Lost at Sea:

A Review of National Marine Fisheries Service Implementation of the Sustainable Fisheries Act

Marine Fish Conservation Network

September 1999

Washington, D.C.

LOST AT SEA: A review of National Marine Fisheries Service implementation of the Sustainable Fisheries Act

The Marine Fish Conservation Network is a coalition of conservation, fishing, environmental, and other public interest organizations that united in 1992 to seek reform of America's fisheries laws. After achieving its goal of amending and strengthening the Fishery Conservation and Management Act in 1996, the Network refocused its attention on implementation of the new Sustainable Fisheries Act by the regional fishery management councils and the National Marine Fisheries Service.

We wish to thank the funders who made this report possible. They are Homeland Foundation, Curtis and Edith Munson Foundation, David and Lucile Packard Foundation, The Pew Charitable Trusts, Rockefeller Brothers Fund, and Surdna Foundation. The opinions expressed in this report are those of the Network and do not necessarily reflect the views of our funders.

We would also like to acknowledge Laura Williamson McCafferty for her editorial assistance and thank Carole Cleaver for designing the cover. Finally, this report would not have been possible without the assistance of national and regional members of the Network who provided us with evaluations of the many fishery management plan amendments developed to implement the Sustainable Fisheries Act.

Printed on recycled and recyclable paper using vegetable-based inks

Marine Fish Conservation Network Member Groups

Abalone and Marine Resources Council
Alabama Rivers Alliance
Alaska Marine Conservation Council
Alaska Longline Fisherman's Association
American Oceans Campaign
American Sportfishing Association
Atlantic Salmon Federation
Biodiversity Legal Foundation
Cape Arago Audubon Society
Cape Cod Commercial Hook Fishermen's Association
Center for Marine Conservation
Chesapeake Bay Foundation
Coastal Research and Education, Inc.
Coastal Waters Project
Concerned Citizens of Montauk
Conservation Law Foundation
Defenders of Wildlife
Earthjustice Legal Defense Fund
Environment Hawaii
Environmental Defense Fund
Federation of FlyFishers
Fisheries Defense Fund, Inc.
Fish Forever
Fish Unlimited
The Fisherman
Florida League of Anglers
Friends of the Earth
Fulton Safe Drinking Water Action Committee
G.R.E.E.N.
Greenpeace
Gulf Restoration Network
Hawaii Audubon Society
Hawaii Conservation Association
Interfaith Council for Protection of Animals & Nature
International Game Fish Association
Island Institute
Jersey Coast Anglers Association
King and Sons Fishing Company
Kodiak Community Conservation Network
Maine Lobsterman's Association
Marine Conservation Biology Institute
The Marine Mammal Center
Maryland Saltwater Sportfishermen's Association
Massachusetts Audubon Society
Massachusetts Wildlife Federation
Montauk Boatmen's and Captain's Association
Narragansett Baykeeper
National Aquarium
National Association of Underwater Instructors
National Audubon Society
National Audubon Society, Ten Mile Creek
National Coalition for Marine Conservation
National Fishing Association
National Wildlife Federation
Natural Resource Consultants
Natural Resources Defense Council
Newport County Saltwater Fishing Club
Ocean Policy Associates
Oceanwatch
Ocean Wildlife Campaign
Oregon Wildlife Federation
Oregon Trout
Pacific Coast Federation of Fishermen's Association
Pacific Marine Conservation Council
People for Puget Sound
Planning and Conservation League
Project A.W.A.R.E. Foundation
Recreational Fishing Alliance
ReefKeeper International
Reid International
Restore America's Estuaries
Riverkeeper, Inc.
SWIM (Safer Waters in Massachusetts)
Saltwater Sportsman
Save the Bay (Providence, RI)
Save the Harbor/Save the Bay (Boston, MA)
Save the Sound (Long Island Sound)
Sea Turtle Survival League
Sierra Club
The Siwa-ban Foundation
Stripers Unlimited
Surfers Environmental Alliance
Tampa Baywatch, Inc.
Trustees for Alaska
United Anglers of California
Westpac Fisheries Coalition
Wildlife Conservation Society
World Wildlife Fund

Table of Contents

Executive Summary

In response to rampant overfishing, excessive bycatch (the incidental capture of non-target fish and other marine life), loss of habitat, and other threats to our fisheries, Congress passed the Sustainable Fisheries Act (SFA) in 1996. This landmark legislation amended the Fishery Conservation and Management Act with strict new mandates to prevent and stop overfishing, rebuild overfished stocks, minimize bycatch, and protect essential fish habitat. On the Floor of the Senate during final passage of the SFA, Senator Ted Stevens (R-AK) called it "the hallmark of conservation of fisheries throughout the world." Senator John Kerry (D-MA) noted that the SFA was going to "result in a significantly improved regime for the management of the nation's marine fisheries resources." Finally, President Clinton in his signing message for the SFA said that it "will greatly improve the future of management of important fishery resources."

Yet, nearly three years after its passage, the bright promise of the SFA is in danger of being lost. Overfishing is being allowed to continue. Rebuilding plans for overfished stocks are too long and too risky. Bycatch is not being minimized. Essential fish habitat (EFH) has been identified, but little is being done to protect them. In short, many of the improvements in fisheries management anticipated by Congress when it passed the SFA are not being realized.

In January 1999, the Marine Fish Conservation Network (Network) released a report entitled *Missing the Boat: An evaluation of fishery management council response to the Sustainable Fisheries Act*. Based on that analysis, the Network found that in virtually all cases, the revised fishery management plans developed by the fishery management councils failed to fully satisfy the requirements of the SFA. The Network urged the Secretary of Commerce, who acts through the National Marine Fisheries Service (NMFS) to manage marine fish, to reject these inadequate amendments. In response to the Network's report, NMFS stated it was too early to criticize implementation of the SFA and assured the public that it would return inadequate SFA implementation amendments and plans to the councils for "necessary modifications."

Since then, members of the Network have been closely following NMFS' response to the fishery management councils' SFA implementation amendments. As of September 15, 1999, 59 SFA implementation amendments or plans have been submitted to NMFS, the vast majority of which are inadequate, some grossly so. Contrary to its earlier assertions, NMFS has approved 26 of these deficient amendments or plans in their entirety, disapproved portions of 26, and is still reviewing seven. Eleven months past the statutory deadline of October 11, 1998, six amendments have not even been submitted to NMFS.

Of the 79 required plans to rebuild overfished stocks, 66 have been submitted to NMFS for review. NMFS has approved 50 rebuilding plans, disapproved portions of 9, and is still reviewing seven. Four fishery management plan amendments, three of which have been approved by NMFS, put off to future years the steep cuts in fishing needed for rebuilding, risking further declines and prolonging recovery. Twelve of the rebuilding plans do not meet the requirement to rebuild overfished stocks in as short a time as possible, instead stretch rebuilding out to 10 years. This risky practice makes it likely that these stocks will not be rebuilt in even 10 years.

