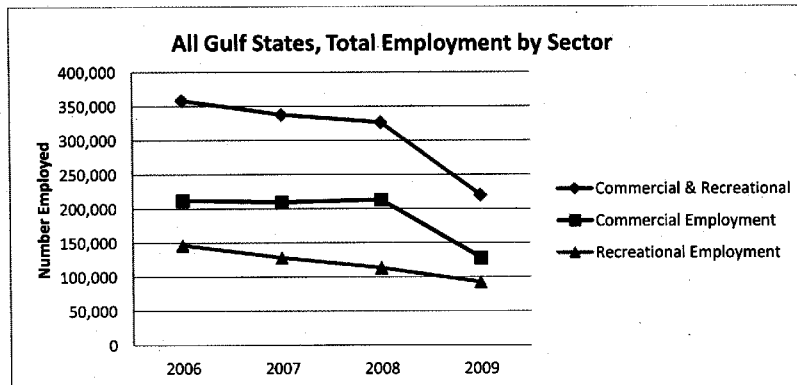
that we protect sea turtles, there is currently no definitive link between the turtle strandings and the shrimp industry. In fact, the greatest number of strandings occurred at a time when a vast section of the Gulf of Mexico shrimp fishery was shut down in response to the Deepwater Horizon spill.

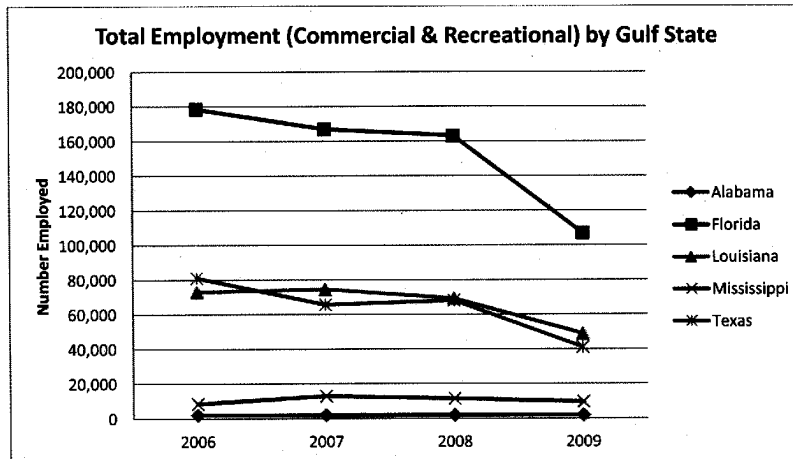
In order to fully understand the dynamics leading to sea turtle strandings this year, this Committee should urge NOAA to make sea turtle stock assessments a top priority. NOAA is currently basing management decisions on outdated data for many fisheries and sea turtles are no exception. As a result of the Endangered Species Act listing and cooperation from the Gulf of Mexico shrimping community, it has been reported that the numbers of sea turtle nesting grounds along the coast of Mexico have exploded from 800 turtles in 2003 to over 20,000 nests in 2011. This exponential population increase should be taken into account when determining the cause of recent strandings and whether or not additional TEDs requirements are necessary.

As far as what the industry can do, a combination of sea turtle education and enforcement of current TEDs regulations will ensure this rebounding species continues to thrive. The State of Louisiana is slated to launch a new sea turtle outreach program designed to educate shrimpers about sea turtles and raise awareness about the appropriate usage of TEDs. Congress should work alongside NOAA to engage the broader shrimp industry in similar efforts to improve understanding and compliance. By partnering federal regulators with industry, we can work together to protect the health of our sea turtle populations and maintain jobs for American fishermen.

All of the concerns I have described today are forcing U.S. fishery production into a downward spiral. In my written testimony, I have included two charts provided by the National Marine Fisheries Service that outline employment in both recreational and commercial fisheries across the Gulf of Mexico from 2006—2009. (*See attachment*) While the charts do not establish causality, it is plain to see a dramatic decline in fisheries jobs that should give us all cause for concern. A renewed emphasis on fisheries data collection combined with a commitment to rebuilding Gulf Coast fisheries impacted by the Deepwater Horizon spill should go a long way towards reversing these troubling trends.

Again, I appreciate the opportunity to present these issues to the Committee for consideration and I look forward to answering any questions you may have.





Source: Fisheries Economics of the U.S. (by year)
http://www.st.nmfs.noaa.gov/st5/publication/fisheries_economics_2009.html

Mr. FLEMING. Yes. Thank you, Mr. Pearce. Next, Mr. Angers.

**STATEMENT OF JEFFERSON ANGERS, PRESIDENT,
 CENTER FOR COASTAL CONSERVATION**

Mr. ANGERS. Mr. Chairman and Members, I am Jeff Angers. I am the President of the Center for Coastal Conservation. I am a native Louisianian and a recreational fisherman.

My testimony today is presented on behalf of my organization, the American Sport Fishing Association, the Billfish Foundation, Coastal Conservation Association, the International Game Fish Association, the National Marine Manufacturers Association, and the Congressional Sportsmen's Foundation.

The question we face today has its answers in the famous admonition from former Defense Secretary Donald Rumsfeld in December of '04, quote, "You go to war with the army you have, not the army you might want or wish to have at a later time." NOAA Fisheries should manage America's saltwater fish to the science they have in hand rather than the science they wish they had.

But the Federal Government is today making major precedent-setting fishery management decisions based on the science that it wished it had. Magnuson requires ACLs on all stocks by an arbitrary deadline of the end of this year. The agency and the Councils are moving to implement these hard limits by the deadline. Now, with 528 stocks of fish or complexes of stocks of fish under Federal management, but only 114 of those, quote, "adequately assessed," closed quote, how is the agency arriving at hard limits on the 80 percent of the stocks that are not adequately assessed? They are guessing. We heard reference to proxies. We heard references to biology. They are guessing.

Terrestrial and freshwater wildlife resource management agencies would not think of operating without standardized stock as-

sessments. Yet for our marine fishery resources, proponents of the status quo say that readily available information such as biology—let's just take biology—is adequate to replace a standardized, peer-reviewed, scientific stock assessment as the foundation of management, even when the decisions based on it will have dramatic economic and social consequences. A hodgepodge of information that perhaps may add up to an informed guess will always fall short of the standards we as a nation have used for managing our fish and wildlife resources.

We should today reject the notion that a SWAG, a scientific wild guess, is good enough to be the foundation of management for the hundreds of marine stocks that have either never had an assessment or have been deemed inadequately assessed by NOAA Fisheries and for which there is no evidence that the stock is being overfished.

Last year, NOAA Fisheries generated national estimates of effort and participation was 2006, 2006. But those numbers from five years ago indicate a few interesting facts. 24.7 million saltwater anglers taking four trips a year, 100 million recreational fishing trips a year. This great American business, marine recreational fishing generating \$92 billion in total sales, employing 534,000 American citizens, contributing \$622 million in license purchases, paying \$650 million in excise taxes to be apportioned back to the States for fishery management and conservation purposes. How is the uncertainty of a SWAG, a management guess, affecting us?

In a word, I will say gravely. All of us here can agree, fishing is good. Catching, cleaning, and eating fish with your family and friends is a good, healthy, all-American past-time. So fishing is good. I think we can all agree too that overfishing is bad. No one wants to have overfished stocks. Recreational fishermen respect, support, and propose many of the classic fishery management tools that ensure healthy fisheries. Those classic tools include seasons and quotas, time and area closures, size limits, krill limits. These tools work, and they will still be in place even without an arbitrary SWAG'ed ACL.

We want America's oceans to be teeming with fish because for recreational fishermen and the inefficiencies of a single hook in the Lord's vast ocean, we need a lot of fish to be out there. So any attempt to end overfishing is generally appealing to a recreational fisherman. But the ramifications of the ACL provisions amending Magnuson in '06 were not truly appreciated at the time. It has become painfully apparent that NOAA Fisheries does not have the data to properly manage fisheries to the requirements of those provisions.

Sadly, the terrestrial model of fish and game management that has been applied so successfully to ducks, to geese, turkey, bass, trout, elk, deer, everything, is not to be found in the Nation's oceans. Mr. Wittman and several of you filed the Fishery Science Improvement Act, H.R. 2304 last month to ensure that the Federal Government was not making fishery management decisions based on science it wished it had. The Act allows the agency to use sound science to inform its decision-making, and it lifts the requirement to implement ACLs on stocks for which there is inadequate data and no evidence of overfishing.

Let's not abandon classic fishery management tools for one-size-fits-all ACLs when we do not have the science to set those ACLs. Let's give improved science a chance to work for conservation. Thank you, Mr. Chairman.

[The prepared statement of Mr. Angers follows:]

Statement of Jefferson Angers, President, Center for Coastal Conservation, on behalf of Center for Coastal Conservation; American Sportfishing Association; Coastal Conservation Association; Congressional Sportsmen's Foundation; International Game Fish Association; National Marine Manufacturers Association; and The Billfish Foundation

Good afternoon Mr. Chairman. My name is Jeff Angers, and I am the president of the Center for Coastal Conservation. I am native Louisianian and a recreational fisherman interested in science driving sound decision-making at the National Oceanic and Atmospheric Administration. I would like to thank you for this opportunity to speak to the Subcommittee as it addresses NOAA Fisheries Science: Is the Lack of Basic Science Costing Jobs?

The Center for Coastal Conservation is a coalition of America's leading advocates for marine recreational fishing and boating. We are dedicated to promoting sound conservation and use of America's marine resources. Our organization includes the American Sportfishing Association, Coastal Conservation Association, International Game Fish Association, National Marine Manufacturers Association, The Billfish Foundation, as well as other institutions and individuals across the country. I offer testimony today on behalf of our members and the Congressional Sportsmen's Foundation.

In order to properly answer the question that has brought us here today, "Is NOAA Fisheries' lack of basic science costing jobs?," it is first necessary to describe the economics of marine recreational fishing in America.

In 2006—the last year the National Marine Fisheries Service generated national estimates of effort and participation—24.7 million saltwater anglers took nearly 100 million recreational fishing trips (97.7 million)—almost four trips per saltwater angler each year. The fact that national estimates of effort and participation have not been generated since 2006 speaks directly to the problem. Anglers tend to get the short end of the stick when it comes to the basic science that NOAA Fisheries and the Regional Fishery Management Councils are required to conduct when managing recreational fishing. (The best data in the country is in Alaska and the Pacific Northwest.)

While the 2006 effort and participation numbers are impressive, even more impressive are their contribution to the economic sustainability of our coastal communities. In 2006, the last time economic data was collected from recreational fishermen nationally, saltwater recreational anglers generated \$92.2 billion in total sales (in 2011 dollars). Of that total, anglers generated \$15.2 billion in total sales from trip expenditures that included food, lodging, fuel, bait and charter fees, among other expenses. Trip expenditures are dominated by the cost of fuel used in personal vehicles to travel to and from the fishing site or marina followed closely by the purchase of food and beverages. Additionally, those same anglers generated \$76.9 billion from expenditures on durable goods that include tackle, gear, boats, houses and vehicles used for saltwater fishing. This category of spending is dominated by boat and vehicle purchases with boat purchases generating \$6.8 billion in economic impact and vehicle purchases generating \$5.3 billion in economic impact. The boat building business is almost an exclusive U.S.-based industry. Both trip and durable goods expenditures support 533,813 jobs across the U.S. In terms of economic impact, Florida has the highest numbers at \$14.2 billion in total sales supporting 130,900 jobs followed in order by Texas, California, Louisiana and North Carolina.

Actually, these recreational durable goods expenditures and impacts would be higher, but the Marine Recreational Fisheries Statistical Survey (MRFSS) and its successor survey, the Marine Recreational Information Program (MRIP) are unable to determine if a non-resident participant in one state is a participant from another coastal state or an inland state. As a result, the agency was forced to remove all non-resident durable goods purchases from their estimates. While this lack of science isn't costing jobs directly, it means that any NOAA Fisheries or Council analysis of policy impacts fails to account for non-resident durable goods purchases. Non-residents are a huge part of saltwater angler participation. The largest segment of the marine recreational fishery is "trailer-able" boats. From the 2006 data, non-residents represent over 37% of all participants. The amount not being included by the agency is potentially huge.

In addition to expenditures on trip costs and fishing equipment, anglers contribute a considerable amount to direct fisheries management at the state level. Across all states, recreational anglers contribute \$621.5 million in license purchases and \$329.8 million across just the coastal states (2010 estimates). The vast majority of this money returns directly to management and enhancement of recreational fishing. In addition to license sales, recreational anglers contribute to conservation through excise taxes on fishing equipment and fuel purchases. In 2010, these excise taxes generated \$650 million nationwide and those monies are apportioned back to the states for fishery management purposes.

As a matter of comparison, in 2006 commercial fishing in the U.S. generated \$102.5 billion in total sales and supported 1.5 million jobs. This estimate includes impacts from the harvester right through to the consumer.

While the economic impact of marine fishing is vast, it is not reflected in the management process. The primary reason may simply be the very nature of the two sectors. The number of commercial fishermen is small relative to the number of recreational fishermen. The number of businesses that commercial fishermen buy their supplies from and sell their fish to is an even smaller number of operators. As a result, the commercial activity moves through a smaller number of hands and is a larger payday in those businesses' pockets. This makes it much easier for the commercial sector to build a cohesive base that secures the attention from the agency responsible for collecting the science affecting their sector.

Recreational fishermen spend their dollars at thousands of gas stations, grocery stores, marinas, marine dealers, mom-and-pop bait-and-tackle shops, restaurants and hotels along with everybody else buying those goods and services. The local gas station or convenience store is not likely to band together with anglers to build a base of support to represent them before NOAA Fisheries. You are not going to see truck manufacturers clamor for better data for recreational anglers even though the purchase of trucks to tow boats is the second biggest durable goods expenditure made by anglers. As a result, policymakers do not truly recognize the large economic impact of recreational fishing.

The result is you have a huge economic engine in recreational fishing that gets largely ignored in the agency and Council scientific process: from basic data collection to performing quality stock assessments for species important to recreational fishermen and everything in between. This neglect costs coastal economies jobs and incomes.

To the credit of the leadership at NOAA, Eric Schwaab and Jane Lubchenco, there has been a substantial effort to try to solve this problem. But institutionally, the problem remains.

The perfect example of this is the concern over the primary tool used to gather recreational harvest data, MRFSS/MRIP. In the transformation from the MRFSS to MRIP, the agency has expended substantial resources on improving the survey. Yet it is still a survey based on two-month sampling time frames and is of limited use for in-season quota monitoring, a tool to which the Councils are turning more and more frequently to manage recreational fisheries. Thus inadequate data is being used to shut down fisheries and reduce economic activity—and the jobs supported by that economic activity. The new MRIP will do little to address this problem, even if substantially more resources are spent. If NOAA Fisheries and the Councils are going to manage stocks with in-season quotas, they owe the economic sustainability of our coastal communities a fair shake. NOAA Fisheries and the Congress owe our communities a survey that can estimate recreational harvest accurately so that jobs are not unnecessarily sacrificed.

All the vast, positive effects of recreational fishing on the American economy are based on three things: good management of marine fisheries, a sustainable resource and access to that resource.

Currently there is no attempt by the Councils to maximize the net benefit to society from fishery management. There are many ways managers could increase the value of our fisheries. Unfortunately, the lack of adequate science prevents moving in a direction that would improve the sustainability of our coastal communities.

How has the agency managed the 24.7 million saltwater anglers who take four trips a year (97.7 million recreational trips)? How has the agency managed this great American business—marine recreational fishing—that generates \$92.2 billion in total sales? That employs 533,813 people? That contributes \$621.5 million in license purchases (\$329.8 million across just the coastal states)? That paid \$650 million nationwide in excise taxes to be apportioned back to the states for fishery management purposes? How is NOAA Fisheries managing us?

In a word: Poorly.

I'd like to establish that fishing is good. Catching, cleaning and eating fish with your family and friends is a good, healthy, all-American pastime. So fishing is good.

I'd like to also establish that overfishing is bad. No one wants to have overfished stocks. Recreational fishermen respect, support—even propose—many of the classic fishery management tools to ensure healthy fisheries. Those classic tools include things such as seasons, quotas, time and area closures, size limits, creel limits...those tools work.

We want America's coastal waters and oceans to be teeming with fish. . . because for recreational fishermen—and the inefficiencies of a single hook in the Lord's vast ocean—we need a lot of fish out there.

Any attempt to end overfishing is generally appealing to a conservationist, but the ramifications of the provisions amending MSA in 2006 were not truly appreciated at the time. Over the past few years, it has become painfully apparent to anyone associated with marine recreational fisheries that NOAA Fisheries does not have the data to properly manage fisheries to the requirements of those provisions. The terrestrial model of fish and wildlife management that has been applied so successfully to ducks, geese, turkey, bass, trout, deer, elk, etc., is not to be found in the nation's oceans.

To understand the magnitude of the discrepancy between current federal marine resource management and most every other wildlife management regime, we must acknowledge that the Magnuson-Stevens Act allows for the management of fish stocks in the federal zone (three—200 miles from shore generally). The term “fish” has been interpreted to cover hundreds of species of finfish, corals, vegetation and jellyfish. Of these the federal government has about 528 stocks of fish or complexes of stocks under management. Only 114 of the stocks are considered “adequately assessed.”

For the past few years, the agency has been doing about 80 stock assessments a year in Alaska and the North Atlantic on pretty much the same (commercially important) species. But they've only been assessing 15 stocks a year in the Gulf of Mexico, South Atlantic and Caribbean combined. And that's not annual assessments on the same stock. That's different stocks of fish—and most of those assess commercial shrimp stocks. For the charismatic sport fish that anglers pursue, the agency does about six assessments per year.

MSA requires annual catch limits (ACLs) on all stocks by the end of this year. And the agency and the Councils are moving to implement these hard limits by the deadline. How are they arriving at hard limits on the 80 percent of stocks that are not adequately assessed?

They're making estimates based on a mountain of poor data.

