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Report to Congressional Committees and Requesters

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FISHERY MANAGEMENT

Problems Remain With National Marine Fisheries Service's Implementation of the Magnuson-Stevens Act

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Abbreviations

EPA	Environmental Protection Agency
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration

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Congressional Committees and Requesters

Ensuring a healthy supply of fish and other marine species in the coastal waters beyond each state's jurisdiction is a federal responsibility carried out principally by the Department of Commerce's National Marine Fisheries Service (NMFS) and eight regional fishery management councils under the Magnuson-Stevens Fishery Conservation and Management Act.[1] Among other things, NMFS and the councils track the condition of these species, determine the level of catch that would provide the greatest benefit to the nation, and measure the economic impacts of fishery regulations and policies. Measures to manage fish and marine species are usually developed by the councils, reviewed by NMFS, and approved by the Secretary of Commerce. Because these measures influence how many fish may be caught, they can be controversial as fish quotas effect both the survival of a species and the economic health of the fishing industry and many communities. Therefore, you directed us to assess NMFS' compliance with three provisions of the Magnuson-Stevens Act, which require it to

- use the best available scientific information for fishery management;
- take into account the economic importance of fishery resources to fishing communities as it adopts measures to manage fishery resources; and
- identify essential fish habitat, the adverse impacts on that habitat, and the actions needed to conserve and enhance that habitat and also develop a consultation process designed to protect that habitat from adverse impacts.

Results in Brief

NMFS appears to be using the best available scientific information to determine the condition and abundance of fish and other marine species, but improvements to include more current and complete data could be made. According to the National Research Council, a scientific research agency of the National Academy of Sciences, NMFS' current process

[1]P.L. 94-265, as amended (16 U.S.C. 1801 *et seq.*).

provides a valid scientific context for evaluating the status of fish populations and other marine species. At the same time, the Council and others have pointed out that some of this information is not current or complete. The need to rely on such information has led to criticism by fishermen and others who have been adversely affected by fishery management decisions. Until NMFS can overcome the weaknesses associated with the information it uses, more consistently involve others in its research activities, and improve communications with fishing communities and the industry, the criticism is likely to continue.

NMFS considers the economic impacts of conservation and management measures on fishing communities. However, this consideration concentrates on identifying how communities will be affected by these measures and not necessarily on how to minimize their effects in order to sustain the communities' participation in a fishery. In addition, the data necessary to identify adverse effects are often unavailable and the usefulness of the analyses is limited by how they are used in the decision-making process. The failure to use economic analyses to develop alternatives that minimize adverse impacts to fishing communities will result in continuing questions about why the information is even collected to satisfy this requirement.

NMFS has technically met the act's requirements by identifying essential fish habitat and developing a consultation process for addressing potential adverse impacts to that habitat. However, lack of information and tight time frames have caused NMFS to make essential fish habitat designations that, when aggregated for each species, include virtually the entire portion of the Atlantic and the Pacific oceans that the United States controls. Individuals with commercial interests expressed concern that such broad designations could result in consultations that adversely affect their planned construction or development projects. So far, however, there is little evidence to indicate that the new consultation process has resulted in delayed or cancelled projects. Since completing the habitat designations, NMFS has increased its efforts to identify the adverse impacts to habitat and the actions needed to conserve and enhance it, but NMFS officials acknowledged that much remains to be done.

This report makes recommendations to the Secretary of Commerce that could improve NMFS' data collection efforts, communications with the fishing industry, economic analyses, and estimates of the costs associated with fulfilling the act's provisions to conserve and enhance essential fish habitat.

Background

The 1976 passage of the Fishery Conservation and Management Act ushered in a new era of federal marine fishery management.[2] Until 1966, when exclusive U.S. fishery jurisdiction was expanded to 12 miles, foreign fishing vessels had been able to fish to within 3 miles of the U.S. coastline. In response to the allegations of U.S. fishermen that foreign fishing resulted in overfishing and depleted fish stocks, the 1976 act further extended federal jurisdiction for marine resources from each state's jurisdictional boundary out to 200 miles from the coastline. Foreign fishing vessels were no longer allowed to fish inside this new area of jurisdiction without specific authorization.

Under the act, responsibility for managing marine resources rests with the Secretary of Commerce. The Secretary has delegated this responsibility to NMFS, which is part of the National Oceanic and Atmospheric Administration. NMFS evaluates the condition of fish stocks and other marine species by using a variety of data sources, including information obtained from at-sea research and from the fishing industry itself.[3] The agency is also responsible for enforcing fishery laws and regulations. To carry out its responsibilities, NMFS employs a staff of approximately 2,400, including oceanographers, biologists, social scientists, economists, mathematicians, and law enforcement officers.

[2]The act was renamed in 1980 to honor the late Senator Warren G. Magnuson (P.L. 96-561, section 238) and in 1996 to include Senator Ted Stevens (P.L. 104-208, section 208). It is now known as the Magnuson-Stevens Fishery Conservation and Management Act.

[3]A stock is a group of fish that is usually based on genetic relationships, geographic distribution, and movement patterns. A single species can consist of several stocks, and a stock can consist of several species.

To conserve and manage fishery resources, the act calls for developing fishery management plans. Along with other information, these plans include basic biological background on managed species, show population trends, and indicate the abundance levels needed for future sustainability. The act established eight regional fishery management councils, each covering a separate geographical coastal area, and assigned them the responsibility to make recommendations to the Secretary of Commerce about the fishery management plans. Using scientific information and advice from NMFS and others, the regional councils are responsible for recommending a fishery's optimum yield and preparing analyses on the economic effects of fishing regulations and practices.[4] Regional council members include the local NMFS Regional Administrator, private citizens nominated by the governors of each state in a council's geographic area and then appointed by the Secretary, and state fishery officials. The purpose of these regional councils is to enable states, the fishing industry, consumer organizations, environmental groups, and other interested parties to participate in developing the fishery management plans.

Currently, there are 40 fishery management plans covering about 900 fish and marine species. NMFS supplies most of the information the councils use to prepare and update these plans. To obtain this information, NMFS conducts at-sea stock surveys and runs models to estimate the abundance and the conditions of fish stocks. During stock surveys, data are gathered on the abundance, the distribution, the age, and the size of each species. This information is combined with data obtained from the fishing industry on such factors as the number, the type, and the location of fish caught and then used in an assessment model to estimate the population size and the condition. Each regional council has a committee that independently reviews the information NMFS provides as well as any pertinent scientific data supplied by others. After reviewing all the submitted information, the committee recommends a course of action to its regional council, which reviews it and decides what information will be used to update or amend the fishery management plans and their related conservation and management measures. Changes and amendments are then sent to NMFS for approval. The review process used to assess the adverse economic affects to fishing communities of any changes to the fishery management

[4]The amount of fish that will provide the greatest overall benefit to the nation, particularly with respect to food production and recreational opportunities, and take into account the protection of marine ecosystems.

plans and their related conservation and management measures is less defined and varies by regional council.

In this report, we address three provisions of the act. The first provision has been in the act since its passage in 1976, while the remaining two were added in the 1996 amendments. The provisions are as follows:

- The best available scientific information is to be used for fishery management and determining the condition and the abundance of fish and other marine species. The act does not contain any guidance as to what constitutes the best available scientific information.
- Management measures are to take into account the economic importance of fishery resources to fishing communities. The provision specifies two reasons for doing so: to provide for the sustained participation of such communities in fishing activities and, to the extent practicable, to minimize the adverse economic impacts to those communities. The act does not define or provide guidance on what is meant by the phrase "to take into account."
- Each fishery management plan is to identify and describe the essential fish habitat for the fishery, along with 1) the actions that will minimize, to the extent practicable, the adverse impacts of fishing and other factors and 2) the actions that should be considered to conserve and enhance habitat. Other federal agencies are required to consult with NMFS to help minimize the adverse impacts to essential fish habitat that could result from any action under their jurisdiction.

Best Available Scientific Information Could Be More Current and Complete

Although NMFS is using the best available scientific information, sometimes that information can still be problematic. Independent reviews by the National Research Council found that the stock assessment process provided a valid scientific context for evaluating fish stocks but that improvements could be made to make the data used in the process more current and complete. Although fishermen and others accept many of NMFS' stock surveys and assessments without controversy, we also found instances in which the use of such data was perceived as having adverse economic consequences to the fishing industry and associated fishing communities. Our review of these instances showed that the concerns often did not center on whether NMFS had access to better scientific data and failed to use it, but rather on the currency and the amount of the scientific data available. The resulting decisions were controversial, and the controversy was sometimes exacerbated by miscommunication among NMFS, the councils, and those affected by the decisions. At times, the

groups apparently did not understand what the others were saying or did not listen closely enough to what was being said.

Little Controversy in Many Fisheries About the Quality of the Scientific Information

Little controversy surrounds the scientific information used by NMFS in many fisheries. One reason for the lack of controversy is the reputation of NMFS as a leading authority in marine research—a reputation supported by the recent National Research Council evaluations.[5] Another reason is found in the fisheries themselves. The Alaska pollock fishery in the Bering Sea, which is the world's largest single-species groundfish fishery,[6] is an example of a fishery about which there is little disagreement that the best available scientific information is of high quality.[7] The wide acceptance of, and limited controversy about, this information derives from such favorable factors as the following:

- The status of the fish stock is classified as healthy and abundant.
- NMFS conducts extensive at-sea surveys of the pollock population every year.
- The conclusions reached by NMFS are similar to those reached by fishermen according to their experiences at sea.
- Fishing vessels in this fishery are generally large, and most are required to have independent observers on board to provide reliable information about the amount of pollock and other species that are caught. This allows fishermen to observe and understand the data collection process.
- There are a small number of participants in the fishery, and they use tracking and reporting equipment that results in up-to-the-minute reporting. This means that quotas are generally not exceeded.

[5]The National Research Council reports were published in 1998 and are entitled *Improving Fish Stock Assessments and Review of Northeast Fishery Stock Assessments.*

[6]Groundfish are various species of fish that live on or near the seafloor.