Of the SFA's three major new conservation requirements, fishery managers have made the least progress minimizing bycatch since the passage of the law in October 1996. A third of the existing fishery management plans and amendments, which were due in October 1998, have not been submitted to NMFS for review. None of the submitted plans or amendments meet all of the new bycatch requirements, and few of them meet even a single new requirement. Only one of these amendments does anything to improve bycatch reporting. Two of 24 documents include new measures to reduce bycatch. Instead, most of the amendments assert that existing management measures minimize bycatch to the extent practicable. They do not. Given these glaring omissions in the councils' bycatch amendments, NMFS should have rejected all of the plans. Only five of the 24 submitted plans and amendments have been rejected for failing to address bycatch. Even when NMFS disapproved amendments, it often did not fully carry out its legal mandates. In two of these disapprovals, NMFS failed to even require steps to minimize bycatch.

All but one of the existing 38 fishery management plans have been amended to identify essential fish habitat (EFH). The biggest shortcoming in addressing the habitat requirements of the SFA is the near complete failure to protect any habitat from the one activity over which the councils and NMFS have direct control – fishing. Only two of the 38 existing management plans include regulatory actions that increase habitat protection, and both affect only small areas. Worse yet, these incremental steps have yet to be fully implemented by NMFS. Aside from these minor actions, little else has been done to protect fish habitat from fishing impacts, effectively ignoring one of the major purposes of the SFA. Most councils failed to take even the first steps spelled out by NMFS for minimizing adverse effects of fishing – conducting a comprehensive assessment of fishing gear impacts on habitat and analyzing the practicability of possible measures to reduce those impacts. NMFS' response to these important failings in the EFH amendments has been inconsistent, partially disapproving nine inadequate amendments, while approving 28 equally inadequate amendments.

While the SFA's mandates seemed clear, the manner in which the Act has been implemented by the fishery management councils and by NMFS indicates they were not clear enough. Because NMFS has approved so many fishery management plans that fail to satisfy the requirements of the law, the promise and intent of the SFA remains unfulfilled. Further legislative changes are necessary to restore the nation's marine fish to their full potential. These include: 1) prohibiting overfishing of all stocks of marine fish; 2) requiring management measures to include a safety margin to buffer against scientific uncertainty; 3) refining the definition of bycatch to more specifically address the root cause of this problem -- non-selective fishing practices; 4) requiring fishery managers to develop, and adhere to, a more specific set of bycatch reduction standards; 5) requiring councils to prohibit fishing activities that may adversely affect EFH; 6) requiring councils to prohibit the introduction of new fishing practices or the opening of closed areas until EFH damage is minimized; and 7) requiring councils to take an ecosystems-based approach to fisheries management that considers the broader impacts of fishing on other species and the marine environment.

Introduction

Before World War II, the waters off the coasts of the United States teemed with fish. Not only were there large numbers of fish – such as cod, haddock, flounder, snapper, grouper, and salmon – but also a great diversity of fish were living in healthy marine ecosystems. These healthy stocks of fish were harvested sustainably for hundreds of years by fleets of small-boat fishermen using selective fishing gear, such as hooks and lines. Such fishing practices preserved fish stocks for future generations by avoiding bycatch of non-target species and protecting the essential habitats on which fish depend for survival.

Unfortunately, our once-bountiful fish stocks are now in serious danger. Over the years, hook-and-line fishing gave way to less selective, industrial-scale fishing practices, such as trawling, first from overseas factory trawlers and then from domestic fishermen. The results were predictable: fish stocks declined precipitously. The specific causes of these declines are many, but can generally be organized into three categories:

Overfishing

One-third of the assessed U.S. fish stocks, including such popular species as Gulf of Maine cod, Gulf of Mexico red snapper, and Pacific rockfish are overfished. Fishing must be reduced so that these stocks can be restored to healthy levels.

Bycatch

Unfortunately, non-selective fishing practices often catch more than they target. Bycatch, or the capture of one species while fishing for another, makes it difficult, if not impossible, to prevent overfishing in some fisheries and to rebuild others. For example, for every pound of Gulf of Mexico shrimp landed, over four pounds of other finfish, such as juvenile red snapper (an overfished species) are discarded dead or dying. Bycatch also destroys many other forms of marine life that contribute to biodiversity and healthy marine ecosystems.

Fisheries habitat loss and degradation

Vast areas of the seafloor are subjected to fishing practices such as bottom trawling and dredging, which can degrade and destroy important fish habitat. For example, scientists estimate that the entire 40,807-square-kilometer area of Georges Bank is trawled two to four times a year, crushing, burying, or exposing everything in the way. Non-fishing threats to important fish habitat also abound. Saltmarshes are dredged, filled, and destroyed. Dams block salmon runs. Healthy fish stocks are impossible without the habitat necessary for spawning, shelter, and feeding.

A mandate from Congress: the 1996 Sustainable Fisheries Act

Public outrage over these and other troubles with the nation's fisheries prompted Congress to take action. Congress' response was the 1996 Sustainable Fisheries Act which amended the 20-year-old Fishery Conservation and Management Act (FCMA) with strict new mandates to stop overfishing, rebuild overfished stocks, minimize bycatch, and protect essential fish habitat.

The FCMA gave the Secretary of Commerce authority over the nation's fisheries. The

Secretary has delegated that authority to the National Marine Fisheries Service (NMFS), which is responsible for the conservation and management of the nation's living marine resources. The FCMA also established eight regional fishery management councils: New England, Mid-Atlantic, South Atlantic, Gulf of Mexico, Caribbean, Pacific, North Pacific, and Western Pacific. The councils are charged with carrying out the objectives of the FCMA by developing fishery management plans and amendments to those plans.

Under the Sustainable Fisheries Act, the eight regional fishery management councils were given two years to amend the 38 existing fishery management plans and prepare additional ones where necessary. By October 1998, the councils were required to submit new and improved plans to NMFS for review. This federal agency exercises oversight over all fishery management plans in federal waters and is supposed to approve only those that meet the rigorous new standards for sustainable fisheries. The law requires NMFS to reject plans that don't measure up to the Sustainable Fisheries Act mandates and to send them back to the councils for revision.

SFA progress report: a failure to follow through

This report reviews progress through September 15, 1999 in implementing the Sustainable Fisheries Act. About three-quarters of the required plans have been completed -- submitted by councils and reviewed by NMFS for compliance with the new law. Contrary to the clear mandates of the Sustainable Fisheries Act, these plans fail to make the substantial changes required to assure a healthy future for our fisheries.

Many of the new Sustainable Fisheries Act requirements remain unmet. There have been practically no new measures to reduce bycatch or bycatch mortality. Essential fish habitat has been designated but not protected. Only preliminary progress has been made in ending overfishing and rebuilding overfished stocks. Many of these failures are the result of councils making incremental improvements where substantial changes are required. Other failures result from NMFS accepting the status quo, contrary to the clear mandates for change in the Sustainable Fisheries Act.