Terrestrial and freshwater wildlife resource management agencies would not think of operating without standardized stock surveys and assessments. Yet, for our marine resources, proponents of the status quo say that “readily available information such as biology” is adequate to replace a standardized, peer-reviewed stock assessment as the foundation of management, even when the decisions based on it will have drastic social and economic consequences. A hodgepodge of partial bits of information that perhaps add up to an informed guess will always fall short of the standards we as a nation have used for managing our fish and wildlife resources.

We should reject the notion that a swag—a scientific wild ass guess—is good enough to be the foundation of management for hundreds of marine stocks that have either never had an assessment or have been deemed inadequately assessed by NOAA Fisheries and for which there is absolutely no evidence that the stock is being overfished.

The ramifications of the swag are far reaching and long term.

You could pick most any of the 528 stocks of fish. So let's call one the “widget-fish.”

When the Council and the agency take a swag and decide that the ACL on the widget-fish shall be 1 million pounds this year, that is a hard number. One million is a number that a federal judge will understand. Even though a swag, it's still a number. Federal judges may have trouble understanding Byzantine fishery management policies. But judges have no trouble understanding numbers. When that hard swag-induced ACL is exceeded (and it will be), the only jobs NOAA Fisheries will be securing will be those of environmental lawyers intent on shutting down fishermen who target the widget-fish. Environmental lawyers will have gainful employment suing the government to enforce the hard ACL on each of the 528 stocks—the vast majority of which are healthy stocks. In most cases, the enforcement of the swag will unnecessarily keep America's public fishery resources from American citizens. That will reduce the positive economic impact of fishing and will cost real jobs on our coasts.

So an artificially low ACL based on a swag, combined with current statistical survey methods of recreational harvest, create the very real possibility that a very few widget-fish popping up in a survey will be extrapolated to project a total harvest

number well in excess of the swag-produced ACL, especially if the widget-fish is uncommonly encountered by samplers. The result will be to not only shut down the widget fishery, but if the situation is perceived as significantly desperate, draconian management measures will be considered for other species that may produce a bycatch of widget-fish. This is the domino affect that occurred in the South Atlantic last year when managers were within inches of shutting down all bottom fishing in thousands of square miles to recover red snapper stocks. The shutdown was averted when unprecedented pressure and protest from all quarters compelled NOAA Fisheries to conduct a second full stock assessment on red snapper, which revealed that the stock was not in need of such drastic management measures.

The widget-fish described above is an example of one of the fish stocks on which the agency has enough information to muster a swag about "management." For many other stocks, if the agency is not even in a position to hazard a guess about an Annual Catch Limit, they are simply removing those fish from all management protections: Taking hundreds of species which are now under management and deleting them from Fishery Management Plans. In the Gulf last month, they deleted 18 stocks. And in the South Atlantic next month, the Fishery Management Council will be deleting 39 stocks from management.

When a stock is deleted from a Fishery Management Plan, it is removed from federal management protections. So these particular stocks are no longer protected for instance from prohibitions on taking them with drift gill nets or fish traps in federal waters. For federal managers: these stocks don't exist.

The practical effect? Giving management of those stocks to the states. . .to perhaps manage with state landings laws. But the states neither asked for the management responsibility nor received funding to engage in management.

If the federal government can't manage them, why should anyone think local jurisdictions are going to manage them? And what kind of message does that send? Do we really think fish 100 miles offshore in the Caribbean or Guam or North Carolina are going to have protections if the federal government just casts them aside?

Focusing again on the South Atlantic Fishery Management Council: on August 9, 2011, the Council will drop 39 of the 73 species from their Snapper/Grouper Fishery Management Unit, which effectively removes them from federal jurisdiction. The 39 are species 1) that are not directly targeted; 2) that are usually caught as bycatch when fishing for other species, and 3) on which stock assessments are unlikely to ever be performed. Thus, under the current control rule for un-assessed stocks, if one of these "lesser" species is ever judged to be undergoing overfishing or in decline, the only mechanism the Council is likely to have to remedy the decline is to prohibit the harvest of a more valuable, managed stock, since the "lesser" species was caught as bycatch in that fishery.

As noted earlier, responsibility for management would thus revert to the states, which are unlikely to receive any additional management funds in the near future. Management would be by landings laws. Currently the Council has little choice in the matter: they are faced with either keeping all the species in the fishery management unit or face possible management restrictions on the more valuable managed stocks or drop them. This is essentially management failure set in motion by the agency's interpretation and implementation of the ACL provisions in MSA.

When Congress reauthorized the Magnuson-Stevens Act in 2006, none of us knew that NOAA Fisheries was so data-poor. NOAA Fisheries itself may not have fully understood they were managing so many data-poor stocks and complexes of fish. So the agency reports that it has these 528 stocks of fish and fish complexes "under management." It has up-to-date assessments on 114 of those. So roughly 414 of the 528 are a mystery to the agency. They don't know how healthy they are. What is the level of fishing pressure on each? What is the likelihood each is overfished? Nonetheless, to comply with the year-end deadline by which it must stop overfishing, the agency is now faced with two options:

- apply highly restrictive ACLs based on very poor (or in some cases non-existent) data, or
- remove species of fish from management.

The eight Regional Fishery Management Councils are attempting—pretty much in the dark—to amend fishery management plans to accommodate the statutory deadline by which they must end overfishing.

As you know, your colleague Mr. Wittman has proposed to solve this conundrum with H.R. 2304, the Fishery Science Improvement Act. The legislation has three key provisions:

1. First, if the agency has not assessed a stock of fish in the last five years and there is no indication that overfishing is occurring, there is no requirement to set an Annual Catch Limit.

2. Second, to avoid removing the fish species from management and leave them in the jurisdiction of the agency, the bill allows the agency to put certain fish into an “ecosystem” category. This classification is already informally in use by the agency but without strong parameters. FSLA statutorily authorizes the category and broadens the eligibility for stocks of fish that can be placed in the category.
3. Finally, the Fishery Science Improvement Act gives NOAA Fisheries three years to go back and work with the Councils to figure out how to implement science-based overfishing measures that are appropriate for each region and its fish.

The Wittman bill—already co-sponsored by two dozen of his colleagues—is very concise, simple and targeted. There is a very big, very specific problem with how NOAA Fisheries is implementing the Magnuson-Stevens Act, and Congress must act accordingly. Without Congressional action, arbitrary decisions affecting millions of anglers and thousands of businesses will continue to be made, and we can’t let that happen to anglers on the coast of Virginia or Louisiana or California or Alaska.

Today’s hearing is a wakeup call beyond this Subcommittee. The millions of Americans who responsibly utilize the nation’s public fishery resources and depend on them for jobs and recreation know this Congress can and will solve this problem.

Mr. Chairman, that concludes my testimony, and I would be happy to take questions.

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About our organizations. . .

The *Center for Coastal Conservation* (Center) is a coalition of the leading advocates for marine recreational fishing and boating. It is dedicated to promoting sound conservation and use of ocean resources by affecting public policy through the political process.

The *American Sportfishing Association* (ASA) is the sportfishing industry’s trade association, committed to looking out for the interests of the entire sportfishing community. The association invests in long-term ventures to ensure the industry will remain strong and prosperous as well as safeguard and promote the enduring economic and conservation values of sportfishing in America. ASA also represents the interests of America’s 60 million anglers who generate over \$45 billion in retail sales with a \$125 billion impact on the nation’s economy creating employment for over one million people.

The *Coastal Conservation Association* (CCA) is a national recreational fishing membership organization of some 100,000 members and is organized to do business in 17 States on the Atlantic, Gulf of Mexico and Pacific Coasts. It has been actively involved in the majority of the nation’s marine resource debates since its inception in 1977. Its membership is composed of recreational fishermen who fish for every important marine recreational fish available in the EEZ. CCA brings not only an educated perspective on how to fish, but a conservation ethic which recognizes the value of recreational fishing as a pastime and obligation to take care of the resource and use it to the best benefit to the nation.

The *Congressional Sportsmen’s Foundation* (CSF) is the most respected and trusted organization in the political arena promoting, protecting and advancing the rights of hunters and anglers. CSF is the leader in providing access and a voice for sportsmen with elected officials, land and wildlife management agencies, non-governmental organizations (NGOs), and sportsmen allied industry groups across the nation. CSF is a 501(c)(3) non-profit governed by a Board of Directors composed of leaders of the top conservation and outdoor industry organizations in the nation.

The *International Game Fish Association* (IGFA), is a 70-year-old world renowned not-for-profit organization committed to the conservation of game fish and the promotion of responsible, ethical angling practices through science, education, rule making and record keeping. IGFA accomplishes its mission by enlisting the voice of over 300 official IGFA representatives in nearly 100 countries, and more than 15,000 angler-members around the globe.

The *National Marine Manufacturers Association* (NMMA), the nation’s leading marine industry trade association, represents nearly 1,600 boat builders, engine manufacturers, and marine accessory manufacturers who collectively produce more than 80 percent of all recreational marine products made in the United States. The U.S. recreational marine industry contributes more than \$30 billion in new retail sales and 300,000 jobs to the economy each year.

The *Billfish Foundation* (TBF) is dedicated to conserving and enhancing billfish populations around the world. The non-profit organization is an effective advocate for international change, synthesizing science and policy into fishery management

solutions. By coordinating efforts and speaking with one voice, TBF is able to work for solutions that are good for billfish and not punitive to recreational anglers.

Mr. FLEMING. Thank you, Mr. Angers, And let's see. Next up, we have Mr. Nelson, I believe. Yes. You are recognized for five minutes, sir.

**STATEMENT OF DAVID NELSON, CHARTER/COMMERCIAL
FISHING CAPTAIN, PONCE INLET, FLORIDA**

Mr. NELSON. Thank you. Chairman Fleming, Ranking Member Sablan, and Members of the Subcommittee, thank you for the opportunity to testify before you today concerning NOAA's fishery science. I am Captain David Nelson, and I have been fishing the South Atlantic region in Florida my entire life. I represent all American fishermen, recreational and commercial, as well as the American seafood consumer. Many of the people I represent were here for the rally in February 2010, the fishermen's rally on Capitol Hill.

Many coastal communities along the South Atlantic, from North Carolina to Florida, are suffering an economic crisis because of the chronic and well-documented lack of basic data and flawed science that has been used to determine the health of their fish stocks, as we have been talking about today. A prime example of these problems is the current closure on red snapper fishing in the South Atlantic, from North Carolina to Florida.

Lack of data on red snapper in particular has led scientists to make non-science based assumptions about the stock. The evidence is clear in the first stock assessment known as CR-15, completed in 2008. In this assessment, scientists had to create catches or landings of fish that did not happen so that the computer model results would fit the minimal data that was available. I want to repeat that because it is worth repeating. In this assessment, NOAA scientists created catches or landings that did not happen.

In a quote directly from SEDAR 15 concerning outdated U.S. Fish and Wildlife surveys—this is a quote from National Marine Fisheries scientists in the South Atlantic. "Data from these reports—" talking about the U.S. Fish and Wildlife surveys. "Data from these reports were not supposed to be included because the U.S. Fish and Wildlife Service deemed these data untrustworthy." But they were used anyways.

Since they were used anyways, despite their unreliability, in SEDAR 15, over 30 million pounds of red snapper landings were created from thin air using these outdated Fish and Wildlife surveys. They were used regardless of their unreliability, as I said before. In other words, red snapper were deliberately killed off in the computer, not by fishermen.

Just two years later, the 30 million pounds of fabricated landings were corrected in a new assessment, known as SEDAR 24, after an independent review by Dr. Frank Hester found serious flaws in SEDAR 15. However, these fabricated landings, the 31 million pounds that was created out of thin air, forced a closure of the red snapper fishery in January 2010. This cost many people their jobs, caused businesses to suffer severe economic losses, and millions in

lost tax revenue for the States and Federal Government. This vital fishery is still closed today.

Due to the many flaws that were found in SEDAR 15, the National Marine Fisheries agreed to do another assessment on red snapper called SEDAR 24, as I have already mentioned. This was completed in 2010, with the full involvement of fishermen and other stakeholders. The 31 million pounds of fabricated landings were corrected, and it looked like an accurate assessment would be produced with SEDAR 24.

Unfortunately, this did not happen because a computer model was chosen that destroyed the stock before 1975, before there was any data on red snapper, before any data on red snapper even existed. In SEDAR 24, a computer model was deliberately chosen that destroyed the stock with artificially created poor recruitment, which has to do with spawning potential and the number of offspring that the stock produces, based on zero science.

This simply means that this stock of fish, one of the most highly reproductive species known to science, did not produce enough offspring to maintain its own existence. In other words, the red snapper, according to the new assessment, was conducted on a computer-generated path to extinction without any science or data to support this ridiculous notion. This goes against all available science on red snapper, and disregards the best science available on the spawn or offspring relationship known as the spawn or recruit curve.

What happens is you have a certain number of spawning fish in the population, as many of you have heard, and then those without data produce a certain number of offspring. If you have no data, you go by the spawn or recruit curve, which they did not. This is a complete violation of Magnuson-Stevens, MS-2. Best scientific information available, as Mr. Schwaab mentioned earlier, must be followed. Well, that wasn't followed in SEDAR 24. It was violated.

With only two years between SEDAR 15 and SEDAR 24, there were no data changes regarding this recruitment or offspring from spawning. However, between the two assessments, the number of age one red snapper being produced from one assessment to the other was reduced by almost 6 million fish in a 20-year period, a complete fabrication with no data, because it is supposed to follow the spawn or recruit curve.

Now, instead of fabricated landings destroying the stock, the CDAR that happened in SEDAR 15, in SEDAR 24 it was fabricated poor recruitment or lack of reproduction by the stock, with no data.

Here is an explanation of the poor recruitment before 1976. These are National Marine Fisheries scientists, a quote from a National Marine Fisheries scientist involved in this assessment. "Without any data prior to 1976, there is little information to estimate those historical recruitment deviations with accuracy. Thus, the estimate of historic recruitment should not be considered reliable." That's a National Marine Fisheries scientist about a closure that is going to shut down—make people lose jobs and shut down businesses. But he says that this should not be considered reliable information that we are give you here.

Red snapper fishing has been closed for a year and seven months. And during this time, there has been a severe economic hardship in the region that has been affected. This is due to a stock assessment that their own scientists say should not be considered reliable.

Now, because of the seriously flawed nature of the red snapper science, the recreational and commercial fishing industries are now calling for oversight hearings and have been lobbying for oversight hearings on the red snapper science. An investigation of fabricated landings and computer-generated extinction of a healthy fishery is necessary. I will be happy to answer any questions that you might have. Thank you.

[The prepared statement of Mr. Nelson follows:]

**Statement of Captain David Nelson, Charter/Commercial Fishing Captain,
Ponce Inlet, Florida**

Chairman Fleming and members of the subcommittee: Thank you for the opportunity to testify before you today concerning NOAA's fishery science. I am Captain David Nelson and I have been fishing the region under the jurisdiction of the South Atlantic Council my entire life. This area of water is from North Carolina to Florida from 3 miles out to 200 miles and is referred to as the South Atlantic region for management purposes. I represent all American fishermen, recreational and commercial, as well as the American seafood consumers.

For fisheries managers to follow the law under the Magnuson-Stevens Act the science that is being used must be accurate. When it comes to fisheries science, nothing is more important than the data. Unfortunately, the data that is being used to manage nearly all of our fisheries in the South Atlantic are not adequate. Unfortunately, many people involved in fisheries science continuously hide behind the "Best science available" clause in Magnuson and this has led to many flawed assessments being produced by SEDAR in the South Atlantic region. SEDAR is a process of creating assessments that stands for Southeast Data Assessment and Review. Most of the problems in the assessment results are the result of not having data, misuse of unreliable data, and huge assumptions about many stocks.

The recent stock assessment work has been conducted through the National Marine Fisheries Service (NMFS) Southeast Data, Assessment and Review (SEDAR) process. SEDAR science is under the leadership of the NMFS Southeast Fisheries Science Center (SEFSC) located in Miami, Florida effecting fishing from North Carolina to Texas and the Caribbean Sea. The SEDAR process has a history of failed stock assessment products resulting in thousands of lost fishing jobs during recent years. Meanwhile the NMFS leadership does nothing to mitigate the damages to the fishing communities.

A major problem in the southeast region is some of the best available fishery data on species like Atlantic red snapper has been no data at all. Some SEFSC scientists create assumptions amounting to a best guess about historical participation before recorded catches and landings were slowly mandated by the NMFS leadership. This misrepresentation of the past fishing efforts being utilized as the "*best scientific information available*" should be considered a violation of the National Standard 2 intentions for the basic fishery sciences provided in the 2006 Magnuson-Stevens Fishery Conservation and Management Reauthorization Act (MSA).

Counting how many fish are in the ocean is a daunting task with the best data. Regional science centers, such as New England, have decades of fisheries data from multiple sources. Even with this excellent data, the stock assessments in the New England region are still full of uncertainty. We are finding out now, that many fisheries are much healthier than their assessment results had claimed. In these cases under fishing is occurring on many stocks. The regions, where under fishing is occurring, costs the nation jobs and violates the Magnuson-Stevens Act where maximum sustainable yield for the benefit of the nation is required.

In the South Atlantic region, the problems with the science are multiplied because the data sources are extremely limited and the data that is available is often applied wrong due to lack of important data, science, and knowledge about the fish that is being assessed. Another problem in the South Atlantic is that the best available science and data on species like red snapper has not been used, which is also a violation of MSA. All of these problems with the science have led to job losses, businesses failing, and loss of important tax revenue.

To accurately assess the status of a stock of fish, scientists need high quality data from a variety of sources, including fishery dependent and fishery independent data. Fishery dependent data comes from landings of fish by fishermen, and these are tied to many factors outside of actual abundance, such as effort and weather. This data can be collected by portside samplers or from fish markets reporting landings. Fishery dependent data really only shows the health of the fisheries landings and not the health of the stock itself. According to, Dr. Demaster of the NMFS, in his recent testimony before the Senate he claims, "Basing stock assessments just on fishery dependent data is very risky"(Senate Testimony 56:45).

