Chairwoman Bordallo and members of the Subcommittee, thank you for inviting me to this hearing on implementation of the Magnuson-Stevens Fishery Conservation and Management Reauthorization Act (Magnuson-Stevens Act, or MSA). I am Steven A. Murawski, Director of Scientific Programs and Chief Science Advisor at the National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Department of Commerce.

I want to begin by making clear we understand that implementing MSA has significant and often difficult economic consequences for fishing communities, and we take very seriously our responsibility to these communities. However, steps to end overfishing are necessary not just to meet our obligations under MSA, but also to ensure the long term viability and stability of fish stocks and the communities which depend on them. Such steps are necessary to ensure we don't slip backwards in our efforts to effectively manage our Nation's fisheries for the greatest long term benefit and exacerbate economic consequences in the future.

My testimony today will focus on the progress we have made to date in implementing the key provisions of the Magnuson-Stevens Act. In particular, I will emphasize: (1) progress in meeting the requirements of the MSA; (2) scientific challenges and opportunities in meeting MSA requirements; and (3) the NOAA Administrator’s priorities for the MSA. Finally, I will say a few words regarding the Administration’s views on the requirements of the MSA for balancing stock rebuilding and economic performance of rebuilt fisheries.
I. Progress to date in implementing requirements of MSA

The 2006 amendments to the MSA were signed into law in January 2007, a little over a decade after the previous major reauthorization of the MSA in 1996. The MSA includes numerous strengthened and new provisions that address domestic and international issues. Working with the Regional Fishery Management Councils (Councils), the coastal States, and a wide range of industry groups and other constituencies, NMFS has made significant progress in implementing key provisions of this legislation.

Overall, we have successfully completed 54 of 79 specific tasks mandated in the MSA, for a completion rate of 68 percent. More precisely, 83 percent of MSA tasks that had mandatory deadlines have been completed. Some of these actions will play significant roles in our efforts to improve the management of living marine resources. As examples, I would like to highlight the following MSA actions that are on track for completion:

(a) Implementing Annual Catch Limits for all Fishery Management Plans in 2010/2011.

One of the most significant management provisions of the MSA is the mandate to implement annual catch limits (ACL) and accountability measures to prevent and end overfishing in federally managed fisheries. ACLs and accountability measures are required in virtually all fisheries, and must be implemented in 2010 in fisheries subject to overfishing and in 2011 in all other fisheries. The MSA mandates that fishery management plans “establish a mechanism for specifying annual catch limits … at a level such that overfishing does not occur in the fishery.”

NMFS has worked closely with the Councils to develop procedures to comply with this provision. NMFS published and finalized guidance on these measures in the January 2009 revised National Standard 1 Guidelines, and is now working with all eight Councils to ensure that ACLs and accountability measures are in place by the required deadlines.

Most significantly, we have made a determined effort to address management and scientific uncertainties. The National Standard 1 Guidelines ensure that scientific and management uncertainty is taken into account as Council’s establish ACLs and accountability measures.

Our policies on ACLs are straightforward. They ensure ACLs are set at a level to end and prevent overfishing, are based on the best available science, and are accompanied by effective and credible accountability measures to prevent catch limits from being exceeded and to make necessary adjustments in cases where these limits are exceeded. According to our latest Status of Stocks report, 41 stocks and stock complexes (16 percent of all managed stocks with known overfishing status) are still subject to overfishing. Therefore, implementation of ACLs is a very high priority.

(b) Progress in rebuilding stocks and eliminating overfishing.

The Councils have made significant progress in achieving sustainable fisheries. The number of federally managed fisheries subject to overfishing is declining, although at a modest rate, and we have plans in place to end overfishing in all fisheries requiring rebuilding. In the latest annual
Status of Stocks report to Congress, progress is indicated by the Fish Stock Sustainability Index (FSSI), an overall index of sustainability for U.S. fish stocks, which increased from 357.5 in 2000 to 555.5 in 2008. A perfect FSSI score is 920. The Status of Stocks Report shows 41 stocks are still subject to overfishing and 46 stocks remain overfished. Although these numbers remain too high, they should also be placed in a larger context. Today, 84 percent of fish stocks and stock complexes are not subject to overfishing and 77 percent are not overfished. A 2009 article in Science on “Rebuilding Global Fisheries” lauded the importance of legislation like the MSA to make overexploitation illegal and to set specific targets. We also know more about bycatch and have supported numerous programs to reduce it, and we have implemented the essential fish habitat provisions of the MSA in all federally managed fisheries.