[7]We recently examined this fishery in another assignment. See *Fishery Management: Market Impacts of the American Fisheries Act on the Production of Pollock Fillets* (GAO/RCED-99-196, June 30, 1999).

These same favorable factors are seldom present in fisheries where there is controversy.[8] In the following sections, we present and discuss cases that illustrate what might happen when these favorable conditions are not present.

Concerns That Best Available Scientific Information Is Not Current or Is Limited

Sometimes, even the best available data may not be current or may have limitations. Because of limited resources, NMFS has not been able to manage all fisheries as it does the Bering Sea pollock fishery, either in its ability to conduct routine surveys or to monitor the harvest. As a result, much remains unknown about the status of the nation's marine resources. This past year, NMFS reported that it does not know the status of 75 percent of the species (30 percent of the stocks) it manages.[9] NMFS also noted that its assessments on the known species are often based on limited data.

Our conversations with representatives of the fishing industry raised a number of concerns about the use of scientific information that is not current and limited. Two common areas of concern involved the adequacy of NMFS' at-sea stock surveys and the inconsistencies in the way NMFS uses other data gathered from commercial and recreational fishermen.

Concerns About Information From Stock Surveys

Although NMFS uses the best available scientific data, many at-sea stock surveys are not conducted as frequently or designed as specifically as either NMFS or others would like. Surveys are usually done on a scheduled basis with commercially harvested species being more frequently surveyed than others. The number and the design of surveys is limited by such factors as the total number of species involved (about 900), the area that must be covered (over 3.4 million square miles), the ocean conditions the surveyors encounter, and the constraints on funding, staff, and equipment. These limitations lead to complaints about the data's adequacy when those adversely affected by a resulting decision become aware of the basis for that decision. The following examples illustrate what industry and other officials told us:

[8]Although there are few disagreements about the quality of the scientific data in this fishery, there are disagreements about the impact of this fishery on the endangered Steller Sea Lion that are being addressed by the courts.

[9]Although NMFS only knows the status of 25 percent of the species, this percentage represents about 90 percent of the total weight or volume of all species in U.S.-controlled waters.

- Fishermen and council members believe that more frequent surveys would detect the downward trends earlier, which would result in less sudden and dramatic reductions in the harvest. Although many stocks are surveyed annually, others are surveyed with far less frequency. For example, the 83 species classified as Pacific groundfish, including many species of rockfish, are surveyed every 3 years. Using the 1995 survey's data, the assessment indicated that the populations of some rockfish were up and some were down while the data for some others were inconclusive. Harvest restrictions were imposed for several species. However, the latest assessment performed, which used data from a 1998 survey, revealed that these species, along with several others, had continued to decline. As a result, the council has implemented harvest restrictions for at least one species that reduces fishing by over 80 percent, even though substantial economic impacts to the fishing industry and communities are expected. NMFS officials stated that more frequent surveys could have identified trends earlier but that limited resources kept them from doing the surveys more often. They also noted that a portion of the proposed harvest restrictions was the result of other factors, such as the change in regulations resulting from the act's amendment in 1996.
- Fishing industry officials complained that, from their perspective, basing a stock assessment on what can be just a few fish caught during a general groundfish survey is not an appropriate way to establish population estimates for species that may occur elsewhere in greater numbers. For surveys with multiple species, they thought that the locations used for the surveys might not be representative of the abundance for all the species being surveyed. For example, there are over 50 species of Pacific rockfish, and their habitat requirements are varied. NMFS officials did not disagree that the scope of some of their surveys needs to be expanded but noted that, in many cases, they are more interested in the trend than in the absolute number of fish caught during the surveys because trend data provide a very good indicator of whether population counts are up or down over time.

To make stock surveys more frequent and more specific, several fishing industry officials indicated a willingness to participate in research, and NMFS officials stated that recently there has been an increase in the agency's willingness to use private vessels for research. NMFS officials noted that the contribution of such vessels represented 41 percent of the agency's total research days at sea in 1998. However, they also stressed that this research must conform to the same standards the agency uses internally. Some NMFS officials initially expressed reluctance to increase

the use of private research vessels for surveys because of problems in obtaining consistency. They stated that a vessel's size, speed, equipment, and even the captain and the crew can affect a survey's results. As a result, changes in private research vessels from year to year could alter the results of surveys. NMFS officials stated that although recent electronic advances have improved the calibration techniques necessary to achieve consistency, private vessels generally must still be calibrated against a standard (NMFS research vessel) to maintain long-term data continuity. They added that it would also be beneficial to get fishermen more involved in survey design to improve their understanding of research methods.

Concerns About Information on Commercial and Recreational Fishing

To develop its estimates of population levels for each species, NMFS combines the data it obtains from its stock surveys with data from other sources. Two frequent sources of this additional information are the commercial fishing industry and recreational fishermen. From these groups, NMFS obtains such information as the number and the type of fish caught, the amount of time spent fishing, and the location of the fishing activity. However, fishermen identified several problems in NMFS' use of this information:

- Inconsistency in credibility given to such data. NMFS requires commercial fishermen to collect and report about the type, the weight, and the length of species kept or discarded.[10] However, because much of this information cannot be independently verified, NMFS is reluctant to use some of it. Instead, some NMFS offices rely on reports from fish processors to estimate the number of fish caught, and, for information about discards, they may rely on independent observers who, depending on the fishery, will be aboard fewer than 1 percent of fishing trips. NMFS, however, does use similar self-reported data from recreational fishermen. NMFS obtains information about recreational catches, in part, by calling a random sample of people who live in coastal areas and asking those that say they fish for recreation in salt water about where they fished, and how they fished (e.g., private or charter boat). These unverified responses are then combined with catch data obtained from a sample of recreational fishermen returning from fishing trips to estimate the total recreational catch.
- Limited accuracy for some key information. Reliance on self-reported data, or limited but verifiable alternatives, raises a number of questions

[10]Discards are those fish caught but not kept because they are the wrong species or size or because a fisherman already has the allowed limit of a particular fish.

about the accuracy of the information obtained. For example, with regard to the self-reported information on the recreational fishery, the Oregon State Department of Fish and Wildlife compared NMFS' recreational catch estimates to its own sampling of recreational fishermen for a 4-year period and found that, depending on the species or group analyzed, NMFS' catch estimates were greater than that state's by 69 to 200 percent. It is unknown which data are more accurate, and NMFS is currently studying why this difference occurred. In 2000, however, the regional council has elected to use Oregon's data to apportion the total annual allowable catch of Pacific groundfish between the commercial and recreational fishery sectors because they believe the state's estimates are a more accurate estimate of actual catch. In commercial fishing, because NMFS can reject self-reported data on discards in some fisheries in favor of data obtained from a very small sample of independent observers, the errors that could result from an unrepresentative sample could be significant. Commercial fishermen noted that NMFS' reluctance to use self-reported data on discards could result in a sizeable understatement of existing populations. For example, several fishermen reported discarding thousands of pounds of Gulf of Maine cod for every 30 pounds they were allowed to keep and were concerned that this discard information was not included during the stock assessment process. NMFS officials stated that they do use information from the industry on the discards of some species in some fisheries, but this is supplemented with other data in determining the level of discards.

- Difficult to close depleted recreational fisheries. Because of problems with the data collection and reporting methods used in the recreational sector, NMFS officials stated that currently they seldom use this data to close recreational fisheries, even if they indicate that an excess harvest is occurring.[11] Reasons given for this reluctance included a 4-month time lag in summarizing the recreational data and the wide allowance for errors associated with survey methods that are not designed to be species specific. In contrast, the closures of commercial fisheries can and do result from weekly updates of commercial fishery data, on-board observers, and independent verifications from fish processors. The inability to use self-reported data to close those recreational fisheries for which recreational fishermen account for a large percentage of the

[11]NMFS officials stated that recreational data are used to close the red snapper, the bluefin tuna, and some Pacific salmon fisheries.

catch, is a source of frustration to commercial fishermen who find their own access to the fishery cut off.

Decisions Based on the Interpretation of the Best Scientific Data Can Be Controversial

Uncertainties surrounding scientific data can create disagreements about how they should be interpreted. These disagreements can become particularly controversial if they are seen as adversely affecting the health of the fishery or the economic viability of those that depend upon it. To increase the confidence in its data, NMFS requires that all published research be peer reviewed by a group of independent scientists before it is released. One part of the peer review process looks at the reasonableness of the conclusions that were reached by using the best available scientific data. However, peer reviews do not necessarily eliminate scientific uncertainties or controversies. In many instances, the correctness of inferences based on the best available scientific data cannot be proved or disproved except by additional research or the passage of time. As a result, even research that passes peer review might not be readily accepted by those who have concerns about its quality.

For example, the management plan for monkfish in the New England area concluded that the species was declining and called for a significant reduction in the annual fishing harvest. This decision was based on a 1997 stock assessment conducted by NMFS. Although NMFS' conclusions were peer reviewed and found to be acceptable, monkfish fishermen hired another scientist to review them. This scientist questioned several assumptions, such as the estimated mortality rates and the reasons why the catch rates were increasing even though surveys indicated a decline in stock abundance. To respond to these concerns, the New England Fishery Management Council requested that its Scientific and Statistical Committee examine the assumptions. The committee concluded that there were some problems with the assessment but that "reasonable minds might reasonably disagree about the conclusions of the assessment." The committee ultimately concluded that there was no reason to overturn the collective judgment of the original peer review panel. When we talked to the other scientist, he stated that, in the end, they "agreed to disagree." The existing data were insufficient to conclusively find one position more valid than another one. Thus, the inexactness of the data, even when they are the best scientific information available, may make it as difficult for NMFS to prove its assumptions and conclusions are right as it is for someone else to prove they are wrong.

Miscommunications in Some Fisheries Increases Controversy

Controversy most often develops in those fisheries where conservation measures have resulted in adverse economic consequences to the fishing industry and fishing communities. We found that some complaints questioning whether the best available scientific information was being used were the result of miscommunications among NMFS, the councils, and those involved in the fishing industry or these groups' not listening to each other. These misunderstandings have frustrated all those involved.