Fishery independent data is collected by scientists and are not dependent on fishing, such as underwater video and diver observations. These data are usually collected by research vessels in a very controlled scientific manner. This type of data is extremely important in determining the health of a given stock of fish. In fact, without fishery independent data it is hard to know the true health of any stock of fish.

In the South Atlantic region, all stock assessments with a few exceptions, are based solely on fishery dependent data. For example, fishery independent data on red snapper does not exist in the South Atlantic region. Red snapper is arguably the most important bottom species for all sectors in the entire region, and in over 30 years, the National Marine Fisheries Service has collected zero fishery independent data on them. This important species was assessed using only hook and line landings data which can be effected by many factors such as; regulations, effort, weather, current, cold water, economics, fish prices, alternative target species, angler experience, fish biology, feeding habits, available food, and many others. This limited data creates a lot of uncertainty.

To add to this uncertainty the fishery dependent data that has been collected on red snapper is very limited and in many cases was not adjusted properly. For example, headboat data must be adjusted because they only fish a limited area and do not catch older red snapper. This data must be adjusted so that the computer model knows that the data is biased.

The landings records and port sampling of catches come from four states; NC, SC, GA, and FL. The area of highest abundance for red snapper is North Florida and Georgia, from Cape Canaveral, FL to Savannah, Georgia. This sampling can also be broken down into sectors; commercial, recreational for-hire, and recreational private. The for-hire sector includes head boats and charter boats. In this region, the largest group or sector is the private recreational fishery or private boat owners.

This being the case then sampling should be focused in Georgia and North Florida and on the private recreational sector. In fact the opposite is true. In the South Atlantic region from 1977 to 2008 a total of 13 fishing trips were sampled in the entire state of Georgia in the recreational sector and all of these were head boat samples. In that same time period there were a total of five private recreational boats sampled in all four states combined, the largest sector of the red snapper fishery (Sedar 24 Table 2.6.2). From 1990 to 2001 headboat sampling was also extremely limited with less than 1% of trips sampled for the decade. (Table 2.6.2)

It can easily be seen that the landings in the South Atlantic have not been properly sampled, especially in the private recreational sector. Since 1977 the most frequently sampled sector is the head boat sector. The sampling of this sector dropped off tremendously from 1990 to 2008 and then increased somewhat in 2009. However, there is a heavy reliance on the headboat data in all assessments in the South Atlantic even though there are huge problems with this data.

For data to be usable it should cover the entire range of the species that is being assessed. For example, red snapper live from near shore out to 100 miles from shore in many parts of the South Atlantic in water up to 350 feet deep. In comparison ninety percent of all headboats fish an extremely limited area inside of thirty miles and in water less than 120 feet deep. To reach 120 feet of water out of Jacksonville, Florida it is over 35 miles, too far for headboats and most recreational anglers. Headboat landings data covers less than 1/3 of the red snapper habitat and does not cover the area of highest abundance from 120 to 160 feet of water. Another problem with the headboat data is that headboats are not able to target all age groups of red snapper. This causes more bias in the data. The headboat index for all species is overused and should not be relied upon to show the health of fish that live beyond the areas that headboats fish.

In the case of red snapper this lack of quality data caused scientists to create catches of fish out of thin air using 40 year old data, so that the computer model would fit the data. In other words, fish were deliberately killed off in the computer, that were not really caught by fishermen. In Sedar 15 the reliance on the poor data from headboats leads to the following discussion by the assessment panel about getting the data to fit or fixing the problem, but never questioning the data itself:

Sedar 15 Assessment Workshop Pages 8–10:

Catch-at-age model

The catch-at-age model gave a poor fit to the 1978–1983 headboat length composition data. The problem has to do with large number of year classes that have similar size range –confidence limits bound mean of ~700mm. The model forces many of older fish into that length range. The removal of those predicted lengths during 1978–1983 requires either truncated age classes from poor recruitment or removing those larger fish using high fishing mortality prior to the 1978–1983 period.

The first attempt to fix this problem examined changes to selectivity patterns on larger fish early in the time series and then allowing selectivity parameter to change annually. This did not 8 Assessment Workshop Report South Atlantic Red Snapper SEDAR15 SAR1 SECTION III provide a better fit to headboat length composition and was not retained in subsequent model runs.

It was determined that the large number of recruits that were artificially put into system with stock recruitment function during 50s and 60s was carrying through into predicted length composition during 1978–1983. To reduce this problem, recruitment deviations were begun at earlier year (1971) in model. Although this solution fixed the problem it may be doing so at expense of missing a much higher F in the early years of modeling period. Discussion also focused on fact that the observed recruitment pattern may not be defensible. Next attempt at fitting headboat length composition data focused on getting rid of larger fish using increased selectivities in period 1. Assume in period 1 all selectivities are same across fisheries and allow selectivities to change linearly (a50) each year shifting towards left and getting steeper. This effectively kills off the larger fish earlier. Also fix slope of parameter in period 2. See Fishery selectivity section for discussion of this approach. These changes in the fishery selectivity functions did not improve fits to the headboat length composition. The modifications of period 1 selectivities was dropped.

The following model runs went back to modifications of stock recruitment function to reduce recruitment of fish during early period. The initial period of poor stock recruitment fits were argued to be a “burn in” period and there was discussion that this might be defensible given that it includes 1950s and 1960s. If the “burn in” period was dropped from S/R curve it looks good and would be defensible. Is this satisfactory? It was decided that this approach was not satisfactory because of possibly missing high fishing mortality during early period that was documented in literature.

The landings data from period 1 were re-visited. A new approach of estimating MRFSS landings from 1946 to 1980 was attempted using ratio of commercial to recreational from later periods and applying that during period 1. These new MRFSS estimates did not fix the headboat length composition fits; the increased recreational landings in period 1 was not enough to remove large fish predictions in the 1978–1983 headboat fishery. Another approach allowed bias estimation of those earlier landings which did fix headboat length fits.

In the following paragraph the assessment group talks about using US Fish and Wildlife surveys that are 30 to 40 years old even though they were deemed unreliable by the US Fish and Wildlife Service.

Data from these reports were not included in data workshop because MRFSS? USFW? deemed these data untrustworthy. However, the assessment group felt that creel surveys from the 1960s and 1970s could be considered trustworthy. Recreational landings from these reports were much higher (order of magnitude) than linear interpolation approach (from 1946 to 1980), ratio, and bias estimation? approach. The next step was to linear interpolate between red snapper landings data from USFW reports; observed data for 1955, 1960, and 1965 was interpolated through from 1945 to 1980. Results were similar and a bias parameter on those new landings data. The base run used these linear interpolations on the 1945 to 1980 for recreational landings (headboat and private); this allowed improvement of fits to headboat length compositions. Anchor point years for linear interpolation of recreational landings are 1946, 1960, 1965, 1970, and 1981. There are no head boat landings before 1972 in base run. The biomass of the stock is below 5% of virgin biomass at terminal year in base run but also when setting recruitment at low levels in period 1. The assessment group felt that high fishing mortality based on survey from sportfishing report was more realistic and defensible than low recruitment during period 1 and poor fit of S/R relationship.

At no time in the above discussion does anyone in the group question the data. The reason that the above discussion took place is that the computer was forced to match the data from the headboats even though the data was not a true picture of the red snapper in the SA. To help the computer results match the data 30 million pounds of red snapper were removed from the stock that were not actually caught by fishermen. This was done by using data that was deemed untrustworthy by the very group that had created them, the US Fish and Wildlife service. This was an assessment that was going to force a 40,000 square mile closure to all bottom fishing in the South Atlantic but was found to be fatally flawed and a new assessment was completed. Once these landings were corrected in the next assessment called Sedar 24, it was found that a bottom closure was not necessary and the region was saved from economic devastation that a bottom closure would have brought.

Landings Corrected

2008 Sedar 15 Inflated Landings	2010 Sedar 24 Actual Landings
1955–1975—80 million pounds	1955–1975—50 million pounds

Difference—30 million pounds of landings created from thin air due to lack of data.

In response to the many problems found in Sedar 15 the NMFS did another benchmark assessment on red snapper in the South Atlantic with fishermen involved and the new assessment was much closer to reality in every area except for red snapper productivity. Sedar 24 still resulted in closing the red snapper fishery because of one glaring issue, how many juvenile red snapper were produced annually from 1955 to 1975 before there was any data. Without any data the computer model is supposed to follow the spawner-recruit curve, which means that on average a stock must produce enough offspring or recruits, to cover natural mortality. Following the spawner/recruit curve without any data was the best science available. However, without any data on recruitment in Sedar 24, the computer was allowed to destroy the stock from 1955 to 1975 with no data or scientific basis. This is the explanation in Sedar 24 about the reliability of these recruitment numbers:

Sedar 24 Assessment Workshop page 18

<http://www.sefsc.noaa.gov/sedar/>

The initial recruitment in 1955 was assumed to be the expected value from the spawner-recruit curve. For the remainder of the initialization period (1955–1975), recruitment was permitted to deviate from the spawner/recruit curve. However, without CPUE or age/length composition data prior to 1976, there is little information to estimate those historic recruitment deviations with accuracy. Thus, the estimates of historic recruitment should not be considered reliable

The last line above is very troubling when thousands of jobs and hundreds of businesses depend on these estimates being reliable. This deviation from the spawner/recruit curve, was not the best science available and allowed the computer to remove over 5,000,000 red snapper from the stock by not allowing the stock to reproduce at a normal biological level. All of the best scientific information available on red snapper has shown that red snapper are the most productive bottom species in the entire South Atlantic without exception. In fact according to Brown-Peterson, “A single nine pound female can produce 60 million eggs in one year” (152) Red snapper fall under the category of fish known as “Periodic strategists” (Rose, Cowan, Winemiller, Hilborn, Page 299).

“The longevity and high fecundity (egg production) of periodic strategists should more than offset their low early survivorship, resulting in periodic strategists having the highest compensatory reserve” (Rose, Cowan, Winemiller, Hilborn, -Page 300)”

Compensatory reserve is the ability to offset high mortality either natural or fishing. This means that of all of the bottom fish in the South Atlantic, red snapper should be the healthiest in spite of fishing. However, the computer model base run that was chosen shows red snapper did not even produce enough offspring to make up for natural mortality. This also violates the laws of nature according to the following, “Population stability, which can include bounded fluctuations, implies that, averaged over a long enough time period, reproduction is balanced by mortality” (Rose, Cowan, Winemiller, Hilborn- page 295)

The red snapper fishery in the SA is a hook and line fishery for all sectors. According to all scientific information available this is one of the most environmentally friendly and sustainable types of fishing. In fact, line caught fish are recommended by most environmental groups as good choices for the environment. The facts are that you have an extremely productive species of fish that has been harvested since

the early 1900's by a very sustainable and environmentally friendly method, hook and line. This is a fish that has a broad range of habitat and before it was closed in 2009 was rebuilding in a healthy manner.

According to Sedar 15 the stock collapsed in 37 years under fishing pressure. When the fishing pressure was corrected in Sedar 24 the stock collapsed because it did not produce enough offspring to even exist and was on its way to extinction without fishing. An important question that needs to be answered is how did red snapper in the SA, one of the most highly productive species in the region being caught using a sustainable method such as hook and line, completely collapse in 37 years under limited fishing pressure? Did the stock of fish really collapse or is the science wrong? It should be obvious that the science is wrong and the fishery should be opened immediately by emergency rule to help save businesses barely hanging on by a thread.

According to the last assessment Sedar 24, there are only 511,000 red snapper left from North Carolina to Florida out to 100 miles from shore. This would make it nearly impossible for anyone regardless of experience to go out and catch just one red snapper. Over the past three years an overwhelming number of people in the region have given public testimony that the red snapper population in the region is healthier than it has been in decades. In the recent tagging trips conducted by the state of Florida every trip has been a huge success with numbers near 70 to 100 red snapper tagged in a single day. In the recent NMFS long line survey conducted for one year in 2010–2011 the most prevalent reef species caught besides black sea bass was red snapper. In fact, the ratio of red snapper to red grouper caught on the NMFS long line trips was 100 to 1 and these fish share the same habitat. According to NMFS red grouper outnumber red snapper 3 to 1 in the computer models, however even their long line survey showed that this is not true. In the last 3–5 years red snapper landings have outnumbered red grouper more than 100 to 1 in the region between North Florida and South Carolina, yet, we can still fish for and catch red grouper but not red snapper. Red snapper outnumber mangrove snapper in the offshore waters from North Florida to South Carolina and we can keep mangrove snapper but not red snapper. It just does not make sense.

On a personal note my summer charter income is down 90% since the red snapper closure. My winter commercial income is down 70% since the closure. Headboat and charter boat revenues are all down in the region, since the closure. Fish market revenue is down since the closure. If this closure was actually necessary then all of these businesses would be supportive and I would too. However, this crisis has been created by lack of data and not lack of fish and the current plan is to keep red snapper closed until 2014. This is completely unacceptable and there needs to be an investigation into this matter. There needs to be an emergency opening of red snapper so that the people who are left standing can still make something with what is left of the summer season. Open it for three years back to old regulations that were working and during that three years make a concerted effort to collect data. Then in three years, complete a benchmark assessment with the best available data that is adjusted properly and everyone in the region will accept the results gladly.

The problems with the science in the South Atlantic region are too numerous to count; from lack of data and knowledge about species to limited sampling and zero fishery independent data. These assessments can cause huge economic hardships such as lost jobs and bankrupt businesses. These assessments can destroy people's lives with their results and no one is held accountable because it was the best science available. If there is not sufficient data as is the case with red snapper, there should be no changes to regulations until data is collected that can accurately determine the status of this fishery. Science should not be able to destroy people's lives unless that science at least resembles reality. The science on red snapper is not even on the same planet as reality. We need someone in Congress to step up and help us to get this fishery open and put people back to work. Two other committees that we hope to get involved in this are 'Science and Technology' which investigates science that is produced by government agencies and the Oversight and Investigations committee that oversees the Commerce department under which NOAA and its' science would be included.

Businesses are being destroyed and jobs are being lost because of a crisis created in a computer. The red snapper population in the South Atlantic region has been rebuilding in a healthy manner since 1992 and thousands have testified to that fact. For the science to claim that there are only 511,000 red snapper left from North Carolina to Florida is an insult to the hard working Americans who have been denied access to this healthy natural resource. Please help us get this extremely healthy fishery opened.

Chairman Fleming and other members of the subcommittee, thank you for allowing me to testify on this important matter. I will answer any questions that you might have.

References and Sources

1. Regional Differences in Florida Red Snapper Reproduction
NANCY J. BROWN-PETERSON¹, KAREN M. BURNS², and ROBIN M. OVERSTREET¹
¹*Department of Coastal Sciences, The University of Southern Mississippi, 703 East Beach Dr., Ocean Springs MS 39564, USA*
²*Mote Marine Laboratory, 1600 Ken Thompson Parkway, Sarasota FL 34236, USA*

SEDAR 15

SEDAR 24

<http://www.sefsc.noaa.gov/sedar/>

Mr. FLEMING. Yes. Thank you, and let's see. Mr. DiDomenico, you are next, sir.

STATEMENT OF GREGORY DiDOMENICO, EXECUTIVE DIRECTOR, GARDEN STATE SEAFOOD ASSOCIATION

Mr. DiDOMENICO. Thank you, Mr. Chairman and Members of the Subcommittee. My name is Greg DiDomenico. I represent a trade association of commercial fishermen called the Garden State Seafood Association.

I have several examples from the Mid-Atlantic, several species, four actually, where the state of the science and the system are failing us, along with several recommendations for how we might improve the current situation for scientists, fishermen, managers, consumers.

The first species is butterfish. The stock was assessed in 2004, and a rebuilding plan was required due to an overfished status at that time. In 2010, an assessment was conducted, but could not determine if the stock was in an overfished condition. More importantly, it did determine that the 2004 assessment was not suitable for management purposes, yet a rebuilding plan remains in place using that faulty data.

We also have learned that its natural mortality and environmental factors are determining stock size and rebuilding rates, not management, not the fishing industry. While overfishing has never been determined for butterfish, and the population strength has been underestimated by an inappropriate survey, we are enduring precautionary management and are under rebuilding plans that are not measurable.

Monkfish. In 1999, a permanent closure of the fishery was pending due to an inaccurate abundance estimate. A closure was avoided by a cooperative survey combining commercial fishing expertise and a rigorous scientific methodology of the National Marine Fisheries Service scientists. This joint effort estimated the stock size to be two times as large as they once thought.

Despite the scientific success, the industry had to pursue earmarks from Congress since 2000 to fund the surveys, instead of receiving funds from NOAA. While the fishery was worth \$17 million in 2009, the assessment was considered data poor, and the result is inconsistent management. Instead of making this research a priority, NOAA will allocate money to catch share programs.

Sturgeon. In 1998, the National Marine Fisheries Service enacted a complete prohibition on the harvest of sturgeon. At that time, the National Marine Fisheries Service did not list the species as endangered. Today, currently, the Service is reconsidering its status only 12 years into a 41-year rebuilding plan. Yet, without a stock assessment, the Service concludes in 2010 the stock has failed to recover since the moratorium was put in place.

This conclusion is based upon an estimate of the Hudson River population between 1986 and 1995. We have been told by the National Marine Fisheries Service in this case 25-year old data is the best available science.

During the last three years, two fishermen on one vessel with scientists in 66 research days tagged and released 323 sturgeon, individual sturgeon, in Delaware Bay. 140 of these were mature large fish, a size previously thought nonexistent. This data has yet to be considered by the National Marine Fisheries Service.

Atlantic mackerel. The National Marine Fisheries Service encouraged the industry to Americanize its fishery in the nineties, urging a million dollars in private investments. In 2006, the stock assessment recommended a combined U.S.-Canadian quota of 186,000 metric tons, and concluded the resource was not overfished, overfishing was not occurring.

