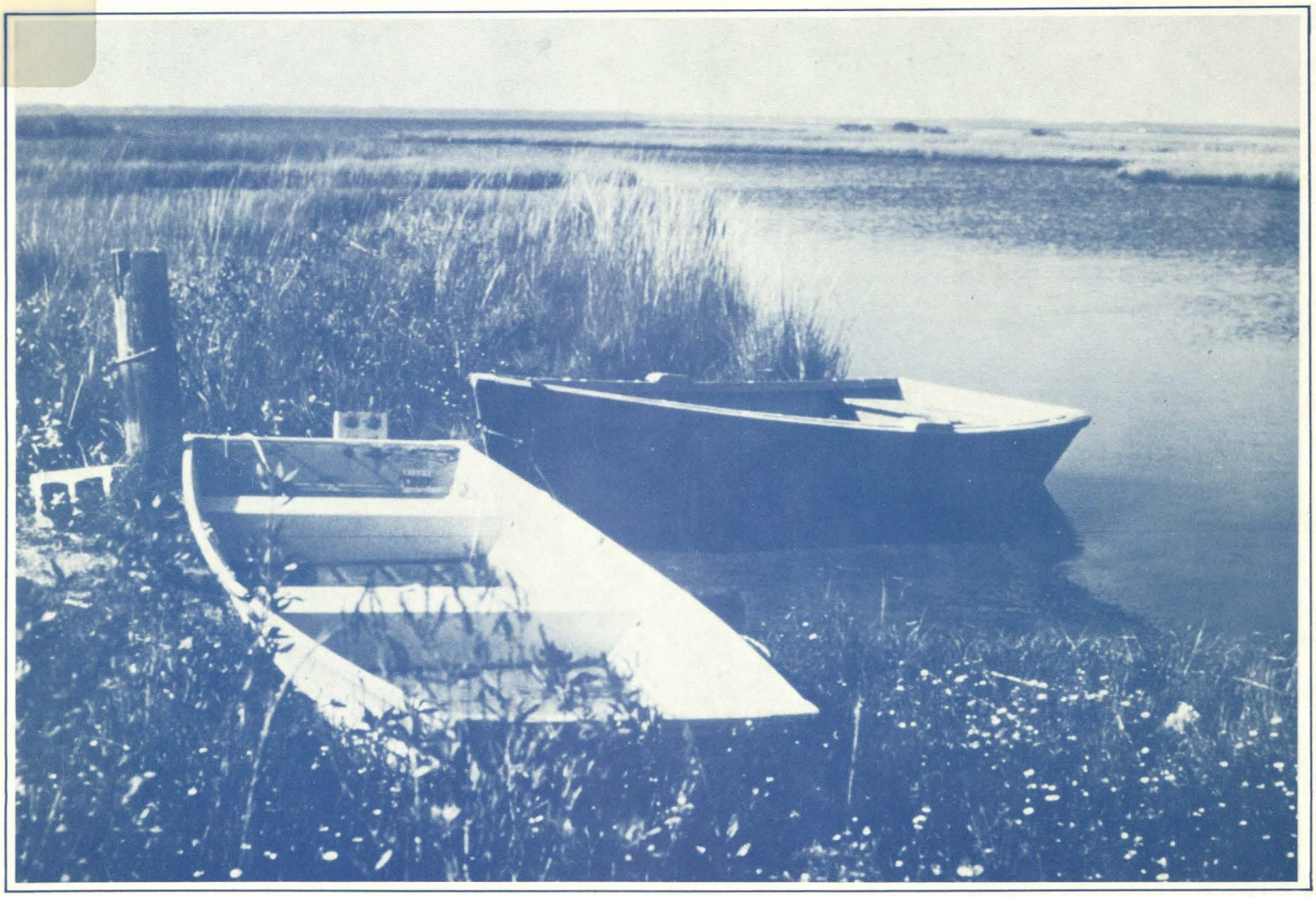
# 1983 ANNUAL REPORT
# ABITAT CONSERVATION PROGRAM