(c) Improvements in recreational fisheries data.

NMFS is implementing a program to improve recreational fishery data collection efforts, consistent with the 2006 recommendations of the National Research Council and as required by § 401(g) of the MSA. The new marine recreational fisheries program — the Marine Recreational Information Program (MRIP) — will ultimately become a national system of coordinated regional data collection programs designed to address specific needs for improved recreational fishing information. The design of regional programs will be guided by research projects which will provide recommendations for modifying or developing new survey methods. The pace of this new program’s implementation will accelerate through 2010 and beyond. Initial improvements are addressing fundamental issues identified by the National Research Council review and authorized in the MSA, such as establishment of a Federal angler registry and improvements in the recreational data collection standards. This month, NMFS released an update to the MRIP implementation plan that details the progress of ongoing research projects and outlines research priorities for the coming year. The update and other information about MRIP are available on our website at www.countmyfish.noaa.gov.

A major component of the MRIP is the development of a national registry of anglers which will significantly improve the quality of recreational fishing data. As of January 2010, anglers and for-hire fishing vessels that fish in the Exclusive Economic Zone and who are likely to encounter anadromous species in non-exempted states’ waters will be required to register with NMFS so we can better collect catch information. We expect 18 states to qualify for an exemption from the national registry requirement because they will have sufficient state registries in place from which NMFS can collect angler data. We are currently working to adopt Memoranda of Agreement for necessary data transfer from these states to NMFS. Five of these 18 states — Florida, South Carolina, New York, Connecticut, and New Hampshire — enacted legislation this year in order to qualify for the exemption. Nine more states — Hawaii, Puerto Rico, U.S. Virgin Islands, Virginia, Maryland, New Jersey, Rhode Island, Massachusetts, and Maine — are working to adopt licensing or registration or regional data collection programs that will eventually exempt their anglers from the requirement to register with NMFS. Adoption of these lists of known anglers will significantly improve the efficiency of recreational data collection and the quality of recreational fishing data.
II. Scientific challenges in meeting MSA requirements

(a) Status of fisheries stocks.

Fishery management and fishery science have complementary roles in fulfilling the mandates of the MSA. Fishery management sets regulations to control each fishery to a level that is sustainable and provides optimum benefits. Fishery science monitors and analyzes fish stocks, fishery performance, and the associated ecosystem conditions to determine the sustainable level of annual catch and whether that level is being exceeded. Fishery science must integrate several distinct sources of data. First, we monitor fishery-dependent data on catch, effort, and bycatch from commercial and recreational fisheries to derive relative fishing mortality and abundance indices. Second, we monitor trends in the abundance of fish stocks and essential fish habitat through fishery-independent surveys conducted by NOAA research vessels and other chartered fishing and commercial vessels. These platforms are also used for biological and ecosystem studies to determine the effects of fishing pressure and environmental variability on fish productivity. The integration of high-quality catch, biological, ecosystem, and socioeconomic information is a critical requirement for rebuilding fisheries to sustainable levels and for managing our Nation’s marine living resources.

Much of this information comes together to develop stock assessments, which estimate fish stock status and forecast sustainable levels of future catch. The quality of these assessments is directly related to the intensity of sampling and investments in scientifically-developed sampling methods. Advances in our assessment methods allow us to integrate assessments more completely with habitat and environmental data, and to better portray the chance that a given level of catch will cause overfishing. More data will produce better, more precise estimates, but it is impossible to produce a perfect evaluation of the status of all fish stocks because it always will be based on sampling from cryptic populations. The National Standard 1 Guidelines published in January 2009 ensure that assessment uncertainty is accounted for when the Council sets target levels of fishery catch. If assessment results are uncertain, target catch levels need to be set lower to ensure the stock is not being overfished. As assessment results become more accurate, fishery catches can be set higher and closer to the overfishing limit.