The Atlantic scallop fishery is an example of how miscommunications between NMFS and the fishermen raised anxiety levels, especially when the economic consequences to the fishing industry and communities were adverse. While NMFS cited the scallop fishery as an example of the agency's efforts to cooperate with industry, some industry representatives cited it as an example of NMFS' failure to work with them. In 1994, NMFS, with the support of the regional council, closed two areas of the Georges Bank, along with another area in southern New England to protect depleted groundfish stocks. In 1999, portions of these areas were reopened, with restrictions, to limit fishing and scallop dredging. During the 5-year closure, NMFS continued to conduct its groundfish and scallop surveys as well as other studies. These surveys and studies indicated that, although groundfish stocks were improving, they had not yet reached the level that would convince the regional council to reopen the area. Meanwhile, the scallop industry had information that indicated the scallop population was expanding rapidly. The industry requested that more research be done and that the area be reopened.

The history of this research request is confusing, with both sides having different recollections of what occurred. Fishermen said that they had requested permission to have major universities conduct research in all three closed areas as early as 1996 but that NMFS delayed the research permit until 1998 and only allowed them access to one area. The fishermen said they later requested that they be given access to the other areas but were denied. NMFS officials remembered conducting discussions in 1996 and informing industry officials that a formal proposal would be needed because the research would be done in a closed area. They stated that they had helped industry officials prepare the proposal but that it was not submitted until 1998 and that it requested access to only one area. NMFS officials also said that a second research proposal was approved, not denied.

Our review of the available documentation indicates that a formal proposal was submitted by the Center for Marine Science and Technology of the

University of Massachusetts at Dartmouth in 1998. Supporting documentation indicates that the Center originally discussed requesting access to all three closed areas, but the formal proposal requested that the experiment be limited to one area, citing the limited availability of independent observers as the reason for the modification. NMFS' records indicate that a research proposal submitted by the Virginia Institute of Marine Science to study a second closed area was approved on June 11, 1999, and that on June 15, 1999, NMFS approved a proposal for the agency's Northeast Fisheries Science Center to study all three closed areas. In the case of the scallop fishery, the new research resulted in the partial opening of the closed areas and an increase in the number of days fishermen would be allowed to fish. The regional council estimated that these actions would increase the value of the scallop harvest by $47 million.

The misunderstandings between NMFS and the scallop industry are similar to those we heard elsewhere. From the fishing industry, we heard general complaints questioning NMFS' conclusion that a species is in trouble when fishermen could not keep from catching it, even if they were not specifically fishing for it. Some fishermen also believe the assumptions made in stock assessment models are not adequately explained in terms of how they affect the accuracy of the final estimates of stock abundance and condition. When NMFS officials discussed the same complaints with us, they expressed frustration about not being asked for clarification. They acknowledged that the process is complex but said they try to adequately explain it in both the assessment meetings and in their reports.

Economic Impacts to Communities Are Considered, But More Effort to Minimize Effects Is Needed

Although NMFS does consider the economic importance of fishing to fishing communities, this consideration concentrates on identifying how adversely a community would be affected by the measures and not necessarily on how to minimize that impact to provide for the sustained participation of those communities in the fishery. In addition, the quality of the economic analyses is dependent on the availability of economic information and the usefulness of these analyses is then dependent on how they are incorporated into the decision-making process. NMFS officials stated that, even though the economic impacts to fishing communities are considered, more could be done to address these other concerns.

Guidelines Issued, Impacts Assessed, Some Alternative Actions Implemented, and a Review Process Established

NMFS has issued guidelines for considering the impacts on fishing communities, worked with councils to collect and develop data to assess those impacts, considered and implemented alternatives to reduce adverse economic impacts, and established a process to review compliance with the act's requirements. Although much time and effort has been devoted to these activities, substantial work remains.

On May 1, 1998, NMFS issued guidelines for considering the social and economic impacts of conservation and management actions on fishing communities. Among other things, the guidelines

- defined a fishing community as a location that was substantially dependent on or engaged in the harvesting or processing of fishery resources and included fishing vessel owners, operators, crews, and fish processors based in those communities along with people employed in such places as boatyards, ice suppliers, or tackle shops that were directly related to fishing;
- limited deliberations on the importance of fishery resources to those that do not compromise conservation requirements;
- recommended data collection efforts if the needed data were severely limited;
- permitted both qualitative and quantitative data; and
- required that fishery management plans include social and economic considerations.

Although the guidelines suggest that fishermen, dealers, processors, and fishery organizations could be a source of qualitative and quantitative data, the guidelines are silent as to the role that these people might play in identifying or assessing economic alternatives to help minimize adverse impacts to their communities.

The guidelines have been used to prepare many fishery management plans. For example, the April 1999 Fishery Management Plan for Atlantic Tuna, Swordfish, and Sharks lists 44 different conservation and management actions for the three fisheries and estimates the economic and social impacts of each action. Although none of the impacts is quantified in the plan, there are qualitative statements associated with each action, such as the minimal impact, the substantial impact, the positive impact, or some negative impacts, which describe what is expected to occur as a result of that action. Although the plan does delineate the economic and social severity of the various actions, it is not clear on how the analysis was used

to decide among alternatives or if affected communities were involved in identifying alternatives that could minimize adverse economic impacts.

We did find instances where NMFS and council analyses were used to assess the economic effects of various conservation and management alternatives. In these instances, the analyses provided a basis to select an alternative that would less adversely affect a fishing community. For example, although certain Pacific groundfish quotas were significantly reduced recently, the need to shorten the fishing season was minimized through the use of varying trip limits. These varying trip limits were designed to keep the fishing season open for most of the year, which would help stabilize the product's availability and prices and thereby minimize the adverse impact on the fishing community caused by the reduced quota.

NMFS has developed a process to review compliance with the requirement to consider the economic impacts on fishing communities. This process applies to all fishery management plans, their amendments, and any other regulatory amendments that require approval of the Secretary of Commerce. After a team of NMFS officials has reviewed each document for compliance with the act, the document is approved, partially approved or disapproved, or totally disapproved. Of the 35 documents submitted for review since the act's 1996 amendment, 6 have been partially disapproved on the basis of deficiencies associated with the requirement to consider communities. In these instances, the documents were returned to the councils for additional action.

The guidelines used to review compliance with this requirement of the act recognize the need to identify the fishing communities that would be adversely affected and the degree to which each of them depends on the fishery. However, the guidelines are silent about the role these communities might play in identifying or assessing economic alternatives to minimize adverse impacts.

Economic Data Are Often Unavailable

Council members, council staff, and committee members, fishermen, fish processors, academics, and community leaders all complained about the general lack of economic data on fishing communities. While this information is often available on fishermen, they are not the only ones adversely impacted when fishing is restricted. People who are a part of the industry infrastructure that supplies the gear, the port facilities, the ice, and the fuel to the fishermen as well as other local businesses that provide general services may also experience reduced revenues or face

unemployment when fishing is curtailed. Information on these types of economic impacts is often not available at the community level. NMFS must either develop this economic information or focus its community impact analysis on the individual fishermen. However, NMFS officials noted that their ability to develop some of this information is restricted by the act itself. For example, under the act, fish processors cannot be required to submit economic data.

A report prepared by Oregon State University, entitled *Oregon's Changing Coastal Fishing Communities,* highlights some additional difficulties in developing data on fishing communities. For example, it points out that a fishing community may consist of many smaller communities based on the types of fishing equipment used, the fisheries involved, and the geography of the area. In addition, business economic information is usually collected on incorporated areas or by county, and fishing communities are often in unincorporated areas. Because of the relatively small number of people involved in fishing nationwide, the federal labor statistics on fishing at the local level are usually combined with those of forestry and farming.

Members of the regional council's economic advisory committees also provided specific examples of the types of information that are most often unavailable. They noted that most readily available economic information focuses on such data as the prices fishermen receive for the fish caught but that there is a general lack of data on 1) the crew, such as how many are employed, how many days they work, and how much they are paid; 2) the economic relationships between those that buy the catch and those that catch it; 3) the production costs for such items as fuel, ice, equipment, and other supplies as well as the costs for repairs; 4) the levels of debt and equity in the industry (which is important to assess vulnerability to changes); and 5) the operating characteristics of import, export and domestic markets.

NMFS officials recognize the shortage of community-based economic data. They stated that one constraint on the agency's efforts to improve its data collection and analysis is financial. Nationwide, NMFS employs 33 economists, who are responsible not only for the economic analyses required by the Magnuson-Stevens Act but also for analyses required by the Regulatory Flexibility Act and other mandates. When asked about the funding to implement the new economic requirement of the Magnuson-Stevens Act, NMFS officials reported that specifying the funding for this effort is difficult because the agency's individual economists are not specifically assigned to fulfill the requirements of that act; they all work on

a variety of projects. However, in fiscal years 1998 and 1999, they identified about $400,000 from the headquarters statistics program that was sent to the regions for general economic analyses and $500,000 from the Recreational Fisheries Information Network that was used to assess the economic impacts on recreational fishing. For fiscal year 2000, NMFS is again allocating about $900,000 to assess the economic impacts of its conservation and management measures. NMFS officials noted, however, that additional funding from grants and independent research also contributes to developing economic information.

Economic Impacts Need to be Part of the Decision-Making Process

Economic impacts should be considered early in the decision-making process if they are to maximize their influence on the decisions. Because there are often a variety of ways to manage a fishery to achieve the desired conservation goals, an economic analysis is essential to choose the best alternative to protect a marine fishery while minimizing the adverse economic impacts to the fishing industry and community. Although the act gives priority to the conservation of overfished species, it also requires that economic impacts to communities be considered in developing conservation alternatives. However, we found that potential economic impacts are sometimes assessed after management alternatives have already been developed; as one social sciences advisory committee member stated, they do not help formulate alternatives in the first place. As a result, alternatives that have no adverse impact on conservation but are very important for economic reasons might be overlooked. In some instances, the decision-making process had progressed so far that there was little time to consider economic impacts. For example, the "West Coast Fisheries Economic Data Plan" stated that "When the need for an economic analysis to support a particular fishery management decision becomes apparent, it is generally too late to initiate a data collection effort." [12] Council members, committee members, council staff, and NMFS economists all agreed that much more could be done to help ensure that economic impacts were part of the decision-making process from the start.