NATIONAL MARINE FISHERIES SERVICE
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
DEPARTMENT OF COMMERCE
MAY 1984

# 1983 Annual Report
# Habitat Conservation Program

Prepared by
Office of Protected Species
and Habitat Conservation
Habitat Conservation Division
3300 Whitehaven St., N.W.
Washington, D.C. 20235

May 1984



**U.S. DEPARTMENT OF COMMERCE**
**Malcolm Baldrige, Secretary**

**National Oceanic and Atmospheric Administration**
John V. Byrne, Administrator

National Marine Fisheries Service
William G. Gordon, Assistant Administrator

Dear Colleague:

I am pleased to present the 1983 Annual Report for the National Marine Fisheries Service's Habitat Conservation Program. This first annual report includes the program's activities and accomplishments for the past calendar year.

We hope you find the report useful, and we welcome any comments or suggestions for future editions. Additional copies of the report are available from the Habitat Conservation Division, National Marine Fisheries Service, 3300 Whitehaven St. N.W., Washington, D.C., 20235.

Sincerely yours,

William G. Gordon

William G. Gordon
Assistant Administrator
for Fisheries

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## INTRODUCTION

The National Marine Fisheries Service (NMFS), an agency of the National Oceanic and Atmospheric Administration (NOAA), has primary responsibility for the conservation, management, and development of certain living marine resources and the protection of marine mammals and endangered species. The NMFS seeks to "achieve a continued optimum utilization of living marine resources for the benefit of the nation."

The NMFS Habitat Conservation Program is an important component of the NMFS fisheries management and research activities. The program's goal is to conserve the habitats and associated biological communities necessary to sustain living marine resources. This is accomplished primarily through marine habitat-related research, coordination with the Regional Fisheries Management Councils on fisheries management plans, and review of licensing, permitting, legislative and administrative activities affecting living marine resources and habitats under NMFS jurisdiction.

This 1983 Annual Report documents the existing and potential marine habitat issues of national and regional importance to NMFS and summarizes the accomplishments and activities of the National Habitat Conservation Program.

# HABITAT CONSERVATION PROGRAM

## SUMMARY

The Habitat Conservation Program achieved several important milestones during 1983. Foremost among these was the adoption of the Habitat Conservation Policy which specifies that habitat conservation will be considered and included as an integral part of the federal fisheries management process. The NMFS also entered into two experimental mitigation banking agreements, one with a private corporation in Louisiana, and one with the Port of Long Beach, California. In addition, NMFS participated in the negotiation of National Artificial Reefs Guidelines with four Federal agencies.

Nationally, the Habitat Conservation Program continued to effectively represent living marine resource habitats within the federal regulatory process. NMFS reviewed projects regulated under the Army Corps of Engineers' (Corps) dredge and fill permit program which potentially affected over 31,000 acres of fish habitat. These reviews were instrumental in influencing the Corps to consider the conservation and enhancement of fish habitats in the decision-making process. In addition, the NMFS worked actively on important Federal projects threatening living marine resources. In the case of three large and controversial projects, (Westside Highway in New York, the Corpus Christi, Texas Ship Channel, and the Mouth of the Colorado River Project in Texas), numerous NMFS recommendations on project design were fully or partially adopted by the Corps in order to mitigate project impacts upon valuable fish habitats. In the Southeast United States, where much valuable coastal acreage was proposed for alteration, the NMFS Southeast Region continued to monitor the extent to which its recommendations on project proposals were adopted by the Corps and observed during project construction and operation.

The NMFS Habitat Conservation staff reviewed proposals regulated under several other Federal programs during the past year. Most important among these are the Federal Energy Regulatory Commission's hydroelectric project licensing program, the Department of the Interior's Outer Continental Shelf accelerated leasing program, the Army Corps of Engineers' ocean dumping permit program, and the Environmental Protection Agency's National Pollutant Discharge Elimination System permit program. The NMFS consulted formally and informally with these agencies throughout the year to ensure that fish habitat was considered in the decision-making process.

In the past year, NMFS also continued to develop and refine innovative approaches for reducing permit processing delays such as pre-application consultations with project developers and joint evaluation of projects in conjunction with other Federal and state agencies. In addition, NMFS participated nationwide in comprehensive planning efforts to help mitigate the potential impacts of major new mining, logging, fossil fuel, and hydroelectric projects on living marine resources and habitats.