(b) Expanding stock assessments throughout the country, use of peer review, transparency, and roles of Scientific and Statistical Committees.

The 45 Fishery Management Plans produced by the eight Councils identify 530 regulated fish stocks. Of these 530 regulated fish stocks, NMFS has identified 230 as the most important for focused tracking through the FSSI. These 230 stocks account for most of the U.S. fish catch and value and also include stocks undergoing rebuilding plans or deemed important for other reasons. Of the 230 FSSI stocks, NMFS has been able to slowly increase the number of stocks we assess due to increases in its Expand Annual Stock Assessments budget line supported by the Administration and funded by Congress. It is NOAA’s goal to provide “level 3” (high quality, predictive, and updated at least every 5 years) stock assessments for the 230 FSSI stocks that provide about 95 percent of the value of U.S. fisheries and at least baseline monitoring for the others. Of the FSSI stocks, NOAA Fisheries is able to conduct or update approximately 75
assessments per year and cumulatively have 136 of these stocks at or above this target level of information.

The demand for high-quality stock assessments and scientific information for fisheries management requires scientific peer reviews to ensure scientific integrity. NMFS and the Councils have partnered to establish effective regional peer review processes. The Councils’ Science and Statistical Committees (SSCs) serve as important advisory bodies providing the evaluation and recommendations of scientific information used by the Councils. NMFS is developing proposed revisions to the National Standard 2 guidelines to clarify guidance on: (1) the use of best scientific information available for the effective conservation and management of the Nation’s marine living resources; (2) national standards for scientific peer review processes to ensure the reliability, credibility, and integrity of the scientific information used in fishery conservation and management measures; (3) the role of the Councils’ SSCs in the scientific peer review process; and (4) the content and purpose of the Stock Assessment and Fishery Evaluation Report and related documents. The intent of this action is to facilitate compliance with requirements of the MSA, and strengthen our ability to manage fishery resources. We expect the proposed National Standard 2 rule to be in the Federal Register in November 2009, and the final rule announcement in late 2010.

Another example of NMFS’ efforts to improve its science quality assurance is the funding of external peer reviews through a contract with the Center for Independent Experts (CIE). The CIE provides expertise, most often from outside the United States, to conduct independent peer reviews of our fishery stock assessments. The CIE peer review process has produced over 400 independent peer review reports during the past 10 years. NMFS’ use of CIE has increased each year, with a 15 percent increase in FY 2009 compared to FY 2008. NMFS will continue to utilize external independent peer reviewers to ensure the reliability and creditability of its scientific information.

(c) Setting Annual Catch Limits that incorporate scientific uncertainty in stock status.

The MSA states that Councils must set ACLs such that overfishing does not occur. Implementation of this provision through the National Standard 1 Guidelines sets us on a correct and long overdue path to reducing the probability that overfishing may occur to an acceptably low level. Our science will never perfectly calculate the level of catch that would allow fishing right at the overfishing threshold, but we can calculate a best estimate. Uncertainty in stock status has many causes: insufficient type or amount of data; changing climate and ecosystem conditions; unaccounted factors that cause inconsistencies with previous assessments; etc. By quantifying the amount of uncertainty surrounding our estimates of overfishing threshold, we have another tool to guide the setting of target levels of fishery catch and can associate a specified probability (at least 50 percent but ideally with a much higher probability) of preventing overfishing. As each Council develops its fishery management plans to implement the MSA, they will debate the appropriate level of risk tolerance to prevent overfishing and optimize long-term benefits for their fisheries.
(d) **Data poor stocks.**

Some U.S. fisheries lack complete or comprehensive collection programs needed to support stock assessments. These data-poor situations cannot be overcome quickly because stock assessments require data time series to be collected and analysts to provide peer-reviewed assessments. In these circumstances, NMFS is developing alternative approaches to make the best use of limited data. Some of these methods, as explored in a January 2009 workshop for the Caribbean fisheries, are designed to use data that can be collected cooperatively with the local fishing communities. In other situations, such as the rocky reefs along the U.S. West Coast, NMFS is beginning to use advanced sampling technologies to collect abundance and habitat data for fish stocks that cannot be monitored with conventional sampling gear. NMFS has also adapted an approach for rapid evaluation of the vulnerability of every stock to excessive levels of fishing. With these vulnerability scores, we will be able to direct our efforts to those stocks and regions most in need of improvements in scientific information for fishery management.