Fishermen agreed with the comments made by members of the regional councils and their advisory boards and provided the following as an example of an alternative that they believe would probably have been included by NMFS and the regional councils if economics had been

[12]This November 1998 report was prepared by the Pacific Fishery Management Council and the Pacific States Marine Fisheries Commission.

considered when the alternatives were being developed. Fishermen that seek highly migratory species, such as tuna and swordfish, may fish anywhere from a few miles offshore to several days offshore. If NMFS were to shut this fishery down and provide only a short time period for all fishing boats to unload their catch, two adverse economic hardships could result. First, some boats could be too far offshore to return in time to meet the closure deadline and must either throw their catch overboard or face penalties. Second, if all the fishing boats were forced to sell their catch within a few days time, the market supply would greatly increase and the prices the fishermen could obtain would temporarily decrease. As an alternative, the fishermen emphasized that providing a wider window to unload their catch would not adversely affect conservation goals because the fish would have already been caught. Moreover, because this alternative would provide them with a longer time to sell their catch, they would probably receive better prices, which could mitigate some of the economic hardships caused by closing the fishery.

In a recent closure, NMFS provided a wider window to unload catch through a voluntary program involving the use of vessel monitoring systems. At that time, however, only one vessel was equipped to qualify for this exemption. NMFS officials stated that they were reluctant to permit offloading flexibility without onboard vessel monitoring systems because there was no guarantee that fishing would stop as the vessels returned to port. They also added that, after June 1, 2000, vessels fishing for highly migratory fish would be required to carry tracking devices to permit constant monitoring of their fishing activity. As a result, if this fishery needs to be closed in the future, offloading flexibility will be permitted.

Two recent court rulings have also pointed out that NMFS has not always complied with the act's requirement to minimize the adverse affects of conservation and management measures on fishing communities.

- In the first case, NMFS had determined that participants in the North Carolina summer flounder fishery would not experience significant adverse economic impacts if their 1997 annual quota were reduced by approximately 58 percent. In the summer flounder fishery, the annual quota is divided among several states. If the commercial sector exceeds its quota in any given year, the excess is subtracted from next year's quota.[13] Due to two successive reductions for excess catches (as well as

[13]No subtraction is made from the annual recreational quota if it is exceeded.

other factors), North Carolina's 1997 commercial quota was 58 percent less than it had been in 1996. NMFS argued that because the annual quota before subtractions for excess catch was the same in both years, the 58 percent reduction was not significant. The court decided that the reduction was significant and ordered NMFS to do an economic analysis and, to the extent practicable, minimize the adverse impacts on fishing communities.

- In the second case, involving the Atlantic large coastal shark fishery, the court took no exception to NMFS' reduction in the annual shark quota by 50 percent but did fault the agency's conclusion that this reduction would not cause substantial economic hardship. NMFS reasoned that few fishermen are solely or primarily dependent upon sharks for their livelihood and that the reduction would merely redirect their efforts to other fisheries. The court found that there was a small but significant group that was largely dependent on shark and ordered NMFS to do an economic analysis, take into account the economic impacts of this reduction on the affected fishing communities, and take steps to minimize any adverse effects.

NMFS officials pointed out that these cases were "wake-up calls" for the need to expand how they view economic impacts. They stated that they have learned from these cases and do not expect to make these mistakes again. They also noted that there are cases where NMFS' economic analyses have been upheld by the courts.

Consideration of Secondary and Cumulative Impacts Needs to Be Expanded

When information is available, NMFS considers the economic impacts of conservation measures on fishing communities. However, certain secondary and cumulative impacts are sometimes not included in its analyses. As a result, economic impacts could be underestimated, and the decisionmakers would not have a clear picture of the adverse affects of their decisions on fishing communities. For example,

- Several fishermen stated that they once specialized in one or two fisheries but, as quotas were reduced, they now fish for anything they can. They noted, however, that current economic analyses do not account for the ripple effects of such changes. For example, if the quota for cod is reduced, fishermen may switch to flounder, and that, in turn, economically hurts fishermen and communities that historically had depended on flounder.
- Fishermen pointed out that new management and conservation measures are often implemented without assessing the cumulative

> economic impacts of previous measures. For example, with NMFS' approval, a regional council might increase the size of the fish that could be caught, increase the size of the mesh in the net the following year, and then establish a quota in the third year. When considered independently, the economic impacts of these measures could be relatively small, but their impact would probably be more significant when considered cumulatively. Fishermen call this aggregate effect "death by a thousand cuts."

Others agree that the cumulative impact and the effects on other fisheries should be an integral part of an economic analysis. For example, the Social Science Advisory Committee for the New England Fishery Management Council said in a November 1999 report that they "strongly encouraged the consideration of the cumulative impacts of various management actions on other fisheries…"

Requirements for Essential Fish Habitat Have Been Met, but Additional Work and Concerns Continue

NMFS and the eight regional councils have described and identified essential fish habitat for all fishery management plans except one, and NMFS has developed a consultation process for actions that may adversely impact that habitat.[14] NMFS has also placed a high priority on the research needed to identify the adverse impacts to habitat and to identify the actions needed to conserve and enhance habitat, but much more remains to be done. Additional work is also needed to more specifically define essential fish habitat. NMFS' current habitat designations are broad and require consultations on a wide variety of activities. As a result, the designations have raised concerns among conservationists and those with business interests about their ultimate impact on habitat protection efforts and onshore activities. To date, there is little evidence that the consultation process has adversely affected planned projects or that the broad designations have resulted in the most valuable habitats being overlooked.

Combined Essential Fish Habitat Includes Entire Ocean From Coastline to 200-Mile Limit

Because of tight time frames and the lack of information about the habitat needs of most managed species, NMFS and the councils have designated essential fish habitat so broadly that, when the habitat needs of all managed species are combined, virtually the entire U.S.-controlled portion

[14]The one exception is the Pacific salmon plan, which includes three species and has yet to be submitted by the Pacific Council.

of the Atlantic and the Pacific oceans is considered essential by one species or another. Those with business interests expressed concern that the broad designations would adversely affect their ability to develop onshore projects whereas some conservationists expressed concern that because the area designated was so vast the importance of the most valuable areas in a habitat would be overlooked.

The Magnuson-Stevens Act gave the Secretary of Commerce 6 months to develop guidelines to help identify essential fish habitat and gave the regional councils 24 months to submit their amended fishery management plans to the Secretary. However, important information about habitat was not known for the majority of federally managed fish stocks. NMFS officials stated that they did not have the tools necessary to quantify the different types of ocean habitat and that the amount of scientific information that was lacking on the role of habitat at each life stage of a managed species could take over 20 years to obtain.

To meet the deadline for designating essential fish habitat, NMFS officials took what they called a precautionary approach that resulted in designating very extensive habitat areas. In some instances, all that was known about a stock was its range. In such situations, NMFS and the councils designated essential fish habitat broadly–anywhere the species was commonly found. In most instances, however, essential fish habitat was designated as that portion of the total range that included the highest density of the species. As a result, after NMFS and the regional councils had identified the essential habitat for each managed species, most rivers that include managed species of anadromous fish as well as virtually the entire ocean from the coastline to the 200-mile limit were included as essential fish habitat for at least one species.[15] NMFS officials stated that it should not be surprising that virtually the entire U.S.-controlled portion of the Atlantic and the Pacific oceans would be important to one or more life stages of one species or another.

NMFS' future plans call for defining essential fish habitat more specifically when sufficient information is available to do so. The three more specific definitions, in increasing order of specificity, are as follows;

- the habitat supporting those portions of the range where the stock has been found in high relative abundance;

[15]Anadromous fish migrate from saltwater to fresh water to spawn.

- the habitat supporting those portions of the range where the stock has had high growth, reproduction, or survival rates; and
- the specific habitat needed to achieve the population goal in NMFS' fish management plan for that species of fish.

NMFS officials believe their goal is to define essential fish habitat as the type and the quantity of habitat needed to achieve the population goal in the fishery management plan. Nearly all of the current designations fall far short of that standard because scientific information is lacking to link the production rates of managed species to specific types of habitat.

Because essential habitat includes rivers supporting anadromous fish and so much of the ocean, effectively implementing other essential habitat provisions, such as assessing factors that adversely impact the habitat, the extent of the impact, and what can be done to conserve and improve the habitat, may be very expensive. NMFS officials said they appreciate the importance of these activities, and they have identified research efforts in these areas since completing the initial designations for essential habitats. They noted that effectively evaluating threats to essential fish habitat and developing appropriate conservation measures would be difficult with the agency's available resources.

A Consultation Process Has Been Implemented, but Concerns About Its Impact on Planned Projects Remain

NMFS has developed a consultation process for actions that may adversely affect essential fish habitat, but the broad designation of essential fish habitat has many with onshore business interests concerned because NMFS must be consulted on any action authorized, funded, or undertaken by a federal agency that could adversely affect that habitat. There are thousands of such actions initiated each year.

NMFS has implemented a three-tiered consultation process to help ensure that the level of review is commensurate with the potential for harm. NMFS has encouraged federal agencies to incorporate the following provisions into existing environmental reviews to streamline consultations.

- Activities by federal agencies that will cause only minimal adverse impacts may be addressed in a statement of general concurrence.
- Activities that cannot be addressed using a general concurrence but which will not cause substantial adverse impacts are handled by an abbreviated consultation process. The other federal agency must provide NMFS with a written assessment of the impacts of their proposal on essential fish habitat. After receiving this assessment,

NMFS will provide conservation recommendations to the other agency, which must respond in writing to them.