In its review of amendments submitted to comply with the Sustainable Fisheries Act, NMFS has been highly inconsistent, disapproving inadequate provisions in some amendments while approving similar measures in others. Therefore, few of the shortcomings in the fishery management plans will be corrected unless further action is taken, and there is no guarantee that they will be addressed in a timely fashion. NMFS has failed to display the bold leadership necessary to restore our precious fishery resources.

Overfishing

Overfishing is widespread in the U.S. Fully one-third of the marine fish stocks whose status has been assessed are classified as overfished or approaching an overfished condition. New requirements under the Sustainable Fisheries Act to better define and report overfishing will only increase the numbers of stocks classified in both conditions.

Depleted stocks must be rebuilt to healthy levels to ensure continued replenishment of these species so that we may continue as a nation to reap their full potential benefits. But, the rebuilding plans developed to date are fraught with problems, such as allowing the continuation of short-term overfishing. Nonetheless, NMFS has approved these deficient amendments. Several plans, for example that for overfishing and bycatch in the Caribbean, are also well behind the Sustainable Fisheries Act schedule for addressing these issues.

Two annual reports to Congress on the status of the nation's fisheries have been prepared by NMFS since passage of the Sustainable Fisheries Act. These reports provide a very useful nationwide overview of the condition of the stocks on which the country depends for food, jobs, and recreational opportunities. The number of overfished stocks is sobering. In the 1997 report, 86 species were classified as overfished and another 10 were classified as approaching an overfished condition. The 1998 status report classified 90 stocks as overfished and in need of rebuilding, and another 10 stocks as approaching an overfished condition. These classifications were made based on old overfishing definitions that had not yet been revised to meet Sustainable Fisheries Act standards. With new overfishing definitions in place, the 1999 status report is certain to reveal a significant increase in the number of stocks needing protection and rebuilding.

Just as troubling is the fact that we have not even determined the health of nearly two-thirds of the nation's fish stocks. For a full 65% of stocks listed in the 1998 report, 544 stocks in all, the status was assessed as "unknown." There are good reasons to believe that many stocks of unknown status are also overfished, yet they will receive no protection until they are assessed and rebuilding measures adopted. We risk unknowingly fishing these species into commercial extinction. High priority must be given to improving assessments for stocks of unknown status.

Additionally, fishery management must become precautionary in the face of this widespread uncertainty. Unfortunately, the councils and NMFS have refrained from protective action when overfishing could not be positively demonstrated. Yet fishing capacity, effort and efficiency of fishing vessels have increased substantially in the last 20 years, taking their toll on nearly all fisheries. Precautionary management is most urgently needed in the regions where uncertainty about the condition of fish stocks is most prevalent – the South Atlantic, Caribbean, Gulf of Mexico, Pacific and North Pacific. Precautionary measures – such as setting catch levels low enough to buffer against uncertainty and protecting fished stocks during particularly vulnerable stages, such as spawning and the juvenile years – could go far in protecting these stocks from depletion.

Requirements for ending overfishing and rebuilding stocks

Responding to national outrage over the collapse of groundfish stocks in New England and rapidly deteriorating fish stocks in the rest

of the country, Congress included in the Sustainable Fisheries Act significantly strengthened mandates to prevent and stop overfishing and rebuild overfished stocks.

The Secretary of Commerce is now required to identify overfished stocks and report to Congress annually on the status of the nation's fisheries. Fishery management plans must contain an objective and measurable definition of overfishing for all managed stocks. When a stock is classified as overfished, the responsible council must develop a plan to restore it to a size capable of producing its maximum sustainable yield (MSY) in as short a time as possible, but not more than 10 years. The only exceptions to this 10-year limit are cases where the biology of the fish stock or environmental conditions makes it impossible, or where an international agreement dictates otherwise. When a stock is approaching an overfished condition, the council must develop a plan to prevent overfishing from occurring. Council plans to end overfishing and rebuild overfished stocks must be submitted no later than one year after Congressional notification that overfishing is occurring. If a council misses this deadline, the Secretary of Commerce is required to prepare an adequate plan within nine months.

Progress in defining overfishing

NMFS implementing regulations for the Sustainable Fisheries Act require that overfishing definitions contain two parts in order to adequately protect the nation's fish: one part that sets a maximum fishing rate, and another part that sets a minimum population size (biomass) level. Therefore, a stock of fish is defined as "overfished" if fish are caught faster than the stock can replenish itself, i.e., fishing exceeds the maximum fishing rate; or if the stock size is too small, thus necessitating rebuilding. If either condition exists, corrective action must be taken to assure optimum catch levels from the fishery. In the past, many overfishing definitions lacked a population size component, so that some fish stocks at very low abundance levels were not rebuilt because they were not classified as overfished.

Despite the new legal requirements, NMFS has approved three overfishing definitions that do not satisfy the Sustainable Fisheries Act. The two North Pacific groundfish plans contain no minimum population size, thus important protections for those stocks are lacking. NMFS also approved an insufficient overfishing definition for black sea bass in the Mid-Atlantic. The maximum fishing rate for this stock is too high because these fish begin life as females and switch to males when they get larger; therefore, they are more susceptible to overfishing. Excess fishing directed at larger fish can leave the population with too few males, which can lower reproductive success.

NMFS has correctly rejected inadequate overfishing definitions in nine amendments prepared by the councils to meet the Sustainable Fisheries Act requirements on overfishing. To date, nine plans have been rejected for failing to include a population size measure, the most common reason for NMFS to require improved overfishing definitions.

Concerns about plans for rebuilding overfished stocks

Defining and reporting the overfishing that is occurring around the country are necessary first steps to achieving the full potential benefits from marine fisheries. The potential will be realized only when these stocks are rebuilt to robust levels that can again support healthy ecosystems with sustainable fishing levels. Once the stocks are rebuilt, fishing pressure must be kept below the level that threatens their long-term health.

Major management challenges lie ahead. Rebuilding requires precautionary plans with clear targets and timeframes for reaching population sizes that can support maximum sustainable yield. NMFS must implement measures that are adequate to accomplish the needed fishing reductions and other appropriate protections -- such as reductions in bycatch, preservation of important habitat, and protection of spawning aggregations and nursery areas. Progress must be monitored regularly and checked against intermediate milestones, so that management can be adjusted if the rebuilding trajectories are not achieved. If fishing exceeds the rebuilding target in one year, it must be reduced below that target in the subsequent year to keep recovery on track.

While it is too early to assess the effectiveness of any rebuilding plan developed under the Sustainable Fisheries Act (none has been implemented for more than a few months), preliminary concerns about the effectiveness of these plans have already surfaced. Of the 38 required overfishing amendments, 32 have been submitted to NMFS for review. NMFS has approved 15 amendments, disapproved portions of 10, and is still reviewing seven. Four amendments, three of which have been approved by NMFS, defer to future years the steep cuts needed for recovery, further risking additional declines and prolonged recovery. Sixteen of the rebuilding plans inappropriately stretch rebuilding out to the legal limit of 10 years, thus making it unlikely that these stocks will be rebuilt in even that timeframe.