In 2009, U.S. and Canadian scientists collaborated on an assessment. The results were an overall quota reduction of more than 100,000 metric tons and an unknown overfishing status. In 2001, the Mid-Atlantic Science and Statistical Committee recommended an 80,000 overall metric ton quota, but to account for additional scientific and management uncertainty, in accordance with National Standard 1 guidelines, the U.S. quota was reduced by another 15 percent by the Council.

I want to summarize with recommendations. For butterfish, expand the current MSA—I am sorry, expand the current Magnuson-Stevens Act short-lived exemption for monkfish. Recommend the agency conduct a fourth monkfish cooperative trawl survey. For sturgeon, recommend the National Marine Fisheries Service conduct a stock assessment immediately to determine the actual stock condition to inform the ESA listing process. And for mackerel, recommend the U.S. implement a research program with Canada and recommend the Service implement an exemption from Magnuson-Stevens Act control rules based on the shared stock characteristics of this resource.

In my last 10 seconds, I am going to try to do something extremely difficult, but I am going to do it. One final recommendation. In an attempt to briefly describe the general Magnuson-Stevens quota-setting framework, you should know the following. The annual catch limit is reduced from the acceptable biological amount, which is reduced from the overfishing limit, which is also known as the maximum sustainable yield.

Remember, maximum sustainable yield is the national objective of the Magnuson-Stevens Act. To put it in simpler terms, under the new MSA requirements, we routinely reduce a harvest potential to avoid overfishing by 25 percent. We consider both scientific and management uncertainty to reduce quotas further to compensate for the lack of science. We closed directed fisheries at 80 to 90 per-

cent of their target amounts. And just in case we exceed one of these already conservative quotas, we apply other provisions like accountability measures to reduce and penalize future quotas.

To truly understand the effects of Magnuson-Stevens Act, the quota-setting framework and impacts poor science has had on our economy, we highly recommend the Subcommittee to request from the National Marine Fisheries Service the specific quota-setting calculations for each species managed by the regional councils.

Thank you very much for your time.

[The prepared statement of Mr. DiDomenico follows:]

**Statement of Gregory DiDomenico, Executive Director,
Garden State Seafood Association, Cape May, New Jersey**

Chairman Fleming, Ranking Member Christensen, and distinguished members of the Subcommittee, I appreciate the opportunity to speak with you today about the implementation of the Magnuson-Stevens Fishery Conservation and Management Act of 2006 ("MSA") and the affect it has had on domestic fishery management and the industries under its authority.

My name is Gregory DiDomenico, Executive Director of the Garden State Seafood Association (GSSA). The GSSA membership is comprised of commercial fishermen, vessel owners, seafood processors and associated businesses in the State of New Jersey. GSSA and its members are involved in all aspects of the fishery management process. Our members occupy advisory panel seats on management councils, participate in cooperative research, and have a healthy respect for the ocean environment, all combined with a serious business acumen.

For today's hearing I intend to explain how two major policy changes implemented via the 2006 MSA reauthorization are impacting the U.S. fishing industry and ultimately our coastal economies. Those two policy changes are: (1) the enhanced role of the Science and Statistical Committee (SSC); and (2) the establishment of setting annual catch limits to prevent overfishing. As a result of the reauthorization, NOAA's NMFS revised guidance for implementing National Standard 1 did so in February of 2009. The NS1 guidelines were revised to provide guidance to the Councils on how to implement certain provisions that are now required components of federal fishery management plans to address scientific and management uncertainty when setting quotas. The revisions were designed to prevent overfishing on the managed resources, rebuild overfished stocks, and achieve optimum yield (OY).

Unfortunately the new guidance manifested into an interpretation by some SSC members that is overly precautionous and risk averse and in the worst case, an acknowledgement that in the absence of information, we must reduce quotas. In addition, the Annual Catch Limit (ACL) and Accountability Measure (AM) requirements of the MSA created standards that are apparently beyond the capabilities of our current fisheries science program, resulting in several layers of uncertainty buffers that are reducing fishery yields and will continue to do so in the future unless our science drastically improves.

In our opinion, the situation is preventing the fishery management councils from meeting other important provisions of the NS 1 guidelines such as achieving OY from each fishery for the benefit of the Nation.

The domestic commercial fishing industry believes strongly that the ACL/ACM/SSC requirements under NS 1 are contrary to achieving OY and if this approach continues, quotas will not be based upon the best scientific information, but instead merely on what information is available which will ensure that quotas will be reduced by scientific uncertainties to compensate for avoiding overfishing at any cost and achieving rebuilding in as short a time as possible.

Clearly, we must work to reduce scientific uncertainty by increasing funding and ensuring that key stocks are assessed on a more regular basis in every single region. We must support the councils and ensure they have the necessary information so that quota decisions are accurate and precise rather than exercises in precautionary management.

My testimony includes 4 species that are critically important to our Mid Atlantic commercial fisheries. Each species is unique, biologically and each is plagued by the same management issues stemming primarily from a lack of adequate science. Those 4 species are; butterfish, monkfish, Atlantic sturgeon and Atlantic mackerel. The proper management of each of these stocks is crucial to the success of our fishermen and the economies of our fishing communities.

1) Butterfish

2004 Stock Assessment and Mandated Rebuilding Program

In 2004, a Scientific Assessment Review Committee (SARC) was convened to assess the status of the butterfish stock. The SARC is an independent panel of experts that reviews the assessment. The SARC concluded that the stock was not undergoing overfishing but was in an overfished condition. The Mid-Atlantic Fishery Management Council (MAFMC) was notified by the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service (NMFS) on February 11, 2005 that the butterfish stock was designated as overfished and a rebuilding plan would have to be established requiring rebuilding of the stock in a time as short as possible but not to exceed 10 years.

2010 Stock Assessment

The conclusion of the 2010 SARC was that the stock was not undergoing overfishing but could not determine if the stock is overfished. The unfortunate aspect of this situation is that the SARC also concluded that the results of in 2004 were inaccurate and not suitable for management decisions. So a rebuilding program was set forth for no reason and 6 years later the available data are still insufficient to determine whether butterfish is overfished.

Unknown Status will persist due to unique biological characteristics

Given the fact that butterfish has a very short lifespan (1–3 years), high natural mortality, highly uncertain and variable survey indices, and exceedingly variable catch estimates. It is possible even in 10 years we will still not have an assessment that provides much reliable information about the condition and productivity of the butterfish stock. If we did have such an assessment, it would be out of date upon completion because most of the butterfish that were alive then will be dead before final review of the assessment, and even less would be alive by the time that information worked its way through the specification process.

Exemption for the Butterfish Stock

The 2007 MSA reauthorization provided an exemption for some marine species with short life cycles. Abbreviated lifecycle characteristics limit the ability of managers to forecast abundance, set control rules, and achieve maximum sustained yield (MSY). The MSA allows for a specific exemption from ACL for species with a life cycle of approximately one year that are not overfished but requires an estimate of MSY and a catch level that does not exceed MSY. However, the application of the exemption is not clear when it comes to managing a species with an extremely high natural mortality rate (M) that essentially complete their life cycle within a year but have some residual population remaining beyond the first year of life.

A simple example of the survival of butterfish is that if 1000 butterfish are born in a given year only 41% survive to a full Age 1. Butterfish have been described to have great potential to rebuild in a relatively short period of time because some reach maturity at in their first year and nearly all are mature at Age 2.

Fishing Mortality is Not Affecting Butterfish

The available data for butterfish indicate that fishing has almost no effect on butterfish abundance and it appears that enough fish survive to maintain the reproductive potential of the stock. The fishing mortality rate (F) applied to butterfish is exceptionally low. The recent Stock Assessment Workshop (SAW) estimated that absolute fishing mortality in 2008 was $F=0.02$, a very low rate compared to other managed stocks.

Trawl Survey not Suitable to Estimate Abundance

Adding to our science problems is the difficulty of generating an accurate estimate of butterfish abundance from the survey index. The habits of butterfish make it difficult to sample accurately in the standard federal trawl survey. It is increasingly clear that the survey only partially samples the butterfish population, likely underestimating abundance thereby generating scientific and management uncertainty. These uncertainties force precautionary decision-making when it comes to setting ACL which negatively impacts fishing activities directed at other species, in particular the *Loligo* squid fishery.

Allowable Biological Catch (ABC) Reductions

During the time between the two stock assessments the butterfish ABC was reduced from 4,545 metric tons in 2004 to only 1,500 metric tons in 2010.

Annual Biological Catch, Annual Catch Limits and Accountability Measures

In 2012 the butterfish ABC is set equal to the ACL which allows for a harvest of 3,622 metric tons. To account for management uncertainty and other considerations the MAFMC applied a 10% buffer and an Annual Catch Target (ACT) of 3,260 metric tons was approved. Despite an apparent doubling of survey results, rigid uncertainty buffers continue to reduce yield from this stock when it is likely that harvest could be increased substantially on a sustainable basis.

Solutions

We recommend expanding the current short-lived species exemption in the MSA to include species with brief life cycle characteristics (not just one year) that also experience a high rate of natural mortality.

2) Monkfish

A Fishery Management Plan is developed

The directed commercial fishery for Atlantic monkfish did not begin to develop until the 1980s and landings increased substantially through the 1990s. In 1999, the New England Fishery Management Council developed the initial fishery management plan for monkfish and under pressure from NMFS, proposed to close the directed monkfish fishery permanently, citing concerns that the stock was so small it could not sustain a directed fishery.

NMFS Trawl Survey not suitable for estimating abundance

The primary problem was that the NMFS survey vessels did not catch monkfish during the spring and autumn federal trawl surveys which were the only fishery independent data sources available to managers. At issue was the type of net being deployed on federal survey vessels (not designed to catch monkfish) and the speed at which the nets were being towed. Poor results from the survey resulted in inaccurate science which forced managers to conclude that the monkfish stock was in dire condition. Unfortunately, these data were being considered the best available scientific information by the NMFS.

Cooperative Efforts Yields Best Available Science

In 1999, compelled by a pending permanent closure of the directed fishery, the fishing industry approached NMFS requesting funding for a pilot project to conduct a monkfish-specific cooperative trawl survey using federal scientists onboard industry vessels working with monkfish fishermen towing the appropriate nets at the correct speed.

The Agency agreed to a small scale NMFS–Industry cooperative pilot project which proved successful. Based on the experience of the pilot project a federally-funded coast-wide cooperative monkfish bottom trawl survey was completed in 2001. The swept area biomass estimate calculated from that survey proved that the monkfish stock was 2 times larger than the estimate being used by NMFS to justify closing the directed fishery. Based on the results of the cooperative research and to NMFS and the New England Fishery Management Council's credit, the directed fishery was not closed and the fishery management plan was implemented with provisions that included a directed fishery.

Data Poor Status Persists

Despite monkfish becoming one of the top three most valuable finfish species on entire the East Coast, ex-vessel value reported by NMFS as high as \$44M in some years during 1995–2004; and \$17M in 2009, the stock still remains on the Agency's "data poor" list. It is inconceivable that a core stock of such value continues to suffer from a lack of reliable scientific information.

Despite the success of the 2001 cooperative survey, NMFS was not supportive of the monkfish survey and would not commit to a triennial survey, even though it was scientifically sound. The position of the NMFS was that a survey dedicated to monkfish was too expensive (approximate cost is \$1.5M every third year) and consumed excessive staff time for data on just a single species.

In light of NMFS's disinterest in continuing the monkfish survey the fishing industry was forced to seek earmarks from Congress to fund subsequent cooperative trawl surveys and try to improve the level of scientific understanding. Thankfully, Congress also recognized the value of the data generated by the monkfish survey and funded two additional surveys in 2004 and 2009 from the "National Cooperative Research" line item in the NOAA/NMFS budget.

Inconsistent Quotas Resulting from Inconclusive Assessments

Due to the poor understanding of monkfish it has been difficult to determine if and when the stock was overfished and if overfishing was occurring. Annual quotas

were set for the first 7 years of management using catches from the unreliable federal autumn trawl survey as the primary data input. Because the trawl survey was not suitable to estimate abundance, the result was fluctuating quotas and inconsistent fishing opportunities throughout the past decade.

For example, the days available for fishermen to target monkfish in the directed fishery in the Southern Management Area (SMA), which covers New Jersey to North Carolina whipsawed from 40 days a year in 2000 down to 28 in 2004, back to 39 in 2005, and down to a low of only 12 days allowed in 2006. Fishing days were increased to 23 per year starting in 2007 and is set at 28 days for the current fishing season 2010–2011.

The monkfish quota fluctuated similarly since it was also linked to effort and autumn trawl survey data. In the SMA, the quota was reduced from a high of 21,325,318 pounds in 2005 to a low of 8,084,353 pounds in 2006—a precipitous near 40% decrease in one year due solely to a lack of reliable science and subsequent precautionary decision-making. In 2010–2011 the quota was set at 11,243,562 pounds.

Best Available Scientific Information

Today, monkfish remains a data poor stock and no cooperative trawl survey is being planned by NMFS. Sadly, NOAA requested the “National Cooperative Research” line item contained in the FY2012 NOAA budget request be parsed into funding for other programs (e.g. to fund research in catch share fisheries and to develop eco-friendly fishing gear) thereby reducing survey funding opportunities and highlighting the agency’s lack of commitment to improve monkfish assessment science. Despite this, industry efforts continue in 2011 to seek funding for a fourth and final monkfish survey to be conducted in spring 2012 but the current earmark situation has effectively undermined those efforts.

Annual Catch Limits and Accountability Measures

The Secretary of Commerce recently implemented a final rule (Amendment 5; See 76 FR 30265) to bring the monkfish fishery management plan into compliance with the ACL and AM requirements contained in the reauthorized MSA. Among these new measures are formal consideration of both scientific and management uncertainties which, in the case of monkfish, have not improved measurably since the plan was implemented in 2000. Thus, we can expect more precautionary management decisions and buffers in the future with no clear plan to address the root cause of the problem which remains the lack of reliable scientific information.

Solutions

We recommend the Agency conduct a fourth cooperative trawl survey in 2012 to ensure that the monkfish catch rates on the *R/V Bigelow*, NMFS’ new vessel being used in the autumn trawl survey, are calibrated with previous cooperative survey results. This continuation of the cooperative trawl survey will help to ensure that quotas are set based upon the best available science and will help to remove monkfish from the data poor list.

3) Atlantic Sturgeon

The Fishery and the Moratorium

Historically, there was a large commercial fishery for Atlantic sturgeon during the early to mid 1990s. This directed fishery was by far the largest source of fishing-related mortality, reaching a 90-year peak of approximately 100 metric tons before being closed by the Atlantic States Marine Fisheries Commission (ASMFC) throughout the entire range from Maine to Florida, in 1998.

The First Endangered Species Act (ESA) Debate

In September 1998, NMFS issued a ruling citing the entire suite of state and federal protective measures already in place, including those that were to be implemented, as reasons *not* to support an ESA listing of Atlantic sturgeon at that time. In fact, NMFS indicated that by 1998 all state jurisdictions within in the U.S. range of the species had implemented complete prohibitions on both harvest and possession. (See 63 FR 50189). In this same ruling, NMFS went so far as to honor the pending closure of the Exclusive Economic Zone (EEZ) as yet another critical conservation benefit that mitigated any need for an ESA listing. Consistent with the 1998 position, NMFS closed all federal waters to sturgeon fishing in 1999. The Agency stated that “the duration of the moratorium is anticipated to be approximately 41 years from its initiation.” (See 63 FR 50189).

The Present ESA Debate

Today, just 12 years into a 41 year recovery plan, NMFS is proposing to list Atlantic sturgeon under the ESA and the Agency has never ever conducted a single

sturgeon stock assessment. In fact, the Agency has never produced a full population estimate for any sturgeon DPS they propose to list on the entire East Coast. Instead, the NMFS stated on January 6, 2010 that the stock has now “failed to recover in the time since a coastwise fishing moratorium was put in place in 1998” (see 75 FR 838) despite previously acknowledging 41 years would be needed to achieve full recovery. Proposing an ESA listing now, just 12 years into a 41 year plan, with no population assessment is both disingenuous and remarkably unscientific.

Poor Data Persists

To justify the proposed ESA listing of 2010 the NMFS claims that their “best available scientific data” is a single estimate of 870 adults from the Hudson River from 1986–1995. Thus, the entire East Coast Atlantic sturgeon ESA listing is based on this “best available scientific information” which is not a stock assessment at all, which incorporates data points that are 25 years old, and which contains no information on stock condition since the species was afforded full protection in 1998–99. While the Agency has admitted they “may likely underestimate current conditions” (See 75 FR 839), they are unwilling to consider the recent scientific information collected by the New Jersey fishing industry and University of Delaware scientists during 2009–2011.

Cooperative Science Yields New Data

A NOAA grant was used to fund sturgeon tagging activities in the Mid-Atlantic Bight during 2009, 2010 and 2011. The work was conducted by researchers and an experienced New Jersey commercial fisherman using gillnets designed and fished in a specific manner to catch and release sturgeon.

During 2009, researchers caught 55 individual fish in just 20 short sampling events with a single 100 meter gillnet. There were no recaptures and 54 of the fish were reported mature. The fish averaged 163 cm in length and ranged from 120–226 cm and 12 of the fish (21.8% of the total) were larger than 200 cm long. Of particular interest is the existence of many very large fish which NMFS considers to be exceedingly rare. The information being cited by NMFS to support an ESA listing includes the opinion that fish larger than 200 cm are rarely observed and corresponds to an age range of 11 to 20 years.

During 2010, researchers caught 54 individual fish in 17 short sampling events. There were no recaptures (of 2009 or 2010 tagged fish) and 50 of those fish were also reported mature. The fish averaged 163 cm in length and ranged from 119–230 cm. At least thirteen of these fish (24.1% of the total) were larger than 200 cm.

During 2011, researchers caught 214 individual fish in just 29 days of sampling effort. There were 5 recaptures of fish tagged in 1994 and no recaptures of fish tagged in 2009 or 2010. Thirty six of these fish (16.8%) measured larger than 200 cm and ranged from 71–237 cm in total length.