- Proposed actions with the potential for substantial harm to essential fish habitat must be evaluated through an expanded consultation process, which is similar to that of the abbreviated process but provides a greater opportunity for NMFS and the other federal agency to work together to develop protective measures.

NMFS officials pointed out that, unless an action requires that a federal permit be obtained or involves federal funds, the consultation process will not affect private landowners at all. If federal action is required, NMFS officials stated that, in most instances, other agencies could evaluate potential harm to essential fish habitat during their normal environmental reviews under other laws. However, the Magnuson-Stevens Act does require that they respond to NMFS' essential fish habitat recommendations in writing. Otherwise, the law does not require federal agencies to change their decision-making process during a consultation and does not automatically impose any additional restrictions on nonfishing interests because NMFS' recommendations are not binding. It is the action agency that decides whether to accept NMFS' recommendations. NMFS officials stated that, as of November 1999, they had completed 18 agreements with other agencies to establish specific procedures for using existing environmental review processes to handle essential fish habitat consultations and were working on 32 others. NMFS officials stated that they are committed to using the existing environmental review processes and the three-tiered consultation process to ensure that consultations are limited to actions where adverse impacts may occur.

Those with business interests, however, were generally skeptical about whether the process would pose a burden. Some were concerned that, given the huge areas designated as essential fish habitat, the consultation process would result in additional restrictions on nonfishing industries occurring inland. For example, an interviewee said a consultation related to essential fish habitat in the Gulf of Mexico was required before the U. S. Army Corps of Engineers (Corps) would grant a permit for a crane barge and a levee crossing almost 185 miles upstream on the Mississippi River. Others expressed concern about the potential for the process to cause project delays. For example, interviewees said the consultation process had lengthened the time needed to obtain permits for certain types of oil and gas activities in coastal Louisiana by 3 weeks.

When interviewees provided specifics, we followed up on their concerns about delays. In the case of the barge and a levee crossing, we found that NMFS' Southeast Regional Office had no objection to the project and approved it within 7 days of receiving the public notice. Of the nine other consultation requests to that office that we reviewed, we found that, as of March 1, 2000, one was withdrawn, six had been issued, and two were still waiting approval. Of the two still awaiting approvals, one was being held because of objections by the Corps and the other because of the concerns of a neighbor and the U.S. Environmental Protection Agency (EPA). As the following table shows, in the cases we reviewed, there is little evidence that NMFS' consultation process has imposed substantial delays to affected projects. However, because this process is new and its full ramifications are unknown, it is too early to fully identify the adverse impacts of NMFS' actions.

Table 1: Disposition of Selected Permits Submitted for Consultation to NMFS' Southeast Regional Office

Project description	Date of notice	Date of NMFS' response	NMFS' recommendation	Action on application	Comments
Stabilize a bank	5/14/99	6/10/99	Do not issue	Application withdrawn	Louisiana requested additional data 6/23/99
Fill wetlands for a homesite	6/25/99	7/2/99	No objection	Permit issued 9/7/99	
Build a deck	8/18/99	8/27/99	No objection	Permit issued 10/25/99	
Stabilize a bank	11/2/98	11/13/98	Modify project	Permit issued 4/5/99	Meeting between applicant, NMFS, and the Corps resolved problems
Dredge a canal and stabilize a bank	5/14/99	6/7/99	Modify project	Open	The Corps wants a different type and location for project
Dredge a channel	2/9/99	3/5/99	Modify project	Permit issued 3/29/99	Meeting between applicant, NMFS, and the Corps resolved problems
Dredge a channel	4/28/99	5/25/99	Change the type of permit	Permit issued 6/25/99	Project revised to the Corps' satisfaction and permit approved
Fill wetlands for a homesite	8/27/99	9/10/99	No objection	Open	Project objected to by EPA and a neighbor
Build a crane barge and a levee crossing	9/3/99	9/10/99	No objection	Permit issued 1/25/00	Project held up by the Coast Guard's objection 10/25/99
Build a boat slip	9/3/99	9/10/99	No objection	Permit issued 1/9/00	Had to wait for Louisiana water quality certification

Source: The Corps' permit files.

Many environmental groups said NMFS' actions did not go far enough. They expressed concern that the consultation process did not require other agencies to take any action and that NMFS does not plan to follow up to determine if its recommendations are adopted. NMFS' officials stated that they do intend to follow up on their essential fish habitat conservation recommendations to the extent possible with existing staff and resources.

As of the end of December 1999, NMFS had conducted between 2,500 and 3,000 consultations with federal agencies whose actions could adversely affect essential fish habitat. NMFS officials stated that a database is being set up to track each consultation. The database will include information on the planned action, its location, the consulting agency, and the filing dates.

Conclusions

By its nature, assessing the condition and the abundance of fish and other marine species is likely to be controversial, especially to those fishermen who might be adversely impacted by changes in a species' condition or level of abundance. NMFS is using the best available science in its assessments. However, inherent weaknesses in data collection and communications need to be resolved by NMFS.

The act's requirement to consider the economic impacts to communities is new and causes some expected discomfort to both NMFS as it struggles with implementing the requirement and to those that expect a quick fix. Economic information on fishing communities is scarce and the act's requirement "to take into account" these impacts is not very specific or directive. Ultimately, questions about how far to go with data collection efforts will involve resource questions in which hard choices will have to be made. However, NMFS' emphasis on missing or inadequate data fails to recognize that this provision is intended to sustain participation and minimize the adverse economic impacts to fishing communities, not to accumulate data about them. What is needed is more timely economic analysis to suggest which alternatives would minimize the adverse economic impacts while satisfying NMFS' requirements for fishery conservation and management.

NMFS acknowledges that to improve the value of essential fish habitat as a useful management tool, that habitat must be more specifically defined for managed species. However, describing essential fish habitat in more precise terms is likely to be an expensive activity requiring a substantial amount of time and effort. More work and data are also needed to assess what is adversely impacting habitat and what can be done to protect it; this will also require substantial resources. We think it is important for NMFS and the Congress to understand what will be needed to more specifically define essential fish habitat to be more useful and to fulfill the related requirements to protect it.

Recommendations

To improve the data upon which fishery conservation and management decisions are based and to improve the communications between the regulators and those who are regulated, we recommend that the Secretary of Commerce direct the Director of NMFS to do the following:

- Increase the involvement of the fishing industry, its expertise, and its vessels in fishery research activities in order to expand the frequency and scope of NMFS' data collection efforts.
- Review data collection requirements placed on fishermen to limit requested information to what is needed for conservation and management, regulatory, and scientific purposes.
- Review data collection procedures for fisheries where the recreational sector constitutes a major portion of the fish caught to minimize the inconsistent treatment of commercial and recreational fishermen.

To improve the acceptance of conservation and management decisions and to minimize the adverse economic impacts of those decisions to fishing communities, we recommend that the Secretary of Commerce direct the Director of NMFS to do the following:

- Determine what resources NMFS might redirect to help ensure that the full range of economic alternatives are considered early enough in the decision-making process to be useful in minimizing the adverse economic impacts of fishery conservation and management decisions.

To more accurately assess the impacts of essential fish habitat provisions on the nation's fisheries and NMFS' budget, we recommend that the Secretary of Commerce direct the Director of NMFS do the following:

- Provide the Congress with information on the costs of 1) identifying habitats that contribute most directly to fishery production, 2) identifying priority threats to essential fish habitat and, 3) identifying techniques and methods needed to protect and enhance essential fish habitat from priority fishing and nonfishing threats. The above cost estimates should be compared with estimates of the cost for all species without first establishing priorities.

Agency Comments

We provided the Department of Commerce with a draft of this report for review and comment. The Department agreed with some of our findings and disagreed with others. In particular, the Department was concerned that our discussion of possible improvements to the fishery assessment process would overshadow our conclusion that NMFS is using the best available scientific information. We appreciate the Department's concern but believe the report's message is balanced and clearly acknowledges NMFS' use of the best available scientific information.

The Department also made several comments on our recommendations. On our recommendation to increase fishing industry participation in research activities, the Department expressed concern that we had not recognized that NMFS has made greater use of domestic charters to perform its research and expects to do more of this in the future. While we recognize that NMFS has increased its use of these vessels, there is an opportunity to do more. Currently, there is substantial vessel over capacity in some fisheries that could be available for research use. For example, in October 1999, we reported that there were proposals for using between $150 million and $220 million in federal funds to buy back vessels to reduce excess capacity.[16] It appears that NMFS could use this excess vessel capacity and proposed funding to both fulfill its research needs and help fishermen at the same time.

The Department was concerned that our recommendation on the data collection requirements placed on fishermen did not recognize that NMFS does review its data collection initiatives and that its data collection programs are continually revised to meet changing needs. The Department is correct, and we do not wish to minimize NMFS' activities. However, we believe that this "continuous" review should include an assurance that NMFS is still using all of the data supplied by fishermen. If NMFS does not use certain data fishermen are required to collect, such as cod discard data, we do not understand the basis for requiring them to continue collecting it.

In commenting on our recommendation about minimizing the differences in recreational and commercial data collection procedures, the Department stated that because the commercial and recreational fisheries differ significantly, "it would be inappropriate to have consistent data collection procedures for each sector." In our view, inconsistent data collection procedures lead to differing management actions and result in unequal treatment of the two fishing sectors. Closures of commercial fishing sectors can, and do, result from weekly updates of commercial fishing data, on-board observers, and independent verifications from fish processors. In contrast, because of the 4-month delay in summarizing recreational catch data and the wide allowance for error associated with the recreational survey's method, excess recreational harvest is seldom currently used to close recreational fisheries. Thus, in fisheries where the recreational sector

[16] *Commercial Fisheries: Information on Federally Funded Buyback Programs* (GAO/RCED-00-8R, Oct. 1999).

is significant, we believe the Secretary should minimize the differences in how catch data are collected and used to manage fisheries.

The Department agreed with the basis of the economic alternative recommendation and with the essential fish habitat recommendation.