In support of these efforts, NMFS research staff provided important information on fisheries ecology and marine pollution, exploring further the critical link between healthy marine habitats and U.S. fishery and marine mammal resources. NMFS conducted extensive laboratory and field research on the effects of habitat alteration and marine pollution on living marine resources and continued to monitor important oceanographic and biological parameters for heavily utilized marine areas such as the Mid-Atlantic Bight and Georges Bank. In addition, NMFS researchers focused their attention upon the habitat requirements for several important recreational and commercial species including striped bass, lobster, crab, salmon, menhaden, shrimp, and several species of groundfish. This research is supporting NMFS efforts to conserve productive spawning, nursery, and feeding habitats in rivers, estuarine wetlands, coastal waters, and the continental shelf.

## U.S. FISHERIES AND HABITATS: AN OVERVIEW

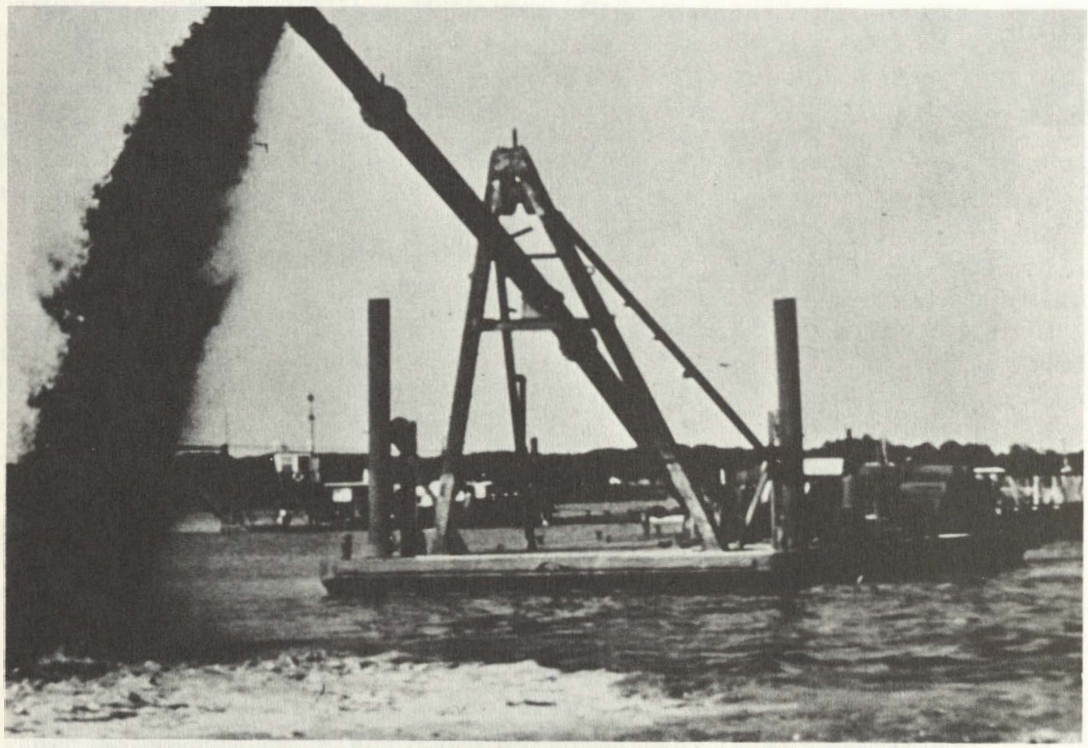
From the Gulf of Mexico to the Bering Sea and from New England to the Pacific Northwest, the United States' coastal and estuarine waters represent one of our most valuable natural and renewable resources. Fishing, as both a livelihood and a sport, is an important use of these areas. In 1982, the U.S. commercial fishing industry, which directly employs over 300,000 people, caught over 6.4 billion pounds (3.2 million metric tons) of seafood valued at $2.4 billion (considering ex-vessel prices only). Foreign fishing in U.S. waters accounted for an additional 1.4 million metric tons (NMFS, 1983, p. iv). The Gulf of Mexico and the South Atlantic contributed over 40 percent of the U.S. total volume of fish landed. The North Atlantic supplied approximately 25 percent of the nation's landings (by volume) while the Pacific (including Alaska and Hawaii) accounted for an additional 29 percent (NMFS, 1983, p. 12). Alaska provided approximately 25 percent of the value of fish landed with $575.6 million; California, Louisiana, and Massachusetts each contributed an additional 10 percent to the national total (NMFS, 1983, p. v). Overall, the commercial fishing industry produces food and industrial products contributing over 7 billion dollars annually to the Nation's gross national product.