In just 66 sampling days during 3 brief spring seasons, scientists and one NJ fisherman caught and released 323 individual sturgeon. Genetic data indicate these fish represent approximately 16% of the NMFS estimate of the entire Hudson River adult population. The highest rate of catch recorded during the 3-year study was in 2011 when 20 individuals were caught in just a single day of fishing a 100 meter gillnet. Also caught and released were at least 140 mature fish so large (and old) they are considered to be virtually non-existent in the report used by NMFS to justify the proposed ESA listing.

Old Data or Best Available Science

Despite having no reliable stock assessment on Atlantic sturgeon and after industry has demonstrated that large fish previously thought rare are actually relatively abundant, NMFS does not appear willing to accept the results of the tagging research. The new tagging data were submitted to NMFS during the public comment process. In fact, these data may not even be considered in the peer review process of the Agency’s 2011 ESA listing process for reasons we simply cannot comprehend.

ESA Impacts on Other Directed Fisheries

When commercial fishermen are harvesting Atlantic monkfish, in the Mid-Atlantic region and elsewhere along the East Coast they may inadvertently interact with Atlantic sturgeon. As sturgeon abundance increases so too does the probability that sturgeon may come in contact with fishing gear set for species other than sturgeon. Common sense and sound fisheries management scientific principles dictate that as Atlantic sturgeon benefit from full-scale management protection throughout their range they naturally will rebound and become numerically more abundant.

Our concern is that NMFS will once again gravitate toward precautionary decision-making to the detriment of the fishing industry and coastal economies. Unfor-

tunately, this is precisely where NMFS is headed regarding Atlantic sturgeon, all directly attributed to a lack of scientific information and the lack of agency commitment to generate it.

Solutions

We recommend NMFS be required to conduct a sturgeon stock assessment immediately using the best available science to determine the coast-wide condition and abundance of the stock and to inform the ESA listing process.

4) Atlantic mackerel

The Mackerel Fishery and US Production

In 1976, the U.S. established control of the Atlantic mackerel fishery with the enactment of the Magnuson –Stevens Fishery Conservation and Management Act. In the early 1980's landings were about 3000 metric tons and increased to more than 30,000 metric tons. In an effort to Americanize the fishery and with considerable investment from U.S. shoreside companies, U.S. exports of all mackerel products totaled 55,858 mt valued at \$58.2 million in 2006. In 2007, US exports of all mackerel products totaled 30,380 mt valued at \$34.0 million. Recent catches have decreased dramatically due to lack of availability, lack of effort and other unknown causes. A "regime shift", due perhaps to climate change, is one suspected factor since catches in Newfoundland are increasing while U.S. domestic catches are a fraction of what they once were.

The Stock Assessment Process

In January of 2006 the Scientific Assessment Review Committee (SARC) held its 42nd Northeast Stock Assessment Workshop (SAW) and assessed the health of the Atlantic mackerel resource. At the time of that assessment, the Status Stock Determination for Atlantic mackerel was the stock was not overfished and that overfishing was not occurring and that the annual total catch should not exceed 186,000 metric tons.

In 2009, due to the trans-boundary nature of the Atlantic mackerel resource in the northwest Atlantic region, the NMFS decided to conduct a joint stock assessment with the Canadian Department of Fisheries and Oceans through the Trans-boundary Resources Assessment Committee (TRAC) process, setting aside the U.S. SARC process that had been used in the past. The TRAC concluded that the status of Atlantic mackerel is unknown and also recommended that annual total catches not exceed 80,000 metric tons, for both countries, using average catches as a proxy for an overfishing level (OFL).

The Disadvantage of a Trans-Boundary Resource to Domestic Fisheries

While US producers' opportunity to harvest Atlantic mackerel was reduced by more than 140,000 metric tons, literally overnight, the Canadian government ignored the TRAC advice, allowing the Canadian industry to take as much as 65,000 metric tons, of the 80,000 metric tons, for themselves. Furthermore, U.S. law requires Canadian catches to be deducted from the U.S. ABC calculation and Canada's fishermen are under no current obligation to fish within U.S.-established MSA resulting in a preferred competitive position for Canada. While catches off the Newfoundland shores are increasing, the potential for this trans-boundary resource to be harvested solely by Canada is real and will harm the interests of U.S. fishermen.

A Formal Sharing Agreement in Needed

Congressional action is necessary to require the U.S. government to implement an Atlantic mackerel resource sharing agreement with Canada and begin to budget and plan for the bilateral Atlantic mackerel research program identified by the TRAC two years ago. The U.S. fishing industry has requested that the NMFS pursue and secure a resource sharing agreement with Canada which could implement a research agenda between the two countries and make it possible for an exemption from control rules that reduce potential U.S. quotas.

Science and Statistical Committee Quota Recommendation

This year, the Mid Atlantic Fishery Management Council's (MAFMC) Science and Statistical Committee (SSC) again used the 2009 TRAC results to set an Acceptable Biological Catch (ABC) of 80,000 metric tons for both nations' fisheries, as best available science for the 2012 fishing year.

Annual Biological Catch, Annual Catch Limits and Accountability Measures

Following the SSC's determination of the ABC, the MAFMC, citing additional concerns about the stock beyond those already considered by the SSC, decided to invoke

a more conservative interpretation of the National Standard 1 Guidelines concerning the application of scientific uncertainty and further reduced the U.S. quota.

After considerable discussion and some confusion about where the line between management uncertainty and scientific uncertainty should be drawn, the MAFMC applied an additional 15% buffer to the commercial quota for mackerel, which had the effect of further reducing the quota to an Annual Catch Target (ACT) of 34,907 metric tons.

Due to rigid MSA requirements and confusion among fishery managers about whether or not the law requires the production of sustainable fishery yields or the application of layers of scientific uncertainty, the U.S. mackerel fishery which has *not* been declared to be overfished, has seen significant quota reductions.

Solutions

We recommend requiring the U.S. government implement the start of a research agenda with Canada and also consider the shared stock status of the Atlantic mackerel resource and implement an exemption from the MSA control rules that reduce potential U.S. quotas.

Conclusions

Our written testimony is distilled from attending 7 years of fishery management meetings regarding these species and from countless documents provided by the NMFS, NEFSC and MAFMC. We have attempted to provide the Subcommittee with the relevant information about these 4 stocks, the condition of the science, the real impacts on the management and in some cases, the impacts on our fishing activities and quotas.

The ACL and AM requirements of the MSA are creating standards that are apparently beyond the capabilities of our current fisheries science program, resulting in layers of uncertainty that are reducing fishery yields. The National Standard 1 Guidelines (NS1) have evolved to include such a level of precautionary decision-making that considers both scientific and management uncertainty, that we believe prevents the U.S. fishing industry from achieving optimum yield.

Furthermore, even for stocks not being overfished or where overfishing is not occurring, or specifically when stock assessments yield inconclusive results, we may never reach the optimum yield benchmark. This is the true weakness of U.S. fisheries management policy yet achieving optimum yields is the cornerstone objective of MSA.

The U.S. fishing industry needs strong support from Congress to increase the NMFS science budgets and require that research be of stock-assessment grade quality. Furthermore, Congress needs to require NMFS to produce the necessary information to meet its management objectives or adjust the MSA implementation requirements to reflect a better balance consistent with the state of our knowledge. If this is not accomplished we are destined to continue this disturbing trend of quota reductions and lost economic opportunity.

Mr. FLEMING. OK. Thank you, sir. And next up is Mr. Gauvin.

STATEMENT OF JOHN GAUVIN, FISHERIES SCIENCE PROJECTS DIRECTOR, ALASKAN SEAFOOD COOPERATIVE

Mr. GAUVIN. Thank you, Mr. Chairman and Members of the Committee. For the record, I am John Gauvin. I am a fishery economist, the Science Director for the Alaska Seafood Cooperative, and I have been involved in fishery science in Alaska since 1993.

The question today is whether NOAA's baseline science is costing jobs in groundfish fisheries in Alaska. And I say the answer is yes. It took me nine pages of testimony in written form to get to that, and the answer is because it is complicated.

The one area of concern I have for NOAA science in Alaska, it is these duties to evaluate the effects of fisheries on protected resources and listed species under the Endangered Species Act. There, there is a lack of good, fundamental, objective science. In my opinion, NOAA has relied on substandard science, biased approaches, and faulty review processes in its science related to—

particularly to the Steller sea lion and the biological opinions and recovery plans.

The result has been that key fisheries in the Aleutian Islands have been closed. We estimate \$60 million annual loss in revenues in those fisheries to fishing boats and the processing sector, boats that are now tied up and processing facilities that are idle for months when they normally would be fishing for Pacific cod and Atka mackerel, and communities at risk in Adak and Atka.

In my opinion, this didn't need to happen, and I think application of good science would have prevented it. My remarks cover extensively the good science that NOAA is doing, and the Alaska Fishery Science Center's commitment to funding fish surveys on an annual basis, the high quality stock assessments, state-of-the-art research on ecosystems, and fish habitat.

I personally know that the agency has a willingness to engage in cooperative research to find creative solutions to issues like by-catch and reducing seafloor contactive trawling. I think in the stock assessment process we have an open and transparent review process. We have a plan team SSC process that is comprehensive and allows outside scientific input in a meaningful way.

I feel that this is a good story in Alaska. However, every year there are threats to the funding in these surveys. When I read about marine spatial planning and oceans councils and regional ecosystem protection restoration initiatives from headquarters, I am concerned that money will be pulled away from these fundamental stock assessment surveys so critical, and by critical I mean that with increased cost to us of uncertainty, I would estimate that by just changing the stock assessment to every other year in the Bering Sea, we might reduce our annual catch limits by 30 or 40 percent. That is 30 or 40 percent of 2 million metric tons harvested annually.

My chief complaint on the NOAA science in Alaska is the shortcomings with approach to applying science to protected resources and ESA listed species. NMFS is responsible for preparing biological opinions and recovery plans, and in this process, I think they have used a very closed process, without transparency, that lacks opportunities for meaningful public input or input from outside scientists. They have used timelines that are unrealistic and don't allow for meaningful comment and input by the North Pacific Fishery Management Council and the public.

And in their attempts to review these opinions using scientific reviews, the agency is pushing for use of the Center for Independent Experts, a NOAA-funded program, which I believe is a closed process, has little opportunity for input from outside scientists. And in this case, the agency is pushing for a process that does not allow evaluation of the conclusions of their biological opinion.

I feel the reforms that need to be made in Alaska are simple. We need the agency doing protected resource analyses and biological opinions to have a timeline that allows for constructive review of drafts, not just final products, have a requirement for outside review in the development stages of biological opinions, use of a transparent, open process and transparent standards for evaluating effects of fisheries on listed species are needed.

We need an independent review process that uses a transparent process similar to the one that the States of Washington and Alaska are putting together for their review of this biological opinion, and I think that NMFS could, you know, open up their terms to match those of the State's independent review.

And finally, Mr. Chairman, I would like to talk about one example where I feel NMFS isn't doing research in Alaska where it should be. The North Pacific Research Board and a private foundation called the North Pacific Fisheries Foundation have funded a project to tag active mackerel in the Western Aleutian Islands. This project would elucidate key information on mackerel movement and whether fishing in outside areas is actually able to catch the fish inside near Steller sea lion rookeries.

The project would use NMFS' own scientists for most of the scientific methods and field work. It has been funded and was scheduled to occur in 2011-2012. I learned recently that NOAA is canceling this research. I haven't exactly ascertained the reason for this, but I believe it has to do with their concern over litigation in catching any fish at all in the Western Aleutians. However, I believe this is not really a concern because the research wouldn't involve much fish harvest. But this is critical information to answering the questions about whether fisheries are competing with Steller sea lions in this area, and we are pushing the agency to take a hard look at doing this research and following through with their commitment to collect the data necessary to understand the sea lion fisheries competition issue.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Gauvin follows:]

**Statement of John Gauvin, Fisheries Science Director,
Alaska Seafood Cooperative**

Thank you Mr. Chairman. For the record, my name is John Gauvin. I am a resource economist and have been involved in both applied research and the use of science in fisheries management in Alaska since 1993.

I would first like to express my gratitude to you Mr. Chairman and to the members of the Subcommittee for the opportunity to provide my perspective on NOAA's science activities in support of the management in federal waters groundfish fisheries in Alaska.

My area of specialization has been applied research on bycatch reduction, effects of fishing on habitat, management systems to increase economic efficiency, and approaches to implementation of ecosystem management in Alaska fisheries. I am currently the fishery science director for the Alaska Seafood Cooperative and also simultaneously direct several cooperative research projects in Alaska and the Pacific Northwest for clients including the North Pacific Fisheries Research Foundation, Environmental Defense Fund, and other governmental and non-governmental organizations. Finally, I have served on the board of the North Pacific Research Board since 2001 and I was a recipient of NOAA's Environmental Hero Award in 2000 for conservation engineering extension work with the flatfish trawl industry in the Bering Sea.

I would like to title my testimony today as: "NOAA's science to support fishery management in federal fisheries off Alaska: The Good, the Bad, and the potentially Ugly". To summarize my perspective today, I would say that there is a lot of good that can be said about NOAA's role in providing the fundamental science products needed to support the economically important commercial fisheries in federal waters off Alaska. This is not to say that NOAA's science in the North Pacific is beyond reproach and I will talk about one important shortcoming where I feel there is a great deal of room for improvement. But I will start with where things are going well and outline the importance of continuing that important work to support sustainable fisheries.

The Good:

The Alaska Fisheries Science Center (AFSC) plays a crucial role in providing supporting science across an ever-increasing set of issues, scientific domains, and regulatory mandates. AFSC's role in Alaska to furnish baseline science has expanded in step with the complexity of fishery management. This tracks the ever increasing set of demands by public, industry, environmental, and governmental stakeholders who insist that fisheries be managed sustainably based on the best peer-reviewed science while providing food, employment, and recreation to the nation.

If one peruses the Alaska Fishery Science Center's (AFSC) website, the breadth of the Center's fishery science mission becomes evident. The AFSC provides science products and services for everything from: Fisheries Assessment Surveys; North Pacific Groundfish Observer Program; Ecosystem Monitoring and Assessment; Habitat Assessment and Marine Chemistry; Genetics- Stock Identification; Fishery Ecology Diet and Zooplankton; Age and Growth; Stock Assessment and Multispecies Assessments; Economic and Social Sciences Research; Bering Sea Integrated Ecosystem Research Program; Resource Ecology and Ecosystem Modeling; Conservation Engineering; Marine Mammal Research; and Studies of loss of Sea Ice. All of these are important at some level to managing sustainable fisheries in Alaska given the expectations at the scientific and fishery management arena for everything bundled into the concept of "sustainability" and management of the effects of fishing on the ecosystem.

Of the above disciplines within fishery science at the AFSC, I work closest with the Conservation engineering, Stock Assessment, and Resource Ecology and Ecosystem modeling branches and I am pleased to say that I think the AFSC does a remarkable job providing the science needed to meet the ever-increasing mandates for sustainable management of our fisheries in Alaska in those areas.

I can also tell you from experience that when we proposed 12 fisheries for flatfish and cod for certification by the Marine Stewardship Council (MSC), the gold standard of independent sustainability certification, I came to appreciate even more the solid science that goes into our fishery management system. The standards for certification for harvest strategy, fishery management, and management of ecosystem effects of fishing embedded in the MSC certification process could not have been met if we had mediocre baseline science coming out of the AFSC. Meeting those standards, and obtaining MSC certification, has allowed us to access a growing set of markets in Europe and elsewhere that would otherwise not be available to our industry.

From my numerous cooperative research endeavors with NOAA scientists in its Resource Assessment & Conservation Engineering, Groundfish Observer Program, and Resource Ecology and Fishery Management divisions, it is my experience that these divisions have eagerly made their scientists available to assist the fishing industry in conducting research to modify fishing practices to address sustainability concerns and environmental effects. This research has been carried out through partnerships designed to take advantage of relative skills of each party within a setting of mutual trust and respect. This work has been successful in bringing fishermen's knowledge of fish behavior, the environment, and fishing gear into scientific exchanges with AFSC researchers. Impressive reductions in bycatch, reduced impacts of fishing gear on habitat, other creative solutions and even gains in catch efficiency/reduction in fuel use have been accomplished through these partnerships.

As part of the work I do the Alaska Seafood Cooperative, I review a wide set of NOAA's science products on a regular basis to ensure they are sound and that the content is being correctly interpreted. From my experience doing this work every year I can say that NOAA's fishery stock assessment and ecosystem modeling studies in Alaska are generally of the highest quality available. Several scientists at the AFSC are world-renowned and in high demand internationally for workshops and symposia. NOAA staff and scientists in these divisions work hard, and we appreciate it.

In my view, this high quality science standard has been achieved both through the funding commitment that NOAA has made through the AFSC, and because the Center in most areas has not been afraid to open its process to outside, independent peer review. Independent review in the development stages of modeling and stock assessments is, in my opinion, critical to achievement of a high quality science process. I would like to touch on each of these.

First off, in order to successfully manage sustainable fisheries, you have to have good basic data. In Alaska, the AFSC has conducted annual trawl surveys in the Bering Sea and bi-annual surveys in the Gulf of Alaska and Aleutian Islands for an impressive time series. The annual trawl surveys in the Bering Sea are the basic underpinning of stock assessments and ecosystem models for some of the nation's largest fisheries. We are very fortunate to have had NOAA's commitment to

prioritize that work because it is this top-notch science that has allowed the large scale fisheries of the Bering Sea to be managed sustainably. Overall, Alaska produces over half the nation's seafood landings, worth billions of dollars and tens of thousands of jobs on a long term sustainable basis. Simply put good science means sustained jobs and revenues for the nation.

One of the other important factors in good science is having a trusted process that builds confidence in management. An open peer review process is key to building this trust and critical to maintaining the quality of the science. One of the best peer review processes takes place through the North Pacific Fisheries Management Council. Periodic outside review and annual review by both Plan Teams and the North Pacific Council's Science and Statistical Committee are key ingredients in what makes the Alaska management process work. The success of this scientific peer review is that it is transparent, and science driven. This review includes opportunities for non-governmental scientists from academia, the industry, environmental organizations, and other interests to participate in an open and public manner. Transparency builds confidence in the science, and thus the management decisions that are made based on the results of that science.