The Department also made a number of technical comments and suggestions that we incorporated into our report as appropriate. The Department's complete comments and our responses are presented in appendix II.

A copy of this report is being sent to the Honorable William M. Daley, Secretary of Commerce; Dr. James Bake, Director of the National Oceanic and Atmospheric Administration; Penelope Dalton, Director of the National Marine Fisheries Service; and other interested parties. We will also make copies available to others upon request.

If you have any questions about this report, please contact me at (206) 287-4810. Other key contributors to this report were Jill Berman, Jerry Aiken and Bill Wolter.

James K. Meissner

James K. Meissner
Associate Director, Energy,
Resources and Science Issues

List of Committees and Requesters

The Honorable Ted Stevens
Chairman
The Honorable Robert Byrd
Ranking Minority Member
Committee on Appropriations
United States Senate

The Honorable Judd Gregg
Chairman
The Honorable Ernest F. Hollings
Ranking Minority Member
Subcommittee on Commerce, Justice,
State, and Judiciary
Committee on Appropriations
United States Senate

The Honorable Olympia J. Snowe
The Honorable John B. Breaux
The Honorable Frank R. Lautenberg
United States Senate

The Honorable Walter B. Jones
The Honorable Frank A. LoBiondo
The Honorable Jim Saxton
House of Representatives

Scope and Methodology

To assess the compliance of the National Marine Fisheries Service (NMFS) with the requirements to use the best available scientific information; to take into account the economic importance of fishery resources to fishing communities; and to define, identify, and implement essential fish habitat provisions, we interviewed various NMFS officials. We discussed appropriate processes, regulations, and procedures with NMFS officials in the headquarters office; the Northeast, Southeast, and Pacific Regional Offices and Science Centers; and the Alaska Science Center.

To understand the role of fishery management councils in developing and implementing NMFS' requirements, we met with representatives of six of the eight regional councils–New England, Mid-Atlantic, South Atlantic, Gulf of Mexico, Pacific, and Northern Pacific. In addition to current council members, we also talked to past members, council staff, and members of the advisory panels and science and statistical committees.

To obtain the opinions of those affected by the implementation of the act's requirements, we interviewed over 300 individuals, who represented six regional fishery management councils; commercial and recreational segments of the fishing industry; the states' and other marine commissions, and fishing associations. We also interviewed consultants, lawyers, conservationists, suppliers, and members of the academic community. Interviews were conducted individually, in small groups, or in “town hall” settings. Table 2 summarizes who was interviewed. These interviewees provided us with examples of their concerns that we then evaluated, researched, and discussed with NMFS' officials. For our review, we assessed whether their examples corroborated or refuted NMFS' use of the best available scientific information in making conservation and management decisions or if some other factors had led to dissatisfaction with the science.

Table 2: People Interviewed

Sector	Number interviewed
NMFS officials	37
Other government officials (federal, state, and local)	16
Fishery management council members and staff	35
Commercial fishery representatives	75
Recreational fishery representatives	9
Fish processors	26
Conservationists	27
Members of the academic community	13
Members of fishing associations	33
Suppliers for commercial and recreational fisheries	10
Other representatives of the fishery infrastructure	9
Other	29
Total	**319**

To reach as many people as possible, we scheduled our meeting dates and locations to correspond with regularly scheduled meetings of the regional councils. We attended at least one meeting of each of the six councils whose representatives we met with. These included meetings in Portland, Maine; Fairhaven, Massachusetts; Norfolk, Virginia; Anchorage, Alaska; Portland, Oregon; Austin, Texas; and Key West, Florida. In addition, we met with representatives of the Bluewater Fisherman's Association at their annual meeting in Atlantic City, New Jersey. This association represents fishermen who fish for highly migratory species that are managed by NMFS and not a council. We also met separately with members of the North Carolina Fishermen's Association in New Bern, North Carolina, and with scallop fishermen and other interested parties in Seaford, Virginia, and New Bedford, Massachusetts.

In addition to the interviews, we also reviewed numerous documents that were provided to us by those we interviewed. We reviewed the law, its history, and the implementing regulations along with reports prepared by the Congressional Research Service, the National Research Council, and others to obtain additional information. We also reviewed fishery management plans, economic analyses, court cases, and other pertinent agency and council documents.

We conducted our review from April 1999 through March 2000 in accordance with generally accepted auditing standards.

Comments From the U.S. Department of Commerce

THE SECRETARY OF COMMERCE
Washington, D.C. 20230

MAR 16 2000

Mr. James K. Meissner
Associate Director
Energy, Resources and Science Issues
Resources, Community and Economic
Development Division
United States General Accounting Office
Washington, D.C. 20548

Dear Mr. Meissner:

Thank you for the opportunity to review the General Accounting Office draft report entitled, FISHERY MANAGEMENT: Problems Remain with National Marine Fisheries Service's Implementation of the Magnuson-Stevens Act, GAO/RCED-00-69. I am pleased to enclose the National Oceanic and Atmospheric Administration's comments on the draft report.

These comments were prepared in accordance with Office of Management and Budget Circular A-50.

Sincerely,

William M. Daley

Enclosure

U.S. DEPARTMENT OF COMMERCE

COMMENTS ON DRAFT GAO REPORT ENTITLED

FISHERY MANAGEMENT: Problems Remain with

National Marine Fisheries Service's

Implementation of the Magnuson-Stevens Act

GAO/RCED-00-69

March 7, 2000

COMMENTS ON DRAFT GAO REPORT ENTITLED FISHERY MANAGEMENT: Problems Remain with National Marine Fisheries Service's Implementation of the Magnuson-Stevens Act (GAO/RCED-00-69)

GENERAL COMMENTS:

See comment 1.

From the outset of this review, our understanding from GAO was that the report is to assess NMFS' compliance with national standards 2 and 8, and essential fish habitat provisions. While the report evaluates compliance with these standards, it raises other issues such as the usefulness of NMFS' economic assessments. We need to distinguish the review of compliance with, for example, national standard 8, from comments related to efforts to analyze economic impacts of management actions to comply with other requirements of, for example, the Magnuson-Stevens Act or the National Environmental Policy Act.

See comment 2.

We value the comments of Regional Fishery Management Council members and fishermen that appear throughout the report. However, we believe those comments require follow-up to ensure that they represent areas where corrective action needs to be taken. This report is very important. We are concerned that comments, not substantiated fully, may adversely reflect on the overall quality of the report.

Specific Comments:

Now on p. 4.

See comment 3.

Page 2, paragraph 1: The report finds that, until we reduce this weakness and work more consistently with fishermen in our research activities, the criticisms are likely to continue. NMFS has increased its research activities with industry in recent years but the industry nonetheless continues to criticize NMFS' fishery information. Realistically, the criticisms are likely to continue as long as the industry's activities are constrained. A more important question in this regard is how these comments reflect the Agency's compliance with national standard 2, particularly since the report finds that we are using the best available scientific information.

Now on p. 4.

See comment 3.

Page 2, paragraph 2: The report states that concerns remain because "necessary data are often unavailable." While we agree that more data would be helpful and we are working to improve the data available, we are using, as the report notes, the best scientific information available.

Now on p. 6.

See comment 4.

Page 3, Paragraph 3: The report states that NMFS is responsible for determining a fishery's optimum yield and measuring the economic effects of fishing regulations and practices. While NMFS is ultimately responsible, legally, for setting optimum yield, the Councils are responsible for recommending the optimum yield, based in

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part upon the scientific information and advice from NMFS. In addition, the Councils are tasked with the responsibility of preparing economic impact analyses, although NMFS can and does provide support to the Councils in this area.

Now on p. 7.
See comment 5.

Page 5, first full paragraph: A more complete description of the "miscommunication" between NMFS, the Councils and those affected by the decision would be useful, with reference to specific situations. In addition, a more thorough discussion is needed as to whether the discussions were unclear or what the source of the lack of understanding was, and to what extent the group not listening was actually the problem.

Now on p. 9.
See comment 6.

See comment 4.

See comment 6.

Page 7, paragraph 1: The report states that NMFS is not able to administer all fisheries as it does the Bering Sea pollock fishery. This is too general a statement. It would be very helpful to contrast the work in the pollock fishery with that in other areas to get a clear picture of the work being done. In addition, the report indicates that the status of 75 percent of the species is unknown. Use of this percentage is misleading because it is based on the specialized definitions in the 1999 "Report to Congress on the Status of Stocks in the United States." The 1999 report "Our Living Oceans," for example, reports that the status of 30 percent of the total number of stocks is unknown (table 3). We suggest that a more thorough discussion of the scientific information available would be useful, including whether it is necessary to expend research funds on all stocks.

Now on p. 11.
See comment 4.

Page 8, last paragraph: The statement "However, recent electronic advances have made it easier to calibrate..." should be changed to read: "Recent electronic advances have improved the calibration techniques, but private vessels generally must still be calibrated against a standard (the fisheries research vessel) to maintain long-term data continuity."

Now on p. 11.
See comment 4.

Page 9, First bullet: The sentence that discusses NMFS' collection of recreational information is not correct. Only angler participation information is obtained through the random telephone survey; results from NMFS' methodological research indicate that anglers cannot correctly identify and recall accurately the number and size of fish caught. Accordingly, these data are not obtained by fishermen interviews over the telephone but through physical inspection of anglers' catches by trained biologists in the field, where they identify, weigh and measure the fish.

Now on p. 12.
See comment 4.

Page 10, top of page: The edits to this paragraph only partially solved the point we tried to make -- that while the two estimates are different, which one is more accurate has still not been resolved. As it reads now, the paragraph still implies that the NMFS estimate is

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incorrect. Hence, please change the wording of the sentence "... NMFS' projections overstated the sampling results by 69 to 200 percent" to:

"NMFS' catch estimates were greater than those of the Oregon Department of Fish and Wildlife by 69 to 200 percent."

Now on p. 12.
See comment 4.

Page 10, top of page, line 4: Revise the first full sentence to read "It is unknown which data are more accurate, and NMFS is currently studying why this difference occurred." The original statement implies that NMFS' data are incorrect.