Three rebuilding plans from the Caribbean Council for overfished species were not submitted to NMFS for review by September 30, 1998 and are now more than eleven months behind schedule. Pursuant to the Sustainable Fisheries Act, NMFS should have prepared a rebuilding plan and implementing regulations for these species by July 1999. NMFS has not complied with this mandate.

Weaknesses in several of the rebuilding plans approved by NMFS suggest that rebuilding may not occur in the timely fashion envisioned by Congress.

The rebuilding plans for Atlantic sea scallops, monkfish, Mid-Atlantic black sea bass, and bluefish allow overfishing to continue for one to six years before fishing mortality is to be reduced below the maximum threshold. All but the bluefish plan have been approved by NMFS. These delays in ending overfishing will mean that when rebuilding finally starts, it will be from even lower stock levels with lower reproductive capacity than is currently the case, thus increasing the risk of failing to recover on schedule, or of not recovering at all.

NMFS has disapproved inadequate rebuilding plans in three submitted amendments. The rebuilding plan for scup was returned to the Mid-Atlantic Council for revision because it was unacceptably risk prone. NMFS also disapproved rebuilding schedules in two plans submitted by the South Atlantic Council, because they provided no justification for allowing more than ten years to rebuild red drum, red snapper, and all groupers. NMFS directed the South Atlantic Council to shorten the rebuilding periods and include new measures to speed the recovery of these species.

Because of past mismanagement, some stocks have been allowed to decline to such low levels that rebuilding is not possible within ten years even with little or no fishing. Southern New England yellowtail flounder, Atlantic halibut, red drum, red porgy, bocaccio rockfish, and most sharks are examples of stocks so poorly protected in the past that rebuilding will not take place for one to four decades. The legacy of poor fisheries management prior to the

Sustainable Fisheries Act is still producing unpleasant surprises. As recently as last year, the South Atlantic Council believed that no additional measures were needed to rebuild red porgy, which was recognized as overfished in 1997 and was then afforded some protections. But a new assessment released in March of 1999 revealed that red porgy has already collapsed, prompting the Council to request an emergency closure of the fishery.

Major deficiencies in rebuilding plans for highly migratory species

The rebuilding plans recently finalized by NMFS for Atlantic highly migratory species (HMS) raise particularly serious concerns. Only for coastal sharks have measures to substantially reduce fishing mortality been adopted. Plans to rebuild depleted blue marlin, white marlin, swordfish, and tuna remain far short of what is needed. For these species, the plans rely almost completely on uncertain action by the International Commission for the Conservation of Atlantic Tunas (ICCAT) and omit practicable domestic measures. HMS rebuilding efforts are complicated by the fact that bycatch in pelagic longlines (a system of hooks and lines fished near the water surface) is the largest source of fishing mortality in the U.S. for marlins, undersized juvenile swordfish, and pelagic sharks, and must be reduced substantially to achieve rebuilding. Thus the success of rebuilding plans for marlins, swordfish, and sharks is contingent on bycatch reduction measures. But there are no bycatch reduction measures in Amendment 1 to the Billfish Plan and almost none in the Atlantic HMS fishery management plan. One way to address billfish bycatch would be through the establishment of large area closures for pelagic longlines in U.S. waters.

The U.S. is prohibited by the Atlantic Tunas Convention Act (ATCA) from decreasing quotas for tunas and swordfish for U.S. fishermen below the levels set by ICCAT. However, ICCAT has consistently refused to lower quotas to levels that will allow rebuilding. A recent decision by ICCAT to lower the rebuilding goal for bluefin tuna by almost one half, supported by NMFS, makes a mockery of scientific objectivity and indicates that avoiding quota reductions is more important at ICCAT than rebuilding this badly depleted resource.

Swordfish, bluefin tuna, and other highly migratory species will never be rebuilt until entrenched patterns of overexploitation are reversed. Although the U.S. is constrained from taking some of the unilateral actions needed to conserve species managed under ICCAT, the level of inaction to date on swordfish, tunas, and billfish is a direct contravention of the Sustainable Fisheries Act. In addition, the U.S. needs to play a much more aggressive role in pressing for international recovery measures at ICCAT.

Changes needed to address overfishing and rebuilding

Despite the legal mandates that conservation and management measures must prevent overfishing, NMFS and the councils still fail to take precautionary measures, reacting only after overfishing has already occurred. What's more, they continue to interpret the law and regulations to allow overfishing to occur. Rather than rebuilding stocks in as short a period as possible, managers are automatically extending rebuilding periods to the maximum time allowable under the Sustainable Fisheries Act (10 years) and, in some cases, beyond those limits. This "risk-prone" management style increases the likelihood that stocks will not be rebuilt in even 10 years.

To address these concerns, legislation should be adopted to prohibit overfishing of all stocks of

marine fish. Additionally, the precautionary approach to fisheries management should be instituted, requiring the inclusion of a safety margin to provide a buffer against scientific uncertainty. Such an approach calls for, among other things, adopting conservative catch levels to guard against inadvertent overfishing because of uncertainty in estimating stock size.

Federal law prevents U.S. fishery managers from issuing regulations, which have the effect of "decreasing a quota, allocation or fishing mortality level," recommended by ICCAT. Therefore, NMFS has done little more than implement ICCAT quotas and allocate them among domestic commercial and recreational fishers. Moreover, where no ICCAT recommendations exist, no precautionary measures have been taken.

Conservation of highly migratory species would be improved by adopting legislation to repeal the statutory prohibition that prevents or hinders the U.S. from implementing management measures that are more conservative than those recommended under international agreements.

Bycatch

Of the three major new conservation requirements in the Sustainable Fisheries Act, fishery managers have made the least progress in minimizing bycatch since passage of the law in October 1996. Bycatch is the indiscriminate catching of fish and marine life other than those a fishing vessel intends to capture. Most of the councils have done nothing to reduce bycatch from the levels that prevailed before the Sustainable Fisheries Act, or to improve the reporting of bycatch. None of the councils has systematically considered how to reduce bycatch. And yet, NMFS has approved most of the inadequate plans submitted by the councils. The agency has done this in spite of clear language in the law requiring all fishery management plans to minimize bycatch. Without major changes in how NMFS and the councils report and manage bycatch, fish and other marine life will continue to be wastefully and unnecessarily destroyed by non-selective fishing practices, which contribute to overfishing. In addition, stock assessments will continue to contain large errors and uncertainties due to unreported bycatch mortality.