Unfortunately, both of these key factors are at risk. Every year there are new threats to the funding for trawl surveys and other scientific work that is fundamental to fisheries management in Alaska. I cannot overemphasize the potential downside in terms of loss of management precision for fishery resources in Alaska that would occur if NOAA's funding for resource surveys is reduced, or redirected elsewhere. As I read about NOAA's national priorities for a National Ocean Council, Marine Spatial Planning, and Regional Ecosystem Protection and Restoration Initiatives envisioned at the national level, I grow increasingly concerned that the funding at the regional level to support the AFSC, Alaska Regional Office, and the North Pacific Fishery Management Council will be redirected to help fund different priorities set by NOAA headquarters. In these times of limited fiscal resources one has to question whether redirecting baseline funding to the latest idea at the Headquarters level is an appropriate use of tight federal funds.

I personally do not believe that moving funds needed for fishery science to cover such initiatives at the national level will improve our ability to conserve and manage resources sustainably in Alaska. The simple fact is that with any reduction in the scope of these surveys or their interval will result in more uncertainty. This could lead to a reduction in yields even where groundfish populations are increasing. With less frequent surveys, uncertainty increases and harvest strategies must be reduced to avoid potential for overfishing. I have little doubt that if the AFSC conducted the groundfish trawl surveys in the Bering Sea every other year instead of every year, the allowable catches in the Bering Sea pollock fishery and other important fisheries for cod and flatfish would be reduced on average by at least 30 to 40% in the absence of any change in the actual abundance of these stocks. The downstream effect on fishery yields would have dramatic effects on the economies of Alaska, Washington, and Oregon in terms of employment losses, effects on coastal infrastructure that supports fishing, and loss of domestic and export earnings for the nation.

The Bad:

With all the glowing examples above it is clear that for the most part I believe NOAA is doing a great job providing the a high quality science product to support fishery management in Alaska. But I am also concerned with recent indications that NOAA is moving to closed door peer reviews when it comes to review of the science it does pursuant to the Endangered Species Act, protected resources, and marine mammals. As I have mentioned above, I believe the open and transparent standards for peer review process are critical and this is being undermined in this area in particular.

For review of its recent sea lion biological opinion in Alaska, NOAA has turned to a closed peer review with no public involvement instead of the more open and transparent peer review normal to the Council process. This closed process will take place through the Center for Independent Experts (CIE), a NOAA funded process. The problem with the CIE is that it is conducted without public involvement or any opportunity for presentations of scientific information except that provided by NOAA and the CIE is barred from commenting on the conclusions reached by the agency in the BiOp.

Despite several overtures from the North Pacific Fishery Management Council, as well as the States of Alaska and Washington, NOAA remains steadfast in its determination to only use the CIE to review the science in its recent sea lion Bi-op. The States of Alaska and Washington are currently conducting an independent scientific review. To their credit, they have held public sessions where experts from all inter-

ests, including NOAA, were invited to present scientific information on the topic. Instead of sending someone knowledgeable about the BiOp to the first of two planned sessions, NOAA sent one individual who played a relatively minor role in its development—in essence they boycotted the session. The States just released a first draft of their review of the sea lion Bi-op for public comment. Whether or not NOAA will elect to participate in a cooperative or meaningful manner in the final session and the remainder of the review is not known at this time.

It is important to recognize that the States have set a new standard for open peer review of controversial matters related to science done for protected resources and ESA listed species. It is unfortunate that NOAA is continuing to rely on an outdated process with its lack of transparency, especially in matters that are controversial. In my view, this lack of transparency will only serve to undermine confidence in NOAA's science programs. NOAA should follow the example of open process and transparency set by the States of Alaska and Washington.

This leads me to the broader issue I have with NOAA's approach to scientific work done to manage effects of fishing on marine mammals and protected or ESA listed species. For whatever reason, NOAA tends to move away from a scientific approach when it undertakes assessments of effects of fishing on marine mammals. This shows up in its development of biological opinions and other analyses in ESA Sec. 7 consultations, recovery plans and other aspects of NOAA's Endangered Species Act duties. I will provide a set of examples below.

As I mentioned above, the Alaska Regional Office of NMFS recently developed a biological opinion on the Western Distinct Population Segment (WDPS) of Steller sea lions. The area in question is the Aleutian Islands, an island chain spanning roughly 1,200 miles from east to west divided into three management areas: western Aleutians, central Aleutians, and the eastern Aleutians. The resulting regulations closed all fishing for Pacific cod and Atka mackerel in western Aleutian Islands including vast areas outside of Steller sea lion critical habitat. They also severely curtailed fishing for those species in central Aleutians, and reduced areas open to fishing in the eastern Aleutians. While sea lion numbers have decreased markedly in the western Aleutians and to a lesser extent in the central Aleutians, the science used in the development of this latest sea lion biological opinion was highly controversial, and did not, in my opinion and the opinion of many outside experts, consistently use the best available data. Overall, the biological opinion at best suffered from a very narrow perspective that appeared to be designed to justify a predetermined conclusion that fishing had to be closed in these areas.

The comments of the Alaska Seafood Cooperative, University of British Columbia, Adak Community Development Corporation, and several other stakeholders/affected communities as well as the Science and Statistical Committee of the North Pacific Fishery Management Council pointed out some glaring shortcomings to NOAA's draft Biological Opinion. Here are a few examples:

1. The use of scientifically inappropriate techniques in the analyses of the effects of prey removals by commercial fisheries as a percentage of local groundfish abundance. When the standard techniques, those used by NOAA's own scientists in the stock assessment process, were later applied in the final draft Bi-op, these correctly done calculations essentially removed the Bi-op's basis for asserting that cod and Atka mackerel fishing was taking a higher percentage of local fish populations in the Aleutian Islands. In acknowledgment of this fundamental error, NMFS's final Bi-op listed the new calculations in obscure tables in the document but ignored the new findings and left the old estimates in its conclusions and rationale for the closures NMFS finally adopted.
2. Analyses of how much sea lion food per individual sea lion were done using inappropriate spatial comparisons. Again, when the analysis was done correctly in the final Bi-op, it showed that the "forage ratios" (amount of forage fish in the Aleutian Island per individual sea lion) are actually higher in the Aleutians than other areas where sea lions numbers are increasing. As in the above example, this corrected analysis was ignored in the final Bi-op's conclusions.
3. Use of data from just three individual tagged sea lions (out of a population of approximately 50,000) to conclude that offshore banks in the western Aleutians, well outside of SSL critical habitat, were important to sea lions and therefore should be closed to fishing. This assumption was roundly called into question as not scientifically justified. Nothing was done to correct this in the final Bi-op.
4. Single-species models runs in the draft and final Bi-op used to show that fishing restrictions would increase the amount of fish available to sea lions. These overly simplistic estimates were used in favor of NOAA's own avail-

able multi-species models and peer-reviewed ecosystem modeling. In this part of the Bi-op, NOAA also failed to take into account the most recent information that Atka mackerel abundance which is currently at high levels in the western Aleutian Islands. The final Bi-op still asserts that mackerel abundance is at low levels in the western Aleutians but the new survey results were available well in advance of the drafting of the final Bi-op.

5. Premise that fishing is competing with foraging and affecting SSL natal rates based on studies done outside the Aleutian Islands. This was a glaring example of NMFS' selectively choosing which scientific opinion would bolster its preconceived determinations. NMFS chose to base its case on an overwhelmingly narrow selection of scientific papers and results, and specifically ignored, mischaracterized, or dismissed a long list of other peer-reviewed science where conclusions differed from those of NMFS Protected Resources division.

Biological opinions are required to use the best available science and make a reasoned and balanced assessment of the available scientific information to inform the opinion. The ESA does not give license to subjectively choose which science to consider, to use non-standard analytical methods, nor to dismiss out of hand the work of internationally recognized experts. A big part of the problem is the lack of concrete management standards, and a consistent and uniform manner for implementation. An effective peer review in the development of biological opinions is sorely needed to ensure balanced science is applied. I am clearly not the only one who sees this shortcoming with NMFS' role in assessing effects of fisheries on ESA listed species, this has also been observed by NMFS' own former chief scientist as I will point out below.

A big step in reshaping the process of development of biological opinions for ESA listed species would be to make that process more open and more subject to technical and scientific review from the outset. In our experience, those involved in the development of biological opinions are not required to engage in meaningful internal or external peer review of the science used for development of their biological opinions. It should be mandated that they work within the same review standards that stock assessments, habitat effects analyses, and ecosystem models operate under. An open process, with adequate time for all parties to review the data and the analyses is totally lacking in the current biological opinion process.

Additionally, implementing procedures for thorough and timely review would avoid the problem that occurred in the recent sea lion Bi-op where self-imposed agency deadlines and the fear of litigation (if one reads the administrative record) trumped the need to correct fundamental problems with the basic constructs of the biological opinion. Some stakeholders believe the time schedule was developed intentionally by the authors of the Bi-op to circumvent concrete review. Whether that was the case or not, if the system was set up to allow adequate transparent scientific review early on during the development of the Bi-op, the ability to drive a pre-determined outcome would be greatly reduced, and there would be more confidence in the final result.

In making the above criticisms and suggestions, I should point out that others have seen the same problems with NMFS' science in support of protected species and ESA-listed species and marine mammals in particular. Similar views were expressed in a January 2011 programmatic review of the NOAA's science programs by Drs. Sissenwine and Rothschild (NMFS' former chief scientist for many years and Dr. Rothschild is professor emeritus at the University of Massachusetts at Dartmouth's School of Marine Technology and Science). Their review, entitled: **BUILDING CAPACITY OF THE NMFS SCIENCE ENTERPRISE**, states: (Page 68 with emphasis added)

One important category of scientific product of the Alaska Fisheries Science Center that is not subjected to a formal process of quality assurance is scientific input to Agency decisions under the Endangered Species Act (e.g., listing decisions, recovery plans, jeopardy decisions). **The science underlying these decisions is often subjected to intense scrutiny after the fact (for example, an NRC review of factors that potentially threaten Alaskan Stellar Sea Lions), but this is not an appropriate alternative to a credible (with some independent experts, transparency, stakeholder buy-in) pre-decisional quality assurance processes similar to the ones used for fishery management decisions.**

I believe that the recent SSL Bi-op in Alaska is the very unfortunate outcome of a flawed process and is responsible for annual revenue loss that NMFS' itself concluded was approximately \$60 million. Fishermen that depended on those fisheries unfortunately are now tied up at times of the year when mackerel and cod fishing in the Aleutians would be going on. There are fewer crew members employed and

communities such as Adak that are attempting to develop their economy based on shoreside fish processing activities and vessel support services in the Aleutian Islands are clearly in danger of permanent failure and abandonment.

Most unfortunate in the process was that one of NMFS' own scientific studies, which had undergone full peer review, could have provided the basis for allowing some fishing in areas where the fishing was known to harvest as little as 5% of the local abundance of Atka mackerel. But that study was essentially ignored. Instead the Bi-op's authors relied on their own non-standard methods to evaluate amount harvested of local mackerel abundance. The methods used in the Bi-op even departed from the prescribed stock assessments methods and with this NMFS concluded that fishing was creating negative effects on SSL feeding opportunities.

In its efforts to find a viable landing place short of closing fisheries, during a special meeting held during the brief public comment period for the draft SSL Bi-op, the North Pacific Fishery Management Council developed an alternative for fisheries mitigation in the western Aleutians. That alternative was based in part on the results of several published scientific studies done by NMFS' own Fisheries Interaction Team (part of the Alaska Fisheries Science Center. The studies are available at the following url: <http://afs-journals.org/page/fidm/specialsections>). The mackerel tagging studies the Council used in its alternative were based on data from recoveries of tagged Atka mackerel. These returns were evaluated to characterize movement of mackerel and elucidate whether fishing in areas open to the fishery affected mackerel abundance inside rookeries. The tagging studies also developed estimates of local mackerel biomass so that amounts removed in the fishery could be evaluated and controlled to be under five percent (a benchmark in the Bi-op itself that would prevent localized depletion). But the NPFMC's alternative was thoroughly dismissed by NMFS along with all other ideas for mitigating fishery effects save closing down fishing for mackerel and cod in its entirety.

The Potentially Ugly:

I have already said that good management is founded on good basic data. In order to get good data, there also needs to be a commitment to do the field work to get it.

NOAA has said that it will conduct mark/recapture (branding) and telemetry work on sea lions in the western Aleutians in 2011. This will surely be a big improvement over the data used in the recent Bi-Op where location information from three non-resident juvenile SSL was used to as a rationale for extending the scope of the fishery closures to include areas outside of critical habitat. NMFS' stated commitment to do some branding and telemetry research on SSL in the western AI is a good step forward in support of addressing the huge holes in the science NMFS used to put the current closures in place. But that information will only address one piece of the puzzle and information on fish movement and local biomass is also needed.

Another critical piece of information was slated to be addressed in research in 2011 and 2012 but NMFS has apparently decided to cancel or postpone the research. That project was funded in part by the North Pacific Research Board. The project was an extension of the mackerel tagging work to the western Aleutians and it was slated to take place in the summer and fall of 2011 and early 2012. At this point we are unsure of the agency's rationale for this decision.

The Fisheries Interaction Team of the AFSC had been successful in applying for North Pacific Research Board for funding to conduct an Atka mackerel tagging and tag recapture experiment in the western Aleutian Islands. Part of the reason this project was successful in obtaining NPRB funding was that it is vital new information and it was supposed to occur in the area where the management questions surrounding effects of fishing on sea lions are the most critical. The mackerel research was also partially supported by the North Pacific Fisheries Foundation, which had committed to supply vessels for the tagging and tag recovery as well as other logistics. The Foundation's funding was specifically designed to help NMFS conduct research in this critical area with minimal use of NMFS' limited resources.

The previous mackerel tagging research had progressed to cover nearly all fishing areas in eastern and central Aleutians and a series of peer reviewed publications had been generated which highlighted the low exploitation rates in most the areas that used to be fished. Although NMFS had largely ignored this information in the rush to do the recent Bi-op, there was still some potential for consideration of this type of information in the development of more surgical mitigation measures in a trailing process through the NPFMC.

Now, with the biggest information needs clearly in the western Aleutians, NMFS has apparently opted not to conduct the mackerel tagging research that NPRB and an independent foundation had provided funding for. The reason NMFS made this

decision is not clear. Informal dialogue with AFSC officials has generated one possible reason being the agency's concern over litigation if any catch of mackerel is allowed in the western Aleutians. This is a spurious issue, in our view, as amounts of fish taken in the tagging studies are a very small fraction of the harvest levels prior to the closures and would surely have no negative effect. NMFS may also be concerned that the field research would require a separate Section Seven formal consultation under the ESA or this could just be a policy decision. We just don't know.

However, from the perspective of the industry and affected communities we know that a broader scientific baseline is needed to evaluate the assumed effects of fishing on SSL in the western Aleutians. NMFS' cancelation of the mackerel tagging study is very hard to accept.

Until we have a concrete understanding of NMFS' reason for derailing this important research, this incident falls into the "potentially ugly" category. At this point, even if we are successful in getting them to reconsider allowing the research to occur, getting the project resubmitted into the NPRB or other funding sources will take time. So at a minimum, the cost will potentially be several more years before information critical to reopening SSL critical habitat to mackerel fishing in the western AI is likely to be available. This means addition revenue forfeitures and fewer jobs in some of the nation's healthiest fisheries.

In conclusion Mr. Chairman, I want to again thank you and the subcommittee for this opportunity to testify today, and I stand ready to answer any questions you may have.

Mr. FLEMING. Thank you, sir. And then last, Mr. Geiger.

**STATEMENT OF GEORGE GEIGER, OWNER/OPERATOR,
CHANCES ARE FISHING CHARTERS**

Mr. GEIGER. Thank you, Chairman Fleming, Ranking Member Sablan, and Members of the Subcommittee. Thank you for inviting me to testify on fishery science and NOAA Fisheries data. I am George Geiger, owner of Chances Are Fishing Charters, and a past chairman and outgoing member of the South Atlantic Fishery Management Council, after three appointment terms. I am also a retired U.S. Army officer, and it was an honor to serve our country for 21 years, including being stationed in Daytona Beach, Florida from 1971 to '72.

During those two years, I experienced fishing opportunities in abundance heretofore undreamed of by me. Upon my retirement from active duty and return to Florida in 1987, I was at first shocked, increasingly disgusted, and even angered to see that the fisheries, which lured me to my retirement Mecca, had become virtual shadows of what I had experienced in the 1970s.

I was angered to the point of seeking out and joining the Florida Conservation Association, now Coastal Conservation Association of Florida. This association lasted almost as long as my military career, and culminated in my rise through leadership positions to the chairmanship of CCA Florida in 2007. My 19 years with CCA led me to an at-large seat on the South Atlantic Council, and I have held that seat since 2002.

Like others on this panel, my business has been severely impacted by the current economic recession. My decades of work with CCA and on the Council provide me with firsthand knowledge of exactly why Congress reauthorized the Magnuson-Stevens Fishery Conservation and Management Act with the new requirements to finally overfishing.

Through all the heated debates, nothing has been more clear or important to me than the need to follow through with science-based

management, including the new requirements to set annual catch limits and accountability measures to finally end overfishing.

Over-fishing, catching fish more quickly than the population can reproduce, is ultimately a losing proposition, for the fish, but more importantly long term for fishermen. Just like it is important to maintain fiscal discipline and make hard choices, fishery managers must make difficult and sometimes unpopular decisions to ensure that we don't overspend by allowing more fish to be caught than the populations can reasonably sustain.