(e) **Capacity building of Stock Assessment Scientists**

One key to providing reliable, high-quality, and timely advice regarding sustainable catch levels is having sufficient numbers of highly trained analysts to provide such information to the Councils. NMFS recognizes the importance of maintaining the scientific expertise necessary to conduct fisheries stock assessments, which provide fundamental data to support our efforts to end overfishing. As a result NMFS has taken steps to enhance its capability in providing quality and timely data in its stock assessments. NMFS is working with universities around the country to establish faculty positions to serve as education and training platforms for current and future graduate students interested in population dynamics and stock assessments. This effort will continue to ensure NMFS maintains its expertise and capabilities as the leading fisheries management institution.

(f) **The recapitalization of NOAA’s fishery survey vessels to provide fishery-independent data.**

A cornerstone of fishery science is at-sea data collection to monitor living marine resources and their associated ecosystems. We conduct these surveys on NOAA research vessels, and on chartered fishing and university vessels. Since 2001, NOAA has invested in replacing its aging fleet with state-of-the-art Fishery Survey Vessels (FSVs). New FSVs accommodate advanced sampling technologies for integrated multi-mission survey operations. Four ships are already operating or will be operating off Alaska, the Northeast, the Southeast, and the West Coast. The 2009 *American Recovery and Reinvestment Act* also funds one additional West Coast FSV. The implementation of advanced remote sensing technologies, including underwater acoustic sensors and autonomous underwater vehicles, provides our scientists with tools to collect data for monitoring habitat and estimating abundance in a more cost-effective, nonintrusive, and accurate manner. These new sampling technologies can also be utilized to create fishery-independent surveys in areas that were previously unavailable or vulnerable to conventional sampling gear. A recent evaluation of these new ships proves the value of the advanced technology and acoustic quieting of the vessels as an aid to improving the precision and accuracy of stock assessments. These vessels — the most advanced fishery surveying vessels in the world — have proven to be
reliable and innovative ships and will serve the Nation well for many years to come. We appreciate the continued support of Congress for the recapitalization of NOAA’s fishery survey vessels.

**g** *Incorporation of economic and social data in fishery management process.*

As we continue to implement the management and science provisions of the *MSA*, we expect to see measurable improvement in the economic performance of the U.S. commercial fishing industry. Preventing and eliminating overfishing and rebuilding overfished stocks are critical steps toward more sustainable fisheries. The trend toward exclusive and tradable catch share programs, combined with judicious application of *MSA* Section 312 (b) (Fishing Capacity Reduction Program), should result in significant reductions in fleet overcapacity and upgrade the quality and competiveness of domestically harvested fish. The bycatch engineering program should reduce incidental harvests so that fishermen will be able to fish longer for target species. For example, in the Northeast Multispecies Fishery Management Plan, this program will reduce bycatch of cod and permit fishermen to harvest more haddock.

The combined effects of these *MSA* provisions should result in: (1) increases in allowable harvests in some fisheries; (2) improved stability and predictability in most stocks; and (3) reduced costs to fishermen. NMFS has recently estimated that total ex-vessel revenues could increase by as much as $2.2 billion — more than a 50 percent improvement over current levels — if all managed stocks were harvested at maximum sustainable yield levels. If we look at both the projected increase in revenues and the decline in harvesting costs, profits would also improve significantly. I am unable to accurately estimate the potential increase in profits, but a recent World Bank/FAO study offered a rough projection of increased global rents of about $50 billion. (Note that U.S. fisheries harvests represent about 5 percent of the world total.)

Further reductions in bycatch through gear technology and other changes to fishing operations should also generate economic benefits. Inadequately selective fishing gear costs U.S. fisheries millions of dollars annually in foregone revenues. For example, mixed stock gear and regulations prevented New England fishermen from catching 95 percent of their haddock quota in 2008, resulting in lost ex-vessel revenues of about $20 million. Another example is sea turtle bycatch in the bottom longline component of the Gulf of Mexico reef fish fishery, which prompted NMFS to issue an emergency rule in the summer of 2008 on this type of fishing in inshore waters, an action that had significant adverse impacts on the commercial reef fish fisheries of Florida.