Requirements for reporting and minimizing bycatch

The law addresses bycatch in two places. First, a new national standard for fishery conservation and management states that, "[C]onservation and management measures shall, to the extent practicable, (A) minimize bycatch and (B) to the extent bycatch cannot be avoided, minimize the mortality of such bycatch." Second, a newly required provision for all management plans is to establish a standardized reporting methodology to assess the amount and type of bycatch occurring in the fishery, and include "[c]onservation and management measures that, to the extent practicable and in the following priority (A) minimize bycatch; and (B) minimize the mortality of bycatch that cannot be avoided." Bycatch is defined in the law as fish which are harvested in a fishery, but which are not sold or kept for personal use. Bycatch includes fish discarded because they are worth relatively little (economic discards) and fish that are illegal to keep because of their size or age (regulatory discards), but not fish released alive by recreational fishermen.

NMFS guidelines for the new national standard on bycatch lay out four actions the councils must take to minimize bycatch and bycatch mortality:

1) promote development of a database on bycatch and bycatch mortality;
2) for each management measure, assess the effects on the amount and type of bycatch and bycatch mortality in the fishery;
3) implement management measures that, to the extent practicable, will minimize bycatch and bycatch mortality; and,
4) monitor the effectiveness of implemented management measures.

The first step in meeting the mandates on bycatch, as the guidelines explain, is to initiate a review for each fishery and, where necessary, improve data collection to determine the amount, type, and disposition of bycatch and bycatch mortality.

Failure of plans to reduce bycatch

The near universal failure of fishery management plans and amendments to meet the new Sustainable Fisheries Act requirements on bycatch is astonishing. The fact that NMFS approved all but a small portion of these plans is completely indefensible.

As of September 15, 1999, amendments to minimize bycatch in four existing fishery management plans, due in October 1998, had not been submitted to NMFS by the councils or had not been made available for public comment by NMFS. NMFS has completed review of 24 plans and amendments submitted by the councils that were required to address the new bycatch requirements. None of the reviewed plans meets all of the new requirements on bycatch, and few of them meet even a single new requirement. These plans and amendments originate from all regions except the Caribbean, which is significantly behind on meeting the Sustainable Fisheries Act deadline.

In several amendments, councils admitted to having no methodology for reporting bycatch, but did not correct this deficiency (Atlantic Surf Clam and Ocean Quahog, Snapper Grouper, and Pacific Coast Groundfish). Several amendments described the existing reporting methodology as inadequate, but did not implement any improvements (Atlantic Sea Scallops; Western Pacific Bottomfish and Seamount Groundfish, Pelagics Fishery, Crustaceans, and Precious Corals). Only one of these 24 submissions does anything to actually improve bycatch reporting: the joint New England and Mid-Atlantic Councils' new monkfish plan, which requires fishermen with limited-access permits to fill out vessel trip reports that include bycatch estimates. Even that one improvement in reporting falls far short of what is needed for better management, because the reliability of such self-reporting is low.

Improvements in the reporting of bycatch are essential because many councils claim they do not have enough information about bycatch levels to know how to reduce them. At the same time, the councils make no attempt to increase their information through improved reporting, calling into question their commitment to solving this problem and complying with the Sustainable Fisheries Act. Likewise, by letting the councils get away with failing to make even these fundamental changes, NMFS calls into question its own commitment, as well.

Most amendments for fisheries along the Atlantic coast indicate the councils' intention to participate in the Atlantic Coast Cooperative Statistics Program (ACCSP), a coastwide reporting system being developed by the Atlantic States Marine Fisheries Commission, in order to improve monitoring and reporting of bycatch. The ACCSP promises to provide a major improvement in fisheries reporting for the Atlantic coast, and the cooperation of the councils in its development is desirable and commendable. However, funding for the ACCSP is not in place and no deadline exists for its implementation, so hopes for its future implementation fall far short of the Sustainable Fisheries Act requirement to establish a bycatch standardized reporting methodology by October 1998.

Only two amendments (Alaska Crabs and Alaska Scallops) provide a substantive review of existing measures to report and to reduce bycatch and bycatch mortality. Only the joint New England and Mid-Atlantic Councils' Monkfish Plan assesses the effects on bycatch of management alternatives. Only three documents (the Monkfish Plan and amendments to New England's plans for sea scallops and for groundfish) include any new measures to reduce bycatch or bycatch mortality. But even these three and all of the other submitted amendments lack an essential element for satisfying the new national standard on bycatch -- a systematic consideration of what additional measures might be practicable to minimize bycatch. In the one case where a council did act to minimize bycatch – directed bottom trawling for pollock was banned in the Bering Sea -- NMFS has

failed to follow through by not processing the amendment for review.

Instead, most of the amendments assert that existing management measures minimize bycatch to the extent practicable. But the councils provide little or no substantiation for this claim beyond listing current bycatch reduction measures. Without an assessment of how well these measures are working and whether better alternatives exist, it is impossible to know whether bycatch has been minimized to the extent practicable. Furthermore, there is no evidence that the councils have even tried to conduct such an assessment.

Given these glaring omissions in the councils' bycatch provisions, NMFS should have rejected all of the plans. Only five of these plans and amendments have been rejected for completely failing to follow the law and address bycatch. In two of these disapprovals, NMFS failed to even require that bycatch be minimized.

NMFS disapproved the bycatch provisions and definition proposed for Pacific coast groundfish and required the Pacific Council to establish a standardized reporting methodology and submit a variety of analyses, but did not require any attempt to reduce bycatch or bycatch mortality to the extent practicable. NMFS disapproved the bycatch provisions in the Western Pacific fishery for bottomfish and seamount groundfish and required a quantification of bycatch and a description of any shortfalls in data, with more detail on measures already taken to minimize bycatch and mortality. But the decision letter from NMFS to the Council did not require consideration of new measures to reduce bycatch.

NMFS has required steps to minimize bycatch in just three of the 24 plans submitted. In disapproving the bycatch provisions in the Western Pacific pelagic fishery, NMFS asked the Council to "address" the bycatch of sea turtles and seabirds (but not sharks), which should mean minimize to the extent practicable. NMFS disapproved the bycatch definition for scup prepared by the Mid-Atlantic Council, citing a failure to adequately reduce the bycatch of scup in squid nets or minimize its bycatch mortality. The agency encouraged the rapid development of management measures to reduce scup bycatch in the small mesh squid fishery, such as gear modifications and season/area closures. Lastly, NMFS disapproved the bycatch section of the northern anchovy fishery in the Pacific region because it lacked data to show what happens during fishing operations and lacked provisions to minimize potential bycatch, such as salmon, and yellowtail rockfish.

Although these same criticisms – lack of data, lack of effort to obtain the data, and lack of provisions to minimize bycatch – apply to the bycatch provisions in all of the submitted plans, NMFS chose to approve most of them anyway. The criterion used to make these divergent decisions is impossible to discern.

Failure of plans for highly migratory species to reduce bycatch

It is particularly disappointing that the bycatch provisions are so poor in the two plans developed directly by NMFS for Atlantic HMS – sharks, tunas, swordfish, and marlins. In these plans, the agency has full control over the content because it has sole management responsibility within 200 miles of the U.S. coast for those species. These plans presented an opportunity for NMFS to provide national leadership in reducing the unnecessary waste of bycatch and its contribution to overfishing, an opportunity of which NMFS failed to take advantage.