Simply put, overfishing kills jobs, and science-based management with requirements to end overfishing is indeed a proven solution. When Congress reauthorized the Magnuson-Stevens Act, with the intent of moving science ahead of short-term economics, the South Atlantic region had 11 stocks that were overfished, undergoing overfishing, or both, the highest number of any region in the country.

The new catch limit requirements changed how the Council is operated and forced action to address and prevent overfishing with proven scientifically rigorous methods that stand up even in situations with limited data.

As others on this panel have described, recreational fishing is big business, and it is rapidly growing, with 2.75 million in Florida residents and visitors casting lines in 2006 alone. These days, with the widespread use of GPS and other fish finding technologies, it is easy to get to and get on the fish, which has led some populations to being fished to dangerously low levels.

In the past, we managed fishing using indirect controls like limits on the number of fish each angler could retain, or size and trip limits. However, there was no cap on the total amount of fish that could be taken out of the water each year, so overfishing really continued. Implementing catch limits now is a prudent and sensible and necessary approach to finally get severely depleted species back to healthy levels and avoid past mistakes.

As you have heard today, some believe that we should not take management action if there is uncertainty. The notion that we should ignore existing science and delay management decisions in the face of uncertainty will only take us back to the failed policies of the past, increasing the risk of overfishing and further eroding fishing-related jobs.

Through my work with the Council Scientific and Statistical Committee, I can tell you with certainty that we have basic scientific data and information needed to establish catch limits that are reasonable and have been extensively considered through a public, transparent process that includes fishermen. For every species we manage, some combination of data on catch and fish landed at the dock, biology, reproduction, habitat, and other life history characteristics are available to be used, and used in unison to set catch limits.

Cobia is a great example of this commonsense approach to management for stocks with limited information. In June, our SSC recommended a catch limit for cobia roughly 25 percent higher than the median catch for the past 10 years, based on a number of factors, including landings, biological characteristics, and if there is a directed fishery. This is a completely reasonable approach, and

none of the ACLs we have set are based on guesstimation, but rather they reflect both common sense and the use of high quality science, along with input from fishermen and the public.

Temporary cuts in catch and closures, as difficult as they may be for my business and others, they are necessary to recover and prevent overfishing, which is the real job killer. I am not alone in recognizing that the Magnuson-Stevens Act is working in the South Atlantic now, and it is not the time to back-peddle and return to the failed policies of the past.

The annual catch limit measures we have already put in place and are nearly finished putting in place in the South Atlantic are working and are going to work. It takes a strong will to protect and rebuild fisheries.

Chairman Fleming, Ranking Member Sablan, and Members of the Subcommittee, please have the courage to be patient while fish stocks recover and confident that the '06 reauthorization was the correct action, which will ultimately bring benefits for fishermen and fishing businesses, and leave future generations with even more fish and fishing opportunities than we have enjoyed. Thank you.

[The prepared statement of Mr. Geiger follows:]

**Statement of George J. Geiger, Owner/Operator,
Chances Are Fishing Charters**

Chairman Fleming and members of the Subcommittee, thank you for inviting me to this oversight hearing to discuss fisheries science and the National Oceanic and Atmospheric Administration (NOAA). I am George Geiger, a past Chairman and current member of the South Atlantic Fishery Management Council (SAFMC), serving the final days of my third appointment term. Along with my position on the South Atlantic Council, I am a recreational fisherman with a Coast Guard 50 Ton Ocean Operator License. I operated a for-hire service for offshore and inshore trips until 1998, when I switched to guiding near shore and inshore clients exclusively. This business has been severely impacted by the current economic recession, like so many others. I still enjoy recreational fishing offshore for coastal pelagic and benthic species. I am also a retired U.S. Army Lieutenant Colonel, privileged to have been stationed in Daytona Beach, Florida from 1971–72. During those two years I experienced fishing opportunities and abundance heretofore undreamed of by me. I knew Florida was where my wife and I wished to retire, if I was so privileged as to earn the right to remain on active duty.

Upon my retirement and return to Florida in 1986, I was at first shocked, then increasingly disgusted, and eventually angered to see that the fisheries which lured me to my retirement Mecca had become virtual shadows of what I'd experienced in the 70's. I was angered to the point of seeking out and joining the Florida Conservation Association (now Coastal Conservation Association—Florida). This association lasted almost as long as my military career and culminated in my rise through leadership positions to the Chairmanship of CCA Florida in 2007.

During my 19 years with CCA Florida, I worked extensively on Florida inshore fishery issues and was appointed to multiple Federal advisory panels, including the Atlantic States Marine Fisheries Commission's bluefish advisory panel and the South Atlantic Council's red drum advisory panel. That work led to me to apply for an At-Large seat on the South Atlantic Council in 2003, and I have served on the council ever since, including as Chairman. From this vantage point, I understand exactly why Congress reauthorized the Magnuson-Stevens Fishery Conservation and Management Act (MSA), with the new conservation requirements to finally end overfishing, and I've been in the center of the heated debate about how to get the job done in the South Atlantic.

This testimony will focus on my first-hand experience gained over decades of work with the South Atlantic Council and other organizations to implement the new requirement to set annual catch limits (ACLs) and accountability measures (AMs), and the critical importance that science-based management plays in achieving that goal.

Overfishing, or catching fish more quickly than the population can reproduce, is ultimately a losing proposition for fish but more importantly, for fishermen. Just like it is important to maintain fiscal discipline and make hard choices in order to balance the federal budget, managers must make difficult, and sometimes unpopular, decisions to ensure that we don't "overspend" by allowing more fish to be caught than populations can reasonably sustain. I think of it like an investment account; you have to maintain the principle, and only spend the interest or you will eventually end up with an account that is overdrawn. Similarly, we need to leave enough fish in the water to allow each species to reproduce from year to year so that they can support a reasonable amount of harvest. Over the last few decades, it has become increasingly apparent that science-based management combined with requirements to end and prevent overfishing is the key to preserving fish populations and fishing jobs.

It is also clear to me that we have the basic data and information needed to establish catch limits that will ensure overfishing never again decimates the fish populations that so many anglers and fishing-related businesses depend upon. With this science-based framework in place, new information can continually inform managers and we can make adjustments to maximize the benefits for all participants in the fishery. The notion that we should ignore existing science and delay management decisions in the face of uncertainty will only take us back to the failed policies of the past, increasing the risk of overfishing and further eroding fishing-related jobs.

By 2004, Congress realized that overfishing had become a national problem, and needed decisive action. After a few years of debating the way forward, Congress passed what I think was a fundamentally positive change to the way the law worked: science was moved ahead of short-term economics, and the councils lost their discretion to continue inaction on overfishing. The 2006 MSA reauthorization required that all U.S. fish stocks have catch limits and accountability measures to end and prevent overfishing by the end of 2011. At the time the MSA was reauthorized, the South Atlantic region had 11 stocks that were overfished, undergoing overfishing, or both—the highest number of any region in the country.

The South Atlantic Council is responsible for the conservation and management of fish stocks within the 200 nautical mile limit off the coasts of North Carolina, South Carolina, Georgia, and east Florida to Key West. We manage 98 species through 10 Fishery Management Plans (FMPs), and we are still suffering from the ramifications of decades of overfishing for a number of snapper and grouper species. The catch limit requirements have changed how the councils operate and forced real conservation actions. In the past, we generally managed fishing using indirect controls like limits on the number of fish each angler could retain per day, size limits intended to protect juvenile fish and older fish that are often the best breeders, and trip limits that capped how many fish commercial vessels could bring back to the dock at any one time. However, very few of the nearly 100 species that we manage were subject to a cap on the total amount of fish that could be taken out of the water each year.

Fishing tournaments, charter fishing businesses, and individual fishing trips are all big tourist draws and they contribute significantly to the overall pressure on our region's fisheries. Over the last few decades, the number of recreational anglers and the number of fishing trips taken each year has increased rapidly since I first visited Florida. According to the Census Bureau's National Survey of Fishing, Hunting and Wildlife-Associated Recreation, over 2.75 million residents and visitors cast a line somewhere along the state's coast in 2006, and it's probably a safe bet that this number has continued to increase since then.

Another big change that has taken place over the last few decades is the widespread use of GPS, sonar, and other fish finding technologies that make it easy to "get on the fish", whereas in years past, you really had to know the waters to know the best fishing spots and how to get there. This combination has led to a significant increase in fishing pressure and as a result, some populations have been fished to dangerously low levels, far below what our science advisors deem to be sustainable. For example, Warsaw grouper and speckled hind are estimated to have just five and six percent of a healthy population remaining, respectively. A population that is below thirty to forty percent, depending on the species, is considered overfished. Some of these very depleted snapper and grouper can live for fifty years or more, and are slow to reach reproductive maturity. Thus, it can take many years, sometimes decades, to rebuild the population once it has been fished down to a very low level. Implementing catch limits now is a prudent, sensible and necessary approach to finally get severely depleted species back to healthy levels and ensure that we don't make the same mistakes of the past by setting some reasonable limits now.

To meet the MSA's new conservation requirements, the South Atlantic Council has taken several crucial steps and we are on track to implement science-based

management, including annual catch limits and accountability measures, for all of our federally-managed fisheries by the end of 2011. In December 2010, we passed Amendment 17B to the Snapper-Grouper Fishery Management Plan, which fulfilled the Congressional mandate to set ACLs for 9 of the species in the region subject to overfishing. In June of 2010, we passed Amendment 17A which included a moratorium on red snapper catch, as that species was hovering around 3–6% of a healthy level at that time. Later this month, we will meet to consider approval of an Amendment to set ACLs for thirty-nine additional species, and we have developed joint plans with the Gulf of Mexico Council to set ACLs for species that occur in both regions. In the South Atlantic, and nationwide, we are on the verge of establishing science-based management for all of the species under our jurisdiction. This is a major, precedent-setting accomplishment and one that we should be very proud to have achieved.

However, getting to this point has required a significant investment of time and resources on the part of the Council, NOAA Fisheries and most importantly, the public who have weighed in on this process. In the South Atlantic, we are faced with managing many species for which limited scientific information is available. However, there are no species that we know nothing about. For every species we manage, some combination of data on catch and fish landed at the dock, biology, reproduction, habitat, and other life history characteristics are available and using this information, our science advisors developed a sound methodology to establish the basis for annual catch limits. Through the Southeast Fisheries Science Center, the South Atlantic, Gulf of Mexico and Caribbean Councils partner with NOAA Fisheries to operate the Southeast Data, Assessment, and Review (SEDAR), which conducts stock assessments and provides data and analysis on the status of species we manage. Our stock assessment process is a collaborative one that includes fishermen, stock assessment biologists, council members and staff and provides extensive opportunity for public input at each step in the process. Driven by the ACL requirements, we have figured out rational scientific ways to set catch limits for stocks when full stock assessments are not available.

As an example of how we have managed stocks with limited information, I want to focus in on what we've done in coordination with the Gulf Council to protect coastal migratory pelagic species including cobia, Spanish mackerel, and king mackerel that spend most of their lives from the surface to the middle of the water column. These fish are very important for recreational fishermen and businesses like mine, as well as commercial fishermen like my fellow Council member Ben Hartig, who fishes commercially for Spanish mackerel. Although there is no evidence they are in trouble, fishing effort has generally intensified over the last decade, and so it makes sense to keep the catch levels under control to prevent these fish from suffering a decline in population before we have the resources to conduct a full assessment. What we did with cobia is a good example of how we've handled this "data poor" situation, and how good management has been mischaracterized. In June of this year, our Scientific and Statistical Committee recommended a catch limit for cobia roughly 25 percent higher than the median catch for the past 10 years and this is what the South Atlantic Council has used to guide our decision. Our science advisors considered a number of factors in making this recommendation, including trends in landings and whether there is a directed fishery for the species. Their expert judgment is informed by consideration of biological characteristics such as how often and prolifically each species spawns, whether they are long-lived or short-lived, and whether they are often caught accidentally by fishermen targeting other species, among other things. This is a completely reasonable approach and none of the ACLs we've set are based on "guesstimation", but rather they reflect both common sense and the use of high-quality science, along with input from fishermen and the public.

There are two philosophies when dealing with a lack of data: one approach is to wait for more science before acting, which is the exact path we took and resulted in dozens of severely depleted species nationwide, and required sharply reduced catch levels, and sometimes, total moratoriums, to put these populations on track for rebuilding. The other approach, and the one I think is right and prudent, is to use the best science available to set reasonable catch limits until new science becomes available that makes it clear a population can support an increase in catch. This is exactly what we are doing now in the South Atlantic, and it makes sense because it is a lot better to deal with a short period of reduced catch than suffer the years of painful recovery after fish populations have crashed.

Even though the South Atlantic Council's management measures are sensible, some of the strongest advocates for the MSA's conservation provisions have backpedaled when good science has made it clear that temporary cuts in catch and closures are necessary to recover from past overfishing. I am attaching the written

support we have received at the South Atlantic Council within the past week supporting approval of the ACL Amendment. An awful lot of people—business owners, anglers, scientists and other—have written to us to say that they get why this new path is critically important and more importantly, they support it.

Today, I am seeing several of our South Atlantic fisheries benefit from implementation of catch limits and accountability measures. For example, a recent assessment found that South Atlantic black grouper are no longer undergoing overfishing for the first time in more than a decade. This is a species that the South Atlantic Council took action to restore back in 2004, based on what some at the time called “in-sufficient and non-definitive data.”

I’d like to offer one more example of why catch limits and accountability measures are so crucial to good fisheries management. Black sea bass are a popular recreational and commercial target species and a mainstay for many charter operators in our region. Unfortunately, they have been overfished for more than twenty years. Before the MSA was reauthorized to close the loopholes that had allowed overfishing to continue for decades, the South Atlantic Council approved not one, but two plans to rebuild this species. Both of these plans failed to do so, and nothing much changed because there was no accountability when quotas were exceeded. Finally, a new rebuilding plan was initiated that included accountability measures to make sure the catch limits were not exceeded. So far, the new plan has kept the commercial fishery near its limits, and the anecdotal evidence indicates that after decades of overfishing, black sea bass is recovering. A stock assessment is ongoing and the results should be completed by October. I hope the assessment will show that black sea bass is finally making a recovery after more than two decades and two failed rebuilding plans. However, now is not the time to deviate from the course of recovery and prudent management practices, which are proving to have been on target. South Atlantic fisheries are benefiting from the wisdom of requirements in the MSA reauthorization that pertain to ending overfishing.

We hear at every public hearing how good the fishing is getting, and has become, in comparison to past decades. Unfortunately, that success (which will only increase over time, creating more jobs and fishing opportunities) translates to the majority of the public being satisfied but not getting involved in the political process. However, it’s important for Congress to know that those improvements in abundance are due to successful, science-based management. As I mentioned, the South Atlantic Council is on the verge of meeting the mandate from Congress to set catch limits that will end and prevent overfishing. The process was long and deliberate, with extensive public participation and scientific contributions, and I sense we are on the verge of a great move forward toward actually achieving sustainability for our marine resources in the Southeast. Now is not the time to backpedal and return to the ineffective management practices that existed before the 2006 reauthorization of the MSA and resulted in depleted stocks.

I still remember Florida fishing in the 70’s and the astounding abundance and variety of fish that led me to retire in the state, start a fishing business and to get involved in fisheries management. Even back then, a lot of these fish populations were already a shadow of their historic numbers. The conservation measures we’ve nearly finished putting in place in the South Atlantic and around the country are going to work but it takes a strong backbone to protect and rebuild fisheries. That gives me hope because I know what we are working to achieve through the MSA and I know it is possible. Now is the hardest time for Congress, and even more so for the councils, to have the courage to be patient while fish stocks that have been depleted recover. That steadfast resolve will allow us to realize the benefits this will bring for fishermen and fishing businesses, and leave future generations with even more fish and fishing opportunities than we’ve enjoyed.

Mr. FLEMING. Thank you, Mr. Geiger. OK. At this point we will begin Member questions of the witnesses. I want to point out that we predict votes to begin in the next 15 to 30 minutes. The timing may work out just about right. Hopefully it will. We have had a lot of input today, and we appreciate it. And we want to be sure we get all the way to the very end and get all the questions asked and answered.

As Members know, we are limited to five minutes for our questions. If they have additional questions, we may be able to do a sec-

ond round. If not, we can certainly submit them in writing and get responses offline.

I now recognize myself for five minutes. Mr. Angers, the majority of witnesses here today seem to believe that the amount of information available to fishery managers is insufficient to meet the new requirements of the Magnuson Act. How do you suggest Congress deal with this concern? And I will just point out, particularly on this panel, I am just hearing story after story, very credible, of how this is garbage in, garbage out type of proposition. So I would love to get your perspective on how you think we can improve that.

Mr. ANGERS. Thank you, Mr. Chairman. You know, I mentioned earlier that Mr. Wittman and several bipartisan Members of the full Resources Committee have set forth the Fishery Science Improvement Act, H.R. 2304. You know, indeed we see some garbage in and some garbage out. But I do want to give credit where credit is due. Where there is a legitimate, scientifically prepared stock assessment that comes up with some good science, we all want science. I mean, goodness, Jane Lubchenco, you know, a scientist's scientist, is the head of NOAA. We want to make sure that there is good science there, and we don't want to dog the actual stock assessments that are out there.

But the 80 percent of the stocks of fish that the Federal Government doesn't know anything about from a true scientific—from a true quantitative method, that is what the members have stepped up to tackle with the Fishery Science Improvement Act. What Congressman Wittman's bill says is that when there is no indication of overfishing, and the agency has not done a stock assessment in the last five years, then let's suspend the annual catch limit requirement on that particular stock.

We are not saying let's cast out good science with bad. I heard my fellow panelist earlier comment about, you know, there are other important sciences like biology. You know, that is great, but that doesn't tell us a thing about the number of fish that are out there, and we have the capability to discern those scientific facts. We just don't have the facts, and then we are rushing to meet a statutory deadline that was arbitrarily—that is an arbitrary deadline.

So let's give science a chance to work. Let's figure out how many fish are out there, how many fish can come out of a fishery. I think everyone at the table would be fine with that.