Finally, as fisheries rebuild, they should provide certain “social” benefits. More stable fisheries should ease some of the stress on participants that we have seen in recent years. Management programs that allocate catch shares to communities should help us maintain the sustained participation of those fishing communities, an *MSA* mandate under National Standard 8. Ending the race to fish and reducing overcapacity should produce continued improvements in the safety of fishermen at sea, another *MSA* requirement under National Standard 10. The projected improvements in economic performance should result in an increase in employment in the domestic seafood industry (although probably not in the harvesting sector). NMFS recently estimated that employment in the seafood industry could increase by as much as 500,000 jobs.
More stable, productive, and profitable fisheries should enable vessel owners and crews to fish for longer periods, instead of the short races that have been the norm in many federally managed fisheries.

Since FY 2001 (the first year NMFS received dedicated funding for its economics and social sciences program), NMFS commercial fisheries data collections have increased three-fold. In FY 2001, only seven fishery management plans had the complete suite of economic data (ex-vessel revenue, operating costs, and fixed costs) on commercial fishing operations compared to the 22 fishery management plans for which we have data in FY 2009. These programs include additional economic questions from observer program, logbook, and permit data, as well as some annual or one-time mail surveys. These data support cost-benefit analyses, profitability and cash-flow analyses, and economic impact modeling. NMFS has also been able to shift from ad-hoc regional angler surveys to a national approach for expenditure data, which is used in economic impact modeling. To expand the use of economic information in the fishery management process, NMFS has created both a commercial economic impact model and a recreational economic impact model, each of which can be used in fishery management to show the impact of a proposed regulation on sales and employment across the broader economy.

NMFS has also finished its first round of fishing community profiles for all coastal states, which provide basic information on the level of engagement in fishing of each fishing community (e.g., landings revenue, permit owners residing in the community, etc.) as well as general demographic information on the community (e.g., income, poverty rates, education, etc.). The fishing community profiles are routinely used in social impact assessments to comply with national standards in MSA, the National Environmental Policy Act, and other requirements.

The FY 2010 President’s budget request would provide an additional $3.3 million to NMFS science centers and regional offices. Greater use of catch share programs will have some additional economic data needs not included in this calculation. Likewise, the increased need for social data and (particularly employment information) is a high-priority item for NMFS.

(h) **Addressing Administration’s funding package for FY 2010 in Expand Stock Assessments, Survey, and Monitoring, and other FY 2010 science initiatives.**

Several funding initiatives in the President’s FY 2010 budget request will help advance our capacity to fulfill the MSA mandates. Notable budget requests include a $9.9 million increase to the Expand Annual Stock Assessments budget line, $4.8 million for recreational fisheries data collection improvements, $6.3 million to restore important survey and monitoring projects, $3.3 million for social and economic data improvements, $5 million for observers, $6 million for cooperative research with the industry, and $1 million for integrated ecosystem assessments. NOAA’s FY 2010 budget request will support efforts to add more assessment staff, expand the scope of our fishery-independent surveys, improve fishery catch monitoring programs, and build a stronger linkage between fishery, ecosystem, and economic evaluations, and conduct more cooperative fishery science programs with industry.
III. The NOAA Administrator’s priorities for the Magnuson-Stevens Act.

(a) Using best scientific information available as a basis for decision making.

The new Administration is committed to science-based decision making and improving the scientific basis for difficult choices that need to be made. MSA National Standard 2 (Section 301(a)(2)) specifies that fishery conservation and management measures shall be based upon the best scientific information available. NMFS is developing a proposed action to revise the National Standard 2 guidelines to update them per the 2006 MSA amendments. The intent of this action is to facilitate compliance with requirements of the MSA, provide national quality standards while recognizing well-established peer review processes that account for the inherent regional differences in fisheries and fishery management, and ensure the scientific integrity of biological, ecological, economic, and sociological information used in the conservation and management of our marine living resources.