Now on p. 12.
See comment 7.

Page 10, top of page, line 5: The statement that NMFS rejects self-reported data on discards is not true. We do use information from the industry on discards of some species in some fisheries, but this is supplemented with other data, as well, in determining the level of discards.

Now on p. 12.
See comment 8.

Page 10, top of page, line 10: This is not an example of the preceding statement and should be deleted.

Now on p. 12.
See comment 9.

Page 10, first bullet: The statement that NMFS seldom uses these data to close recreational fisheries is incomplete and not accurate. For example, we use this information to close the red snapper and bluefin tuna recreational fisheries. If the regulations provide that a recreational fishery is to be closed when a quota is reached, NMFS will close that fishery based on the best information we have. Quite often, however, recreational fisheries are managed through the use of bag limits, size limits, and/or seasons as a proxy for a quota. Therefore, there is no requirement to close the fishery in these cases.

Now on p. 13.
See comment 4.

Page 11, first paragraph, line 4-6: Published papers are normally peer reviewed. However, even unpublished research, such as many stock assessments, are peer reviewed before NMFS relies on them. Therefore, NMFS does not understand the suggestion that there is no policy for peer review for other research and that the policy may vary from office to office.

Now on p. 13.
See comment 3.

Page 11, first paragraph, line 11: the statement "...even research that passes peer review may not be readily accepted by those who have concerns about the quality of the data." is used to summarize the position that uncertain data is the cause of fishermen not accepting scientific conclusions. While this factor is certainly present, the report does not acknowledge a more powerful explanation: that science will not be accepted if the result implies a change in fishery behavior or practice that will be economically adverse to or compromise the flexibility of the participants. That is, if the implication of a finding of overfishing means restrictions, fishermen

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will attack the underlying science, assumptions and data in order to prevent or forestall the institution of a remedy. This behavioral response has long been demonstrated in behavioral and sociological research in such fields as medicine and manufacturing, as well as in the management of other natural resources.

Now on p. 14.

See comment 4.

Page 12, paragraph 2, line 5: add after "New England" the phrase "at the request of the New England Council."

Now on p. 14.

See comment 5.

Page 13, paragraph 2: We disagree that the scallop example represents miscommunication. It merely shows that different people have a different memory of what took place.

Now on p. 16.

See comment 4.

Page 15, paragraph 3, line 4: Because the Secretary has delegated to NMFS the authority to approve management actions, NMFS seldom sends these actions to the Secretary. Information memoranda on the intended course of action, however, are often sent to the Secretary.

Now on p. 17.

See comment 4.

Page 15, Paragraph 4, line 4: The statement that "the fishing season was not shortened is not totally correct. Some seasons were, in fact, shortened; although the Council tried to minimize closures, it did find it necessary to implement some.

Now on p. 18.

See comment 4.

Page 16: Sometimes the statute controls the economic information that is available. For example, processors cannot be required to submit economic data. See Magnuson-Stevens Act §303(b)(7). This must change if the agency is to obtain better economic information.

Now on p. 19.

See comment 4.

Pages 17 and 18, general: Economic analyses, even late in the game, can have outcome-determinative properties. Admittedly, the earlier they are introduced to the process the better, but it is not correct to say that economic analyses "must" be done early to have "any" benefit.

Now on p. 19.

See comment 4.

Page 17, second paragraph, line 5: The sentence "Under the act, economic impacts are to be considered in developing conservation alternatives" is confusing. Replace that sentence with "The Act provides, generally, for the development of "conservation and management measures" to meet the objectives of the Act, as they apply to particular fisheries. Further, the Act states, as policy, that conservation and management must be based upon the best available scientific information. However, pursuant to several of the national standards, including national standard 8, in formulating specific conservation and management measures regulating a particular fishery, NMFS must and does consider economic impacts."

Consideration of economic impacts should not necessarily formulate conservation goals; rather, it must be used to help pick the measures used to attain them. Yet to do this, the Councils must have the analyses early enough that such analyses enter into their deliberative process. It may be reasonable to fault the agency for not collecting enough data in a timely manner, and it may also be reasonable to find

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fault with failing to deliver the economic analyses early enough in the process that Councils can consider the costs of management options designed to meet the same goal.

Now on p. 20.
See comment 4.

Page 18, first bullet: This statement is incorrect. In fact, NMFS has afforded the opportunity for a wider window to unload catch through a voluntary program involving the use of a vessel monitoring system.

Now on pp. 20 and 21.
See comment 10.

Pages 18 and 19 regarding court cases: The findings in these court cases centered primarily on the analysis prepared under the Regulatory Flexibility Act, not national standard 8, and are not, therefore, directly pertinent to this review. Furthermore, the description of the summer flounder case does not accurately reflect the record of the case. Finally, the review of court cases is incomplete. We suggest that descriptions of four court cases involving the Regulatory Flexibility Act be added, including the court findings regarding Amendment 7 to the Northeast Multispecies Fishery Management Plan.

Now on p. 21.
See comment 6.

Page 19, third paragraph: Add to the end of the paragraph the following sentence "They also cited cases where NMFS' economic analyses have been upheld."

Now on p. 21.
See comment 6.
See comment 4.
See comment 4.

Page 19, fourth paragraph: It would be very helpful if the report could define and describe what secondary economic impacts or cumulative impacts are referred to in this section. It would also be useful if the statutory requirements for these analyses could be identified and described.

Page 20, last paragraph: The first sentence regarding Essential Fish Habitat (EFH) incorrectly states that EFH has been designated for all managed species except one. We suggest modifying this sentence as follows: "NMFS and the eight Regional Councils have described and identified essential fish habitat for all fishery management plans except one, and NMFS has developed a consultation process for..." We suggest changing footnote 15 to read: "The one exception is the Pacific salmon plan, which includes three species and has yet to be submitted to NMFS by the Pacific Council. Additionally, NMFS partially approved the essential fish habitat designations in the Gulf of Mexico and Caribbean Councils' plans, which do not identify essential fish habitat for each managed species individually or justify the basis for grouping species based upon similar ecological requirements."

See comment 4.

Page 21, first paragraph, first sentence: The sentence should read: "Tight timeframes and the lack of information... resulted in *the Councils and* NMFS designating essential fish habitat so broadly..."

Now on p. 23.
See comment 4.

Page 21, third paragraph: This paragraph incorrectly characterizes NMFS' approach for designating essential fish habitat for which little information was available, and implies that the essential fish habitat designations are broader than they are. We suggest the following modifications, beginning with the third sentence in the paragraph: "In such situations, *the Council and* NMFS designated essential fish

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habitat *broadly - anywhere the species was commonly found*. In most instances, essential fish habitat was designated as that option of the total range that included the *highest density or relative abundance of the species*. As a result, after NMFS and the Councils had identified essential fish habitat for each managed species, most rivers that include *managed species of* anadromous fish as well as *virtually* the entire ocean from the coastline to the 200-mile limit *were* included as essential fish habitat for at least one species. NMFS officials stated that it should not be surprising that virtually the entire *U.S. exclusive economic zone* would be important to *one or more life stages of* one species or another."

Now on p. 24.
See comment 4.

Page 22, first paragraph: The text here notes that current EFH designations fall short of specifying the habitat needed to achieve the production goal in each fishery management plan, but does not explain why. We suggest the following language: "NMFS officials believe their goal is to define essential fish habitat as the *type and quantity* of habitat needed to achieve the population goal in the fishery management plan. Nearly all current designations fall far short of that standard *because scientific information is lacking to link the production rates of managed species to specific types of habitat*."

Now on p. 24.
See comment 4.

Page 22, second paragraph: The intent of this paragraph is unclear. GAO may be trying to say that the breadth of EFH designations increases the complexity of developing and implementing appropriate conservation measures, and/or that the costs to NMFS of evaluating and addressing threats to EFH will be higher than they would be if EFH designations were narrower. Depending upon GAO's intent, the first two sentences of this paragraph could be rewritten to say: "Effectively evaluating threats to essential fish habitat and developing appropriate conservation measures will be difficult with available resources."

Now on p. 24.
See comment 4.

Page 22, paragraph under the Consultation Process, line 1: Change "impact" to "adversely affect"

Now on p. 24.
See comment 4.

Page 23, second bullet: The final sentence omits a step in the EFH consultation process. It should say: "After NMFS receives this assessment, it will provide conservation recommendations to the other agency, and the *action agency must respond in writing to those recommendations*."

Now on p. 24.
See comment 4.

Page 23, first paragraph, line 2: The second sentence does not accurately reflect other agencies' obligations during the EFH consultation process. We suggest the following wording: "If federal action is required, NMFS officials stated that, in most instances, other agencies *can evaluate potential harm to essential fish habitat during their normal environmental reviews under other laws*."

Now on p. 25.
See comment 4.

Page 23, first paragraph, line 4: Revise the sentence that begins with "however" to read "The Magnuson-Stevens Act does require that they respond to NMFS' essential fish habitat recommendations in writing."

Now on p. 25.
See comment 4.

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Now on p. 25.
See comment 4.

Page 23, first paragraph, line 10: Revise the sentence to read "it is the action agency that decides whether to accept NMFS' recommendations."

Now on p. 25.
See comment 4.

Page 24, first paragraph: The paragraph describes a statement by an interviewee regarding EFH concerns that purportedly delayed a permit for an action 185 miles upstream on the Mississippi River. Three paragraphs later the report notes that GAO followed up on this concern and learned that in fact NMFS had no objection to the project and approved it within 7 days. We recommend that GAO move this explanation up so that it appears immediately following the description of the alleged delay due to EFH. We are concerned that readers may see the allegation but miss the results of GAO's investigation of the facts.

Now on p. 27.
See comment 4.

Page 24, second paragraph: This paragraph relates concerns from environmental groups that NMFS does not plan to follow up on EFH consultations to determine whether our recommendations are adopted. We suggest adding a sentence to note that NMFS does plan to follow up on its EFH conservation recommendations to the extent possible with existing staff and resources.