Mr. FLEMING. Well, thank you for that. You know, we have had NOAA here testifying. We had a gentleman from NOAA here a little earlier on the other panel. And one of the things we are seeing is that NOAA wants to—and I mentioned this in my original comments. NOAA wants to put more of their resources into satellites to monitor climate change and that sort of thing, significant amounts of money. And yet you know the way things are up here. We are out of money. We are broke. Washington is broke.

So I guess my question is, with this tight budget situation, what do you suggest we do? What are some other options that may be available?

Mr. ANGERS. Well, I think that the legislative proposal that I mentioned earlier, H.R. 2304, really comes at a good time, both for the agency and for the country. You know, these next few years

will not see increased budgets in pretty much any Federal agency. And if we know that NOAA Fisheries is using a SWAG, a scientific wild guess, to determine a hard number that shall not be exceeded, this is probably a good time to say, you know, we might have gone a little overboard.

You know, this whole push to establish a hard ACL is about employment of a different type that we have not spoken of today. It is about employment for environmental lawyers because a Federal judge may not really be that interested in the Byzantine fishery management discussion, but a Federal judge understands a number. And once there is a number set forth that the widget fish or whatever fish, the ACL on the widget fish shall be X, once that number, that SWAG, that dart thrown at the wall, once that number is exceeded, we are going to be guaranteeing full-time employment for environmental lawyers to be suing NOAA Fisheries for generations to come.

Now is a good time for us to take a breath and say let's go forth with the science that we have got, and what we don't have, let's stop guess.

Mr. FLEMING. OK. Well, thank you. My time is up, so I will yield to the gentleman, Mr. Sablan, the Ranking Member.

Mr. SABLAN. Thank you very much. I appreciate it, Mr. Chairman. Data is important. I am from the islands, and I know what fishing is about. We fish for meals, and data is actually so important. And I am going to sort of sidetrack here. There are some people in the country who doubt climate change. And for those who doubt the scientists, the scientific information on climate, I actually can take you to my islands, where I will show you land that is under water, and this can only be attributed to climate change.

But, Mr. Geiger, you have been involved with fisheries management in the South Atlantic, sir, for many, many years, several decades actually. So can you tell us how successful the Council was at ending and preventing overfishing prior to and following the 2006 reauthorization of the Magnuson-Stevens Act?

Mr. GEIGER. Yes. Thank you, Mr. Sablan. Actually, the Councils were abject failures at ending overfishing. If you look at the South Atlantic Council, since 1984, the implementation of the first snapper/grouper fishery management plan and all subsequent plans, we are now up to fishery management plans for snapper/grouper—I think we are on 21 or 22. Only three of them met the management objectives, and two of the fisheries were closed, one for five years. Goliath grouper was the one that was closed for—has been reclosed since 1992.

In all cases, short-term economic considerations were always used as a determinant in an effort to try and reduce the effects of the regulation or reduce the regulations that needed to be put in place. So if they knew they needed to something, they received advice that said, well, you could back off it a little bit, and it was always due because of the public outcry based on short-term economics. And when we adjusted the bag limits, the size limits, the trip limits, whatever the standard methodology was used for that particular stock at the time, those reductions resulted in a failed rebuilding or a failed result from the management that we attempted to put in place.

And, I mean, the record stands for itself, which is exactly why Congress put or reauthorized the Act in '06 as they did, with the intent to finally get the Councils to end overfishing and take that discretionary ability the Councils had to consider short-term economics at the peril of the fish stocks.

Mr. SABLAN. So how important have the new requirements for annual catch limits and accountability measures been to the success of the South Atlantic Management Council in ending and preventing overfishing?

Mr. GEIGER. Well, I think they are absolutely key to ending overfishing, and it is because the standard methodologies that have been in the toolbox and employed by the Councils limiting anglers to a bag limit, season closures, trip limits, size limits, those type of things, have proven they really are not very effective because they don't cap the total number of fish that can be taken out of the water on an annual basis in a species.

So without limiting that cap or without limiting the amount of mortality that occurs within that fishery, there is no way to stop it. So overfishing will generally continue unless there is a cap, you can stop it, and if you do go over it, there needs to be an absolute payback to get back on track in the rebuilding plan.

Mr. SABLAN. And I can certainly understand it, Mr. Geiger, because at one time where I come from, half a mile, a mile out from the reef, you get your first tuna. Now, you have to go three, four miles at least because of overfishing. And it is not from us, actually. It is from other parts, I mean, you know, commercial fishing that passes through the islands.

Mr. GEIGER. And if I may add to the response to your question, sir, we have seen successes, and we see successes. One of the Congressmen mentioned black sea bass. You know, black sea bass is one of those stories that is a success in the South Atlantic, a failure and a success. We had two rebuilding plans on black sea bass, both of which failed. Finally, in amendment 13 in 2004, we put some very severe limits on black sea bass. And, of course, the Council voted for a constant-catch rebuilding strategy, which allows the removal of 104,000 pounds of fish annually, until you get to a certain point as the stock recovers, then you can begin to increase those removals as the stock demonstrates its recovery.

Mr. SABLAN. I have one more question before—the House Appropriations Committee has proposed cuts to fisheries research and management, including funds to expand annual stock assessments and for cooperative research with States. What do you see as the consequences of such cuts for rebuilding stocks and for fishermen? Mr. Geiger again.

Mr. GEIGER. Well, I am opposed to any cuts and reductions of any funding for stock assessments, and certainly for data improvement. I came on the Council from Coastal Conservation Association, and for 19 years, I fought this Federal process, and we fought the Federal National Marine Fisheries Service over the failed data that they used to manage the stocks. And it is evident based on the condition of the stocks we see today in the South Atlantic, and the fact that we have to take such draconian measures to try and recover these stocks.

So I certainly am a supporter of improving data, but it takes ten years to build a ten-year data set. And it takes years to train stock assessment scientists. You don't just go out on the street and put an ad in the newspaper and hire a stock assessment scientist off the street. And to NOAA's credit, they have a program at Virginia Tech in an effort to try and recruit mathematicians and young mathematics majors who have the abilities to perform these highly complex mathematical models. And, you know, recognizing budget limitations, we are where we are. If we don't put ACLs in place, and we go back to what we were doing before, we are going to use the same data that everybody is calling garbage or deficient or bad to do what? Set bag limits and trip limits and all the things that have failed in the past? We are going to go back to that methodology?

ACLs are the answers. We need to have the courage to stay with it, move forward. We actually are seeing benefits resulting from ACLs that are put on stocks, and I think we will see more if we just have the courage to stay the course.

Mr. FLEMING. OK. The gentleman yields back. Votes have been called, so we will try to get through another two or three questioners, do the best we can to finish out, and then we will have to adjourn because we will have votes for another hour, hour-and-a-half, and then we have something after that.

So with that, I think next up is Mr. Duncan.

Mr. DUNCAN. Thank you, Mr. Chairman. I will be very quick. Mr. Geiger, I heard you make a comment about ten-year data set as being part of any study or any determination of closures. And I just ask you, are you aware of any ten-year data set on the red snapper that was included, that helped lead them to the conclusion of closing the South Atlantic?

Mr. GEIGER. Yes.

Mr. DUNCAN. So why aren't we making the decision based on no data set—

Mr. GEIGER. No. The head boat index is over ten years old. It is the longest fishery-dependent index that we have, and it was used in the red snapper stock assessment.

Mr. DUNCAN. How far do head boats go out?

Mr. GEIGER. I think back to the eighties, maybe '86, '84, '86. I don't have it in front of me, but I know it is our oldest dependent data set. And that stock assessment—you know, if we had the time, I could talk to you directly about that stock assessment. That stock assessment reflected clearly the condition of the stock that we heard based on the anecdotal information of the fishermen that provided this testimony. We knew there were a large number of fish out there. The problem is they were all under the 20-inch size limit, and people were wading through a large number of them to get to the 20-inch fish that they could keep.

And when you look at a classic fishery, and you look at the age structure of fish, prior to this they thought red snapper only lived to be 24 years old. Based on aging studies that they did in preparation for SEDAR 15, they found that the oldest fish that they measured was 53 years old. And when you look at the age of the over 8,000 otoliths that they sampled and aged, when you look at that age curve, there was a precipitous, straight-down decline after age

four out to age nine, and then basically from age nine out to 53, there were virtually no representative samples of those age fish in that stock that was sampled. And they took over 8,000 samples.

So then subsequent to that, and prior to doing SEDAR 24, the science center actually went to the dock and cherry-picked large fish that were caught that people suspected were older than the average age that was portrayed in the stock assessment, and they found that there was no real-age correlation in red snapper between age and length. So you can have young fish that appear to be large, and you can have older fish that aren't as large as the younger fish.

So there is no direct correlation. And what they found when they cherry-picked all these large fish, they found that the age actually mirrored what was in the stock assessment based on the 8,000 samples that they aged. And, oh, by the way, the science center also conducted a longline survey offshore because there was some stock that the commercial—or some people felt was beyond where the current recreational fishery prosecuted the fishery, and the commercial fishery prosecuted it. They were deepwater fish, and that is where all the big fish were, and were not considered.

Mr. DUNCAN. Not to cut you off, but I am on my time here and about to run out. I would like for you, if you don't mind, to provide this Committee with the sources and the data that you are mentioning today because I have yet to see that.

Mr. GEIGER. I would be absolutely delighted to do that. Thank you.

Mr. DUNCAN. Because the captains I talk to basically repudiate that. But, Captain Nelson, do you recognize this? Could you tell me what this is?

Mr. NELSON. That is a series of emails, 73 I believe is—you know, I think that is the number, 73 emails concerning the red snapper science over a period of about 18 months that I sent to National Marine Fisheries Service, the Council, South Atlantic Council, and Eric Schwaab, you know, different groups.

Mr. DUNCAN. And I read through much of these. And, Mr. Chairman, I would like to submit this as part of the record and allow the other Committee members to look at it. But one of the emails that I see here back in December of 2010, this was to Dr. Roy Crabtree, and this is what Captain Nelson says, "Are we to believe that the red snapper in the Gulf of Mexico are highly productive and that the same exact species in the Atlantic is not? The only difference in that spawn or recruitment science for the two assessments is one has data and the other does not. Therefore, the people in the Gulf of Mexico are fishing and making a living, and the people in the South Atlantic are not because of lack of data, not lack of fish."

And, you know, we can show based on the catch surveys that Captain Nelson and I have talked about wouldn't differ from what the fishery NMFS has. So I am going to submit this for the record, Mr. Chairman, and I yield back.

Mr. FLEMING. Without objection, so ordered.

Mr. FLEMING. We are down to eight minutes, 55 seconds. I know Mr. Pallone has not had a chance to ask, so I am going to basically

make Mr. Pallone our last person to ask questions so we can make it to our vote. So, Mr. Pallone, you have five minutes, sir.

Mr. PALLONE. Thank you, Mr. Chairman. I just wanted to say that in order to provide for a sustainable future and ensure economic prosperity today, Magnuson-Stevens aimed to balance conservation with fishing opportunities in an informed and scientific way. But I am afraid, however, that because we can build the lack of information into our scientific models, we have lost the balance and instead fisheries managers use uncertain and unreliable information as a scientific basis for their decisions. And that is why I introduced the Coastal Jobs Creation Act, because I am frustrated with the lack of scientific data in management.

My bill would invest in successful programs that are specifically targeted at aiding coastal communities and creating jobs because without the scientific data collection that my bill prioritizes, we would continue to reduce fishing quotas not because the science tells us we must, but because we are simply compensating for the unknown.

Now, I wanted to ask Mr. Greg DiDomenico—good to see you—a couple of questions in this same regard. NMFS has had closures in fisheries like snapper and black sea bass in instances where the stock is not overfished, in other words, it is a healthy stock. But the current rate of removal is too high, in other words, overfishing is occurring. In these particular instances, it makes intuitive sense that we should allow a more tailored management response such as specifying a reduced rate of fishing for a period of time rather than requiring an outright closure that hurts jobs and coastal economies.

What specifically needs to be changed in the Act to give you this flexibility, and would you welcome such flexibility? And I am going to try to get through a few of these, so if you don't mind, Greg.

Mr. DiDOMENICO. Sure. Are you asking that specifically for black sea bass?

Mr. PALLONE. No, just in general. I mean, in other words, closures are closures, whereas, you know, there should be some flexibility in my opinion. But what do we need to do to change Magnuson in order to accomplish that?

Mr. DiDOMENICO. Well, I would say that I am going to use your example of black sea bass. It affects the recreational community much more, especially the closures, than the commercial industry. But I would say the first thing that we should do is put back the \$4 million that was taken—well, not taken, but the NOAA budget, as you know, in 2012, their request moved \$4 million from cooperative research, to go to cooperative research on catch shares. Now, some of the examples that I used today rely or provide a very good example of where cooperative research has helped. In my opinion, putting that money back into cooperative research with recreational and commercial fishermen would be the way to go.

Mr. PALLONE. OK. Let me ask you this. Under current law, the Regional Fishery Management Councils are required to include a fishery impact statement for each management plan or amendment to that plan, and this impact statement is supposed to evaluate the economic impact of the plan or the amendment and possible mitigation measures. Since these impact statements are only done with

a new management plan or amendment, do you believe that NOAA and the Commerce Department have up-to-date information on the impact fisheries management is having on local fishermen, and do you believe—I mean, comment to me on these impact statements and, you know, how valuable they are and whether we need something else.

Mr. DIDOMENICO. They are valuable in time, but what has occurred in the past is that the cumulative impacts of regulations over time have not been accurately assessed. And that is for both recreational and commercial industries.

Mr. PALLONE. But, now let me ask a last thing. As you know, I introduced in the last Congress—and we are going to do another Flexibility in Rebuilding American Fisheries Act, a Magnuson amendment. I have been hearing concerns from the fishing community about the regional councils ratcheting down quotas because of a lack of scientific certainty. Do you have any other suggestions to how we can ensure fishermen have access to healthy stocks that are not overfished in light of the fact that fishery managers are I think compensating for uncertainty, in effect.

Mr. DIDOMENICO. Yes. Have this Subcommittee make achieving MSY, maximum sustainable yield, back-to-the-cornerstone of Magnuson-Stevens Act. Make it a national policy. I briefly went through the quota-setting process. And if you allow me 30 seconds, I will give you a good example. And I think my request to have the agency provide you the numbers species by species, which they can do, to show you the reductions—I am going to give you approximate numbers.

We have a spiny dog fishery throughout the entire East Coast. It is a shared stock with the Canadians. The OY is approximately 20,000 metric tons. We reduced that by 25 percent. The OY or MSY, reduce it to 15, then we take off another 6,000 metric tons for discards, both the fisheries and the possible Canadian catch, leaving us with nine. That example may not be perfect for every species, but when the agency shows you where they start, where we could fish up to, I think we are overly cautious and are risking reaching—missing reaching MSY on many stocks. I think that will give you the information that you need. Thank you.

Mr. PALLONE. All right. Thank you. Thank you, Mr. Chairman.

Mr. FLEMING. The gentleman yields back. Members of the Subcommittee may have additional questions for witnesses, and we ask that you respond to these in writing. The hearing record will be open for ten days to receive these responses. Finally, I want to thank Members and staff for their contributions to this hearing. If there is no further business, without objection, the Subcommittee stands adjourned. And thank you again, witnesses.

[Whereupon, at 5:11 p.m., the Subcommittee was adjourned.]

[Additional material submitted for the record follows:]

[The prepared statement of Mr. Markey follows:]

**Statement of The Honorable Edward J. Markey, Ranking Member,
Committee on Natural Resources**

Thank you, Chairman Fleming. I come from Massachusetts, where, like Louisiana, fishing is embedded into the cultural fabric of our state.

While the financial deficit has been the main focus in Washington lately, this country is also suffering from a fish deficit. There might not be consensus on how to fix the financial deficit but I hope we share the same commitment to using science-based management to overcome our fish deficit.

Congress first required the Councils to end overfishing and rebuild stocks in 1996 and strengthened that resolve in 2006 when, in a bi-partisan fashion and under the Bush Administration, we reauthorized the Magnuson-Stevens Act. This reauthorization strengthened the role of science in fishery management decision-making and required that fishery management plans adopt annual catch limits and accountability measures for stocks subject to overfishing.

Rebuilding fisheries can have a substantial impact on local economies and jobs. The National Marine Fisheries Service estimated that if we fully rebuild our stocks, dockside value for commercial fisheries would increase by 54 percent, from \$4.1 to \$6.3 billion annually. This potential increase could generate an additional \$31 billion in sales and support an additional 500,000 jobs. A recent study also found that in 2009, commercial fishermen in New England, the South Atlantic, and the Gulf of Mexico regions lost \$164.2 million and realized only 25 percent of potential revenues because of chronic overfishing. Clearly, rebuilding these fish stocks is critical to creating jobs, supporting local economies, and revitalizing our coastal communities.

Stocks are showing promise in rebuilding by using science-based annual catch limits. In the past year, three New England stocks were fully rebuilt and revenues have increased. After 15 years of rebuilding efforts, there are now more fish in the sea.

We must continue to ensure that the best available science is used in managing our fisheries to rebuild stocks and get fishermen back on the water. That is why I cosponsored H.R. 2610, the Asset Forfeiture Fund Reform and Distribution Act, which was introduced by my friend and colleague, Congressman Barney Frank. This bill would eliminate the incentive of NOAA law enforcement to levy fines for its own use and distribute those monies to NOAA for high priority stock assessments and to States for fisheries data collection, research, and monitoring.

Now is not the time to be cutting funding for fisheries science, but that is exactly what the Republican's FY 2012 Commerce, Justice, Science Appropriations bill does. In this bill, fisheries research and management is cut 17% below the President's request, even after Congressman Farr inserted an additional \$3 million for cooperative research to leverage the knowledge of fishermen within the scientific process.

Choosing to make these cuts to fisheries science is like a fisherman throwing all his navigation equipment overboard right before a storm. We need not navigate blindly, but can choose to invest in the fisheries science needed to rebuild stocks, fishing jobs, and coastal communities.