NMFS published an advance notice of proposed rulemaking in the Federal Register (73 FR 54132, September 18, 2008) to propose revisions to the National Standard 2 guidelines. The National Standard 2 proposed rule is planned for publication in the Federal Register next month, and the goal is to complete the final rule in late 2010.

(b) Use of economic instruments to accomplish biological and economic goals of fisheries management (e.g., catch share programs).

Following a long debate on rights-based management, Congress let the moratorium on individual fishing quotas lapse in 2002 and added a detailed new section 303A on Limited Access Privilege Programs (LAPP). Section 303A authorizes Councils to prepare and submit, and the Secretary to approve, LAPPs in federally managed fisheries that already have limited access systems. Section 303A defines LAPPs broadly to include a variety of programs that allocate harvest shares to individuals, entities, and groups. NMFS is preparing guidelines to help the Councils develop these programs.

In general, NOAA supports the use management based on harvest privileges, which we call “catch share” programs. Toward that end, NOAA has established a “Catch Shares Task Force” to develop a policy and implementation strategy. Although they vary in structure from fishery to fishery and from region to region, all catch share programs have overall sustainable harvest limits and exclusive allocations to designated recipients and many of them allow the trading of shares. As a result, all these programs end the race to fish and provide participants with economic incentives to end overfishing and maintain healthy stocks.

The first catch share programs were developed in the first half of the 1990s, and we now have 12 such programs. We may have as many as 15 catch share programs by 2011. In addition, while the initial catch share programs were mainly individual fishing quotas, we now have a wider variety of exclusive quota programs that include individual fishing quotas, community quotas, fishing cooperatives, and sector allocation programs. We estimate these programs account for about one-fourth of the domestic fishing industry’s total first sale revenue. If we add the catch share programs we expect will be implemented in the next few years, that share could easily
jump to about one-third. Clearly, management programs that allocate harvest privileges exclusively to designated participants and normally authorize the sale and lease of these shares are becoming an increasingly important component of our domestic management program.

(c) The President’s Interagency Ocean Policy Task Force.

President Obama’s June 12 Oceans Memorandum established the Interagency Ocean Policy Task Force and charged it with developing a number of recommendations to improve the stewardship of the ocean, our coasts, and the Great Lakes. The Task Force is developing its final recommendations and NOAA is proud to be a significant participant in this important effort. The President’s memorandum emphasized the importance of ecosystem-based management for ocean and coastal management. For years, NMFS has made efforts to expand many of its scientific programs to allow integration of all the factors and drivers that contribute to sustainable fisheries. Although the MSA does not prescribe comprehensive ecosystem-based approaches to management, several provisions address ecosystem concerns and the MSA allows pilot programs for fishery ecosystem plans. Bycatch reduction, deep sea coral research and management, fishery ecosystem plans and fisheries’ role in marine spatial planning are all areas where NMFS will contribute to the Administration’s ocean policy objectives for ecosystem-based management.

Conclusions

The implementation of new provisions, authorities, and mandates in the 2006 reauthorization of the Magnuson-Stevens Fishery Conservation and Management Act has given us the tools we need to achieve the Nation’s fundamental management objectives to end overfishing in a date-certain time frame, for timely stock rebuilding, and for strengthening the scientific basis for decision making. With continued support we will meet the Congressional mandates and deadlines, and make substantial progress toward science-based, effectively managed, and economically viable commercial and recreational fisheries. As I have noted, the potential economic and social benefits of rebuilt fisheries are considerable. We do not believe that changes in the requirements for ending overfishing and timelines for rebuilding plans are warranted at this time. The MSA provides great flexibility in adapting rebuilding plans to the life history differences among species and nuances of particular fisheries. The requirement for timely rebuilding of stocks within the context of gaining improved economic performance from rebuilt fisheries has already resulted in a number of successful rebuilding programs—such as for Atlantic sea scallop, haddock and swordfish—and much improved resource conditions for others, such as the groundfish complex on the West Coast. Over the next few years elimination of overfishing for the 41 stocks where such conditions now exist will add to this list of successful rebuilding plans.

This concludes my testimony, and I am happy to answer any questions you may have.