Now on p. 26.
See comment 4.

Page 24, fourth paragraph: The penultimate sentence states that so far there is little evidence that the EFH consultation process has substantially affected projects. This language could be taken out of context to suggest that the consultations have not been useful, whereas numerous EFH consultations have resulted in important modifications to proposed actions that allowed projects to go forward while minimizing potential harm to EFH. It appears that GAO intended to refer to there being no major costs or delays caused by EFH consultations. We suggest the following wording: "So far, there is little evidence that the consultation process has *imposed substantial costs or delays to* affected projects."

Now on p. 28.
See comment 4.

Page 25, third paragraph: The first sentence implies that EFH is not currently an effective management tool and will not be until the EFH designations are improved. We recommend rephrasing the sentence: "NMFS acknowledges that *to improve the value of* essential fish habitat *as* a useful management tool..."

1. **RECOMMENDATION: Explore ways to expand the frequency and scope of data collection and to increase involvement of the fishing industry, its vessels, and its expertise in research activities.**

RESPONSE: Please begin this recommendation with the words "Continue to". Without that modification, the recommendation implies that this is a new endeavor, when in fact NMFS has been committed to addressing these issues all along. Plans for both the expansion of frequency and scope of data collection and the involvement of the fishing industry are outlined in the *NOAA Fisheries Data Acquisition Plan*, a comprehensive report that quantified the growth of data demands and

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recommended a solution to meeting them. This report was provided to GAO staff at the beginning of their study. Significant progress on the issues raised in this recommendation have been made. For example, the contribution of domestic charters to the overall days at sea used to meet NMFS data requirements grew from 13% in 1988 to 41% in 1998. Full implementation of the *Plan* would result in the contribution of charters actually surpassing that of NOAA vessels and would nearly double the total number of days at sea spent collecting data.

2. **RECOMMENDATION: Review data collection requirements placed on fishermen to 1) limit requested information to that needed for regulatory and scientific purposes and 2) increase the usefulness of data that is collected.**

RESPONSE: Please begin this recommendation with the words "Continue to". NMFS does review its data collection initiatives, particularly in conjunction with the Councils in an effort to satisfy their needs for each management program. Data collection programs are continually revised to meet changing needs. It is difficult, however, to respond to this recommendation because we are uncertain what specific information collected was found to be unnecessary or was underused. In addition, the requests for the collection of data must go through an extensive review process by NMFS, NOAA, the Department of Commerce and the Office of Management and Budget under the Paperwork Reduction Act before approval is received to collect the information. The intent to collect information is also published in the Federal Register so that industry and the public can raise questions about the proposed collection.

3. **RECOMMENDATION: Review data collection procedures in fisheries where the recreational sector constitutes a major portion of the fish caught to minimize inconsistent treatment of commercial and recreational fishermen.**

RESPONSE: The intent of this recommendation is not clear. Is the issue catch allocation? If so, data collection procedures are decided through the Council process, and NMFS is only one among many participants in that process. If not, and if the recommendation pertains to data collected from these two sectors, commercial and recreational fisheries differ significantly in many ways, including their objectives, gear types, seasons, vessel sizes, numbers of participants, demographics, etc. With that in mind, it would be inappropriate to have consistent data collection procedures for each sector.

4. **RECOMMENDATION: Determine what resources NMFS might redirect toward assuring that the full range of economic alternatives are considered early enough in the decision-making process to be useful in minimizing the adverse economic impacts of conservation decisions.**

RESPONSE: This issue is discussed in detail on pages 4-5, above; to reiterate, page 17, second paragraph, line 5: "The Act provides, generally, for the development of "conservation and management

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measures" to meet the objectives of the Act, as they apply to particular fisheries. Further, the Act states, as policy, that conservation and management must be based upon the best available scientific information. However, pursuant to several of the national standards, including national standard 8, in formulating specific conservation and management measures regulating a particular fishery, NMFS must and does consider economic impacts."

Consideration of economic impacts should not necessarily formulate conservation goals; rather, it must be used to help pick the measures used to attain them. Yet to do this, the Councils must have the analyses early enough that such analyses enter into their deliberative process. It may be reasonable to fault the agency for not collecting enough data in a timely manner, and it may also be reasonable to find fault with failing to deliver the economic analyses early enough in the process that Councils can consider the costs of management options designed to meet the same goal.

5. **RECOMMENDATION: Provide Congress with information on the costs of 1) narrowing the scope of habitat designations to that required to meet fishery management plan population goals, 2) identifying adverse impacts to designated habitat, and 3) identifying measures needed to enhance and protect essential fish habitat.**

RESPONSE: We suggest the recommendation be revised to read:

"Provide Congress with information on the costs of 1) identifying habitats that contribute most directly to fishery production, 2) identifying priority threats to essential fish habitat, and 3) identifying techniques and methods needed to protect and enhance essential fish habitat from priority fishing and non-fishing threats."

The rationale for these slight changes are as follows:

1) *" identifying habitats that contribute most directly to fishery production"* - This revision would connect EFH designations to fishery production rather than the more sweeping goals associated with Fishery Management Plans. The challenge to linking the designations with production will be to understand the needs of fishery populations and life stages.

2) *"identifying priority threats to essential fish habitat"* - This change would limit the scope to priority threats, which will be a more narrow task than identifying impacts from all threats. This approach will focus on the most significant management needs.

3) *"identifying techniques and methods needed to protect and enhance essential fish habitat from priority fishing and non-fishing threats"* - The text of this recommendation has reordered "protect" and "enhance" to reflect the mandate in the Magnuson-Stevens Act. The revised

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language avoids use of "measures" since that term could be more limited than "techniques." We added "priority" to limit the breadth of the task, as noted above.

NMFS concurs with the recommendation, as rewritten and clarified. Many research and management information gaps were identified by Regional Fishery Management Councils and NMFS regions while developing essential fish habitat amendments in 1996-1998. Those needs were collated in 1999 and will be reviewed and updated by NMFS through queries to Councils and regions in early calendar year 2000. Separate cost estimates will be prepared for each of the three sub-recommendations by June 30, 2000.

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GAO's Comments

1. We believe we appropriately looked at NMFS' compliance with the act's requirement to consider the economic impacts to fishing communities (National Standard 8) in the context of other statutory requirements. In fact, NMFS refers to these other requirements in its implementation regulations for National Standard 8. For example, the regulations state that "an appropriate vehicle for the analyses under this standard is the fishery impact statement required by section 303(a)(9) of the Magnuson-Stevens Act."

2. We agree that follow-up action on the comments is needed to help ensure that appropriate corrective action is taken. When the fishermen provided us with examples of problems, we followed up on their suggestions and analyzed the basis for their examples. If the examples warranted attention, we have included them or similar cases in this report.

3. We believe NMFS is using the best available science. We found little in our analysis of what experts said about NMFS' science, the council's process to assess the science of others, or the problems identified through our interviews, to contradict this conclusion. However, in some instances, we believe it is important to recognize that the best available scientific information might not be good enough for what it is being used to do. NMFS officials have pointed out to us that conditions in fisheries can change rapidly due to many factors. Given this fact, we believe that 3- to 5-year gaps in data collection efforts may not provide the information necessary for informed decision-making. We recognize the magnitude of NMFS' efforts to manage the nation's marine resources but believe it is also important to acknowledge the problems encountered in carrying out its responsibilities. The Department of Commerce also maintains that fishermen will complain that NMFS is not using the best available scientific information as long as the conservation and management measures based on that science adversely affect them or constrain their activities. Although this may be so, we do not believe that this is enough reason to discount the concerns we heard from fishermen. In addition, our report points out that concerns about the data not being current and complete were not limited to fishermen but were also voiced by members of the regional councils and were pointed out in reports by the National Research Council. For example, the Gulf of Mexico Fishery Management Council rejected NMFS' analysis of the red drum and red grouper fisheries in 1999 because the agency's information was insufficient to assess catch limits. Even NMFS officials stated that they wished certain surveys could be done more frequently and more specifically.

4. We agree. The final report was revised to reflect the Department's comment, as appropriate.

5. We believe the scallop example provides many details that illustrate where and how miscommunications occur. Our intent is to show that miscommunications occur for many reasons and frustrate all the affected parties.

6. We believe that the Department's request goes beyond the scope of the mandate.

7. The wording has been clarified to reflect that NMFS will use self-reported discard data from fishermen if it is supplemented with data from other sources.

8. We believe the example is appropriate and have clarified the wording to make the connection clearer.

9. We disagree. The red snapper, bluefin tuna, and some Pacific salmon fisheries were the only current examples the Department could provide of recreational fisheries closed using the survey to collect data on recreational fisheries. We agree that quite often, recreational fisheries are managed through the use of such regulations as individual bag limits, size limits, or seasons instead of by a total fishery quota, and we agree that these methods are appropriate for most recreational fisheries. However, we encountered instances of recreational fisheries exceeding their allotted portion of a fishery's total annual allowable catch. This overage could then be factored into future stock assessments and result in reduced catch allowances for everyone. Understandably, reduced allocations to the commercial sector caused by recreational overfishing upsets commercial fishermen whose access to the same fishery may be closed as soon as their portion is caught. Using quotas to close one fishing sector but not the other raises a fairness issue that is especially controversial in those fisheries where the recreational sector constitutes a large percentage of the total allowable catch.

10. We disagree. The National Oceanic and Atmospheric Administration's (NOAA) Office of General Counsel provided both court cases as examples of compliance issues with National Standard 8. In both cases, the court found that NMFS had failed to comply with this standard. For example, in the case involving the summer flounder, the court held that “the Secretary acted arbitrarily and capriciously in failing to comply with National

Standard 8." The court ordered the Secretary to perform a level of economic analysis sufficient to comply with National Standard 8 and "to the extent practicable, minimize the adverse economic impacts on communities." We intended to provide some case examples of National Standard 8 compliance issues, not an exhaustive list of cases. Thus, we are not adding the additional cases suggested by the Department.

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