In U.S. waters, bycatch on pelagic longlines is well established as the largest source of fishing mortality for the three billfish species (blue marlin, white marlin and sailfish), as well as for small swordfish. These species are all overfished and in need of significant reductions in fishing mortality. Neither HMS plan, however, contains any measures to directly reduce bycatch of these species on pelagic longlines. The only direct bycatch reduction measures in these two documents are the closure of the swordfish driftnet fishery and a small area closure to reduce longline bycatch of giant bluefin tuna. Two measures taken by NMFS could improve accounting for bycatch, but fall short of actually reducing bycatch: 1) deducting a small portion of dead blue shark discards from pelagic shark quotas; and 2) asking ICCAT, the international body responsible for swordfish management on the high seas, to require countries to deduct dead swordfish from their swordfish quotas.

NMFS has promised that it will, in the future, implement longline closures in areas with the highest bycatch of juvenile swordfish, in response to criticisms of a small area closure proposed for Florida (and withdrawn). Such closures, if large enough and appropriately placed, plus limits on the length of time pelagic longlines are allowed in the water, are clearly practicable measures to reduce bycatch mortality. To comply with the Sustainable Fisheries Act, such closures must be implemented soon. They should also be part of a comprehensive bycatch reduction plan, including specific targets and timeframes for reducing bycatch and bycatch mortality -- an approach recommended by the Network and environmentalists, but not yet embraced by NMFS.

Changes needed to address bycatch

Bycatch continues to be substantial in most of the nations' fisheries and almost nothing has been done to comply with the bycatch requirements of Sustainable Fisheries Act. Existing measures to minimize bycatch – including recent advances such as the Bycatch Reduction Devices now in Gulf of Mexico shrimp trawls, or banning directed bottom trawling in certain parts of the Gulf of Alaska – are steps in the right direction. But many practicable measures to further reduce bycatch and bycatch mortality have yet to be implemented, and many plans have been approved by NMFS that are woefully inadequate in meeting the Sustainable Fisheries Act requirements. Though it will take major changes to end the waste and over-exploitation of valuable fish stocks and ecologically important marine life, NMFS and the councils are maintaining the status quo on bycatch.

The legal definition of bycatch needs to be refined to more specifically address non-selective fishing practices – the root cause of this problem. Legal changes must be made to make bycatch avoidance a top priority as Congress intended in the Sustainable Fisheries Act. Fishery managers should also be required to develop, and adhere to, a more specific set of bycatch reduction standards, including the setting of targets and timetables to hold managers accountable for achieving those standards within a reasonable period of time.

Habitat Protection

The Sustainable Fisheries Act requires that, for the first time, the regional councils identify and protect essential fish habitats (EFH). Yet, the councils have provided almost no protection at all, despite growing evidence that fishing itself often poses the greatest threat to habitat. Nonetheless, NMFS has approved the vast majority of these inadequate EFH amendments.

Requirements for identifying and protecting fish habitat

The Sustainable Fisheries Act recognized that "one of the greatest long-term threats to the viability of commercial and recreational fisheries is the continuing loss of marine, estuarine, and other aquatic habitats" and called for swift action to protect habitat essential to fish and shellfish.

The fishery management councils are required by the Sustainable Fisheries Act to amend all management plans to include for each species a description and designation of its EFH – those waters and sea beds necessary to fish for spawning, breeding, feeding, or growth to maturity. Councils are further encouraged to identify habitat areas of particular concern (HAPCs) to help set priorities for protection.

Each plan is also required to minimize, to the extent practicable, any adverse effects of fishing on that habitat and identify other actions to conserve and enhance EFH. Fishing activities that can harm EFH include bottom trawling and dredging that scrapes the seafloor, killing animals and plants by crushing and burying them. As a first step to minimizing adverse habitat impacts, the councils must assess the adverse impacts of all types of fishing gear and consider practicable measures to reduce those impacts. Measures to minimize these impacts include prohibiting the use of damaging gear in sensitive areas and modifying gear so that it is less damaging to bottom habitats.

In addition, the councils should identify non-fishing activities that may adversely affect EFH and recommend ways to minimize or mitigate those adverse impacts. Non-fishing activities that can adversely impact EFH include wetlands dredging and filling, watershed deforestation, and agricultural practices that increase pollution runoff. Each plan should describe options – such as forest and other vegetative buffers along the water's edge to filter pollution runoff – to encourage the conservation and enhancement of EFH.

Once EFH has been identified in an approved plan, NMFS is required to make recommendations about how federal or state agencies can minimize adverse effects on it.

Failure of plans to protect essential habitat from fishing

As of September 15, 1999, all but one of the existing 38 fishery management plans have been amended to address the new EFH requirements, and several new plans have been prepared that include EFH considerations. The biggest shortcoming in addressing the habitat requirements in the Sustainable Fisheries Act is the nearly complete failure to protect any habitat from the one activity over which the councils have direct control -- fishing. Growing evidence reveals that several types of fishing gear alter, damage, and destroy the habitat features that fish rely on for survival. Bottom trawls, scallop dredges, and hydraulic clam dredges have all been specifically implicated in causing damage to certain substrates and communities on the sea floor. Boat anchors also inflict serious, though localized, damage in some places.

Only two of the 38 existing management plans include specific regulatory actions that increase habitat protection, and both affect only small areas. First, on the Oculina Banks off the east coast of Florida, the South Atlantic Council slightly increased the size of the area where shrimp trawls and scallop dredges are prohibited because of their damage to sensitive corals that support many species of fish. Second, the North Pacific Council, which established several no trawl zones prior to the SFA, adopted a ban on boat anchoring and bottom fishing to protect rockfish habitat on several pinnacles in a four-square-mile area near Sitka, Alaska. Remarkably, as of September 15, 1999, regulations to implement this ban were still languishing at the Alaska NMFS regional office, 14 months after the Council adopted them.

Aside from these two actions, little else has been done to protect fish habitat from fishing impacts, effectively ignoring one of the major purposes of the Sustainable Fisheries Act. Most councils failed to take even the first steps spelled out by NMFS for minimizing adverse effects of fishing -- conducting a comprehensive assessment of fishing gear impacts on habitat and analyzing the practicability of possible measures to reduce those impacts.

NMFS' response to these important failings in the EFH amendments has been inconsistent, disapproving a few inadequate amendments, while approving many more that are equally inadequate. NMFS disapproved the Mid-Atlantic and the Gulf Councils' EFH amendments and directed them to add the missing elements to describe and address the impacts of all gear types, while considering the practicability of measures that reduce those impacts. But for all other regions, NMFS has approved equally inadequate gear assessments and comparable failures to minimize adverse effects of the gear on fish habitat. New England -- the region with the best site-specific data on habitat impacts from fishing -- received approval for its EFH amendments even though its council did not conduct a thorough analysis of fishing impacts and included no consideration of ways to reduce adverse impacts beyond measures already in place. In the few cases where NMFS carried out its legal mandate and rejected inadequate EFH amendments, it set no deadlines for councils to accomplish these tasks. Therefore, the public has no assurance that the mandates of the Sustainable Fisheries Act will be met anytime soon.

In arguing for the status quo on habitat protection, NMFS and the councils often cite the need for more information and additional research on fishing gear impacts in all regions. However, action to protect important habitat is required by law to be taken now based on the best information available. Councils should adopt precautionary measures to protect essential fish habitat and prohibit damaging types of bottom-tending gear in sensitive areas. Other possible approaches are to provide incentives to use less-damaging gear and to require gear modifications that reduce bottom impacts, such as the raised footrope trawl developed in Massachusetts.

Progress in designating essential fish habitat

One note of encouragement in the otherwise dismal implementation of the Sustainable Fisheries Act has been the identification of EFH. The councils and NMFS are to be commended for their efforts in the task of describing and identifying essential fish habitat for the first time. Significant time and resources were dedicated to this undertaking, with important assistance provided by state fisheries agencies and other scientists in each region. As of September 15, 1999, amendments designating EFH have been completed and

reviewed by NMFS for 37 of the existing fishery plans; only Pacific coast salmon remains without designated EFH.

Pacific coast salmon is the one marine fishery in which habitat concerns are most widely recognized, yet identification and protection of its EFH is nearly a year behind schedule. In and around the rivers needed for spawning by the five salmon species fished off California, Oregon, and Washington, a variety of terrestrial activities have degraded and destroyed habitat and contributed significantly to the species' decline. As a result, many salmon runs have been designated as threatened or endangered under the Endangered Species Act. Opposition from land development interests such as timbering and grazing has delayed completing designation of essential habitat for these salmon. Instead of designating salmon EFH and moving ahead with steps to protect it before more runs become threatened or endangered, NMFS has chosen to appease these development interests and delay the amendment.

Just two EFH designations were inadequate, and both have been properly rejected by NMFS. Both the Gulf of Mexico Council and the Caribbean Council provided habitat specifics for only a selection of the marine fish they manage, claiming they are representative of all managed fish. NMFS has properly required both Councils to designate EFH for all remaining managed fish.

Other shortcomings will be addressed when EFH designations are updated. For example, seafloor areas necessary for spawning squid off the west coast should be identified and designated, and the New England designations should be improved by specifying both seafloor communities and prey species that are essential to managed fish.

Limited progress in designating habitat areas of particular concern

Most councils designated most or all of the seafloor as EFH. This precautionary approach is appropriate because so much of the ocean is necessary for supporting marine species. As more and better habitat information becomes available, the areas identified as EFH can be narrowed. To focus EFH protection efforts, it is important to identify HAPCs within essential fish habitat. These are areas that are important, sensitive, stressed, or rare. However, while HAPCs are helpful in protecting EFH, habitat protection efforts can, and should, proceed without them.

One or more HAPCs have been designated for most regions (except the Pacific coast), but many more need to be identified. In New England, only a single HAPC is listed for one life stage of one species -- juvenile cod -- leaving adult cod and 34 other species with no priorities for habitat protection. For the North Pacific region, HAPCs have been described only as types of habitat, and no specific areas have been designated. These broad HAPC designations will not help focus habitat protection efforts and should be refined.

It would be helpful for each Council to put out a call for proposals for HAPCs. This would tap into the detailed knowledge about locally important or threatened areas held by fishermen, scientists, divers, and other marine observers. Habitat protection efforts would be enhanced by these efforts.

Changes needed to protect fish habitat

The SFA requires action to describe, identify, conserve, and enhance EFH. The law and regulations require councils "to prevent, mitigate, or minimize" adverse effects from fishing, unless it is not practicable to do so.

Most councils say that the fisheries under their jurisdiction do not adversely impact EFH or that they do not have enough information to take action. Unfortunately, NMFS has accepted these excuses. The "to the extent practicable" language in the law's EFH requirement is clearly being used as a loophole to avoid action, as is the familiar "lack of information" refrain.

Legislative changes are necessary to require regional fishery management councils to prohibit fishing activities that may adversely affect EFH unless a council determines that the prohibition is not necessary to protect EFH. Councils should also be required to adopt a precautionary approach to habitat protection by prohibiting the introduction of new fishing gear or the opening of closed areas unless EFH damage is first assessed and minimized.

Conclusion

Passage of the Sustainable Fisheries Act in 1996 was supposed to turn the tide for U.S. fisheries. No longer would overfishing be allowed. Overfished stocks would be rebuilt as quickly as possible. Bycatch of non-target species would be assessed and minimized. Essential fish habitats would be identified and protected. Yet nearly three years after its passage, the promise of the Sustainable Fisheries Act remains unfulfilled. Too often overfishing is allowed to continue. Overfished stocks are not rebuilt as quickly as possible, if rebuilding is proposed at all. Bycatch has not been minimized or even assessed in most regions. Essential habitats have been identified, but little has been done to protect them. In short, much of what Congress intended to improve the nation's marine fisheries has not been accomplished.

While the Sustainable Fisheries Act's mandates seemed clear, implementation of the Act by the fishery management councils and NMFS indicates that they were not clear enough. Further legislative changes are necessary to restore the nation's marine fish to their full potential. These include:

- Prohibiting overfishing of all stocks of marine fish.

- Mandating the application of the precautionary approach to fisheries management by, at least, requiring that management measures include a safety margin to buffer against scientific uncertainty.

- Repealing language that prevents or hinders the U.S. from implementing management measures that are more conservative than those recommended under international agreements.

- Refining the definition of bycatch to more specifically address the root cause of this problem -- non-selective fishing gear.

- Making bycatch avoidance a top priority.

- Requiring fishery managers to develop, and adhere to, a more specific set of bycatch reduction standards, including the setting of targets and timetables to hold managers accountable for achieving those standards within a reasonable period of time.

- Requiring councils to take an ecosystems based approach to fisheries management that considers the broader impacts of fishing on other species and the marine environment.

- Requiring fishery management councils to prohibit fishing activities that may adversely affect essential fish habitats unless a council determines that the closure is not necessary to protect those habitats.

- Requiring councils to adopt a precautionary approach to habitat protection by prohibiting the introduction of new fishing gear or the opening of closed areas unless EFH damage is first assessed and minimized.

Appendices

Appendix 1: List of Acronyms

ACCSP: Atlantic Coast Cooperative Statistics Program

ATCA: Atlantic Tunas Convention Act

EFH: Essential Fish Habitat

FCMA: Fishery Conservation and Management Act

FMP: Fishery Management Plan

HAPC: Habitat Area of Particular Concern

HMS: Highly Migratory Species

ICCAT: International Commission for the Conservation of Atlantic Tunas

MSY: Maximum Sustainable Yield

NMFS: National Marine Fisheries Service

SFA: Sustainable Fisheries Act

Appendix 2: Glossary

Billfish: Pelagic (see below) fish with long, spear-like protrusions at their snouts, such as swordfish and marlin.

Biomass: A term used to describe the total weight of a population of fish, the spawning adult portion of that population (see spawning stock biomass), or the weight of several populations combined.

Bycatch: Fish and other marine life that are incidentally caught with the targeted species. Bycatch also can include unobserved mortality of fish that fall out of nets or are caught by lost or discarded nets.

Bycatch reduction device (BRD): A device used with the nets to reduce bycatch while fishing. These gear modifications are most commonly used with shrimp trawls. BRDs are also called "Finfish Excluder Devices," or in New England, the "Nordmore Grate." When specifically designed to exclude sea turtles, they are called "Turtle Excluder Devices" (TEDs).

Closed areas and seasons: Closing certain fishing areas or limiting fishing to certain seasons. Managers may implement closed seasons or areas to protect a specific spawning area, spawning season, or critical life stage of fish.

Coastal pelagic: Fish that live in the open ocean at or near the water's surface but remain closer to the coast than true pelagics. Mackerel, anchovies, and sardines are examples of coastal pelagic fish.

Dredge: Bag dragged behind a vessel that scrapes the ocean bottom, usually used to catch shellfish. Dredges are often equipped with metal spikes in order to dig up the catch.

Drift nets: Gill nets that drift freely in the water. Drift nets longer than 2.5 kilometers are prohibited in U.S. waters. Depth typically ranges from 30 to 40 feet, though it can reach 130 feet. On the high seas, by United Nations Resolution, driftnets must be no longer than 2.5 kilometers.

Effort: A term used to indicate the level of fishing activity. Effort can be measured by the number of days or hours spent fishing, the number of vessels in a fishery, the effectiveness of gear used, or a combination of any such quantifications of fishing activity.

Emergency action: A short-term conservation measure that may be implemented by a regional fishery management council or the Secretary of Commerce when a problem arises in a fishery that requires regulations sooner than a fishery management plan or amendment can be proposed and implemented.

Exclusive economic zone (EEZ): That area of federal waters adjacent to state waters, and extending from 3 to 200 nautical miles from shore. The state waters of Texas, Puerto Rico, and the west coast of Florida extend nine miles from shore.

Fishery: The combination of fish and fishers in a region, fishing for similar or the same species with similar or the same gear types. The Magnuson-Stevens Fishery Conservation and Management Act defines "fishery" as the stock(s) fished or the act of fishing for such stock.

Fishery Conservation and Management Act (FCMA): Passed in 1976 to prevent overfishing, which was being done mostly by foreign fleets, and to allow overfished stocks to recover. It established eight regional fishery management councils to serve as stewards of our living marine resources along with the National Marine Fisheries Service (NMFS).

Fishery management council: An advisory and planning body that recommends conservation measures for area fisheries. Regional fishery management councils around the United States are responsible for developing fishery management plans.

Fishery management plan (FMP): A management program developed by a regional fishery management council, or, in some cases, by the Secretary of Commerce, to regulate a fishery in the U.S. Exclusive Economic Zone. Every FMP, amendment to an FMP, and the regulations that implement them must comply with the national standards of the Magnuson-Stevens Fishery Conservation and Management Act.

Fishing mortality: The rate or level at which fish in a given fishery are killed by human fishing activity.

Gear requirements: Modifications or restrictions on gear used in a fishery. Gear requirements can entail such modifications as less technologically advanced gear, amendments such as bycatch excluder devices, or

restrictions on the size or type of vessel or gear allowed in a fishery.

Gear selectivity: The degree to which a type of fishing gear catches targeted species relative to the amount of bycatch. Selective gear catches little bycatch, while non-selective gear fishes indiscriminately.

Gill nets: Curtains of netting that can either drift freely or be attached to the sea floor that catch fish by entangling them by the gills. (See also drift nets)

Groundfish: A general term referring to fish that live on or near the sea floor, including cod, cusk, haddock, pollock, halibut, and ocean perch. Groundfish also are called bottom fish or demersal fish.

Landings: The amount of fish brought back to the docks and marketed. Landings can describe the kept catch of one vessel, of an entire fishery, or of several fisheries combined.

Longlines: A system of hooks and lines. The main line is equipped with many branch lines, each with a baited hook. Longlines fish at any depth in the water column.

Magnuson-Stevens Fishery and Conservation Act: New name for the Fishery Conservation and Management Act adopted in 1996.

Marine fishery reserves: Areas in the ocean where fishing is permanently prohibited in order to protect whole ecosystems and habitats along with the fish. Marine fishery reserves also may be called harvest refugia or replenishment zones.

Maximum sustainable yield (MSY): The largest annual catch that fishers can take continuously from a stock without overfishing it under the existing environmental conditions.

National Marine Fisheries Service (NMFS): To whom the Secretary of Commerce has delegated authority to conserve and manage the nation’s living marine resources.

National standards: A set of 10 objectives in the law with which fishery management councils and the National Marine Fisheries Service must comply.

Optimum yield (OY): A term that refers to the catch from a particular fishery that will provide the greatest overall benefit in terms of food production and fishing opportunities. It is determined on the basis of Maximum Sustainable Yield as reduced by any relevant ecological, economic or social factor.

Pelagic: Fish that live in the open ocean at or near the water's surface. Pelagic fish often migrate long distances.

Pot: A type of gear usually set on the ocean bottom to attract fish or shellfish. The entrance of the pot is designed so that once the animal enters, it cannot escape.

Purse seine (pronounced "sane"): A type of net that encircles fish. Once the purse seiners locate a school of fish, they set the net around the school and then pull a drawstring on the bottom of the net, creating a pocket that traps the fish. The entire net is then hauled on board and emptied.

Reef fish: Fish that live mostly on or around reefs. Reef fish include snappers, groupers, grunts, and porgies.

Single species fishery: A type of fishery in which fishers target only one species of fish, although it is usually impossible not to catch other species incidentally.

Size limit: The minimum size of a fish that a fisher can catch and keep legally.

Spawning stock biomass: The total weight of all sexually mature fish in a population.

Sustainable Fisheries Act (SFA): Legislation that amended the newly renamed Magnuson-Stevens Act in 1996 with strict new mandates to stop overfishing, rebuild all overfished stocks, minimize bycatch, and protect essential fish habitat.

Total allowable catch (TAC): A management measure that sets an amount of fish that can be caught annually by all participants in a fishery.

Trap: A fishing gear made of stationary nets, pots or cages (can be wire, wood or plastic) staked or anchored into the sea bed. Built in a variety of configurations, traps guide fish into entrapment compartments. They are usually set near shore.

Trawls: Nets with a wide mouth tapering to a small, pointed end, called the "cod end." Trawls are towed behind a vessel at any depth in the water column.

Trip limit: A quota that each fisher or vessel is allowed to catch per trip out to sea. Trip limits are the commercial equivalent of a recreational bag limit.

Appendix 3: Chart and Tables