Marine recreational fishing is an important segment of the U.S. fishing industry. There are an estimated 15 million marine recreational fishermen in the U.S; this highly diverse sport encompasses a wide range of activities from sophisticated charterboat open ocean billfishing to the pier fishing carried out in many of our cities. Of the total U.S. finfish harvest used for food, an estimated 35 percent is caught by marine recreational fishermen. The total economic impact of marine recreational fishing activity is approximately $7.5 billion (Sport Fishing Institute, 1983, p. 2).

We recognize clearly the importance of coastal and estuarine habitats to the maintenance of healthy fish stocks. Estuaries are particularly important to many species. Research has shown that over two-thirds of our commercially-important fish species on the Atlantic and Gulf coasts are wetland-dependent. These habitats are used for spawning, protection, and food. Wetlands also serve as efficient filters for upland discharges and urban runoff, helping to maintain water quality in many coastal estuaries. The productivity of these areas and their proximity to shore make them especially important for commercial and recreational fishing. In fact, approximately one-half of all domestic fish were caught within 3 miles of shore.

In the past several decades, other important uses have evolved which threaten these coastal habitats and the resources they support. Population shifts to coastal areas and the associated industrial and municipal expansion have increased competition for use of these areas. These trends are expected to continue in the future; it is estimated that 75 percent of the United States' population will live within 50 miles of the coastline by 1990. The economic and aesthetic attractiveness of coastal and estuarine sites make them prime candidates for industrial and residential development. In addition, offshore mineral extraction and ocean waste disposal have become increasingly important alternatives to the earlier land-based activities.

An illegal fill in Spartina alterniflora marsh on Harkers Island, North Carolina. These marsh habitats are important to many species, offering food, protection, and spawning areas. Environmental Assessment Branch, Beaufort, North Carolina.



Dredging, an activity permitted by the Army Corps of Engineers, can displace or disrupt marine bottom habitats important to many commercial and recreational fish species. Increased sedimentation and turbiding resulting from dredging can also adversely affect anadromous fish spawning and migratory habitats. NMFS recommends mitigating measures for permits authorizing dredging. Photo courtesy NMFS Habitat Conservation Division, Washington, D.C.

Important fishery habitats are being lost as a result of both natural and man-made trends. Almost half of the original 11.7 million acres of coastal wetlands in the conterminous United States were lost in the period 1780 to 1978 (Ringold and Clark, 1980, p. 84). From the 1950's to the 1970's, over 372,000 acres of estuarine wetlands disappeared. These habitats were lost due to coastal erosion (55 percent of the total) and urban development (45 percent of the total) (U.S. Fish and Wildlife Service, 1983, p. 24). Much of this loss occurred in Coastal Louisiana due to a gradual rise in sea level, extensive canal dredging, and upland flood control levees on the Mississippi River which prevent the normal flow of sediments to the coastal marshes. These factors are thought to account for a loss of 50 square miles of wetland per year.

In many areas, wetlands have been filled or diked to accomodate new development, resulting in a loss of valuable acreage. In San Francisco Bay, an estimated 242.8 square miles of wetlands and submerged lands were destroyed through filling in the period 1850 to 1957 (Swanson, 1975, p. 84). This represents a 35 percent reduction in bay area. By 1967, California had lost over 67 percent of its important estuarine habitat to dredging and filling (Ringold and Clark, 1980, p. 83).square miles of wetland per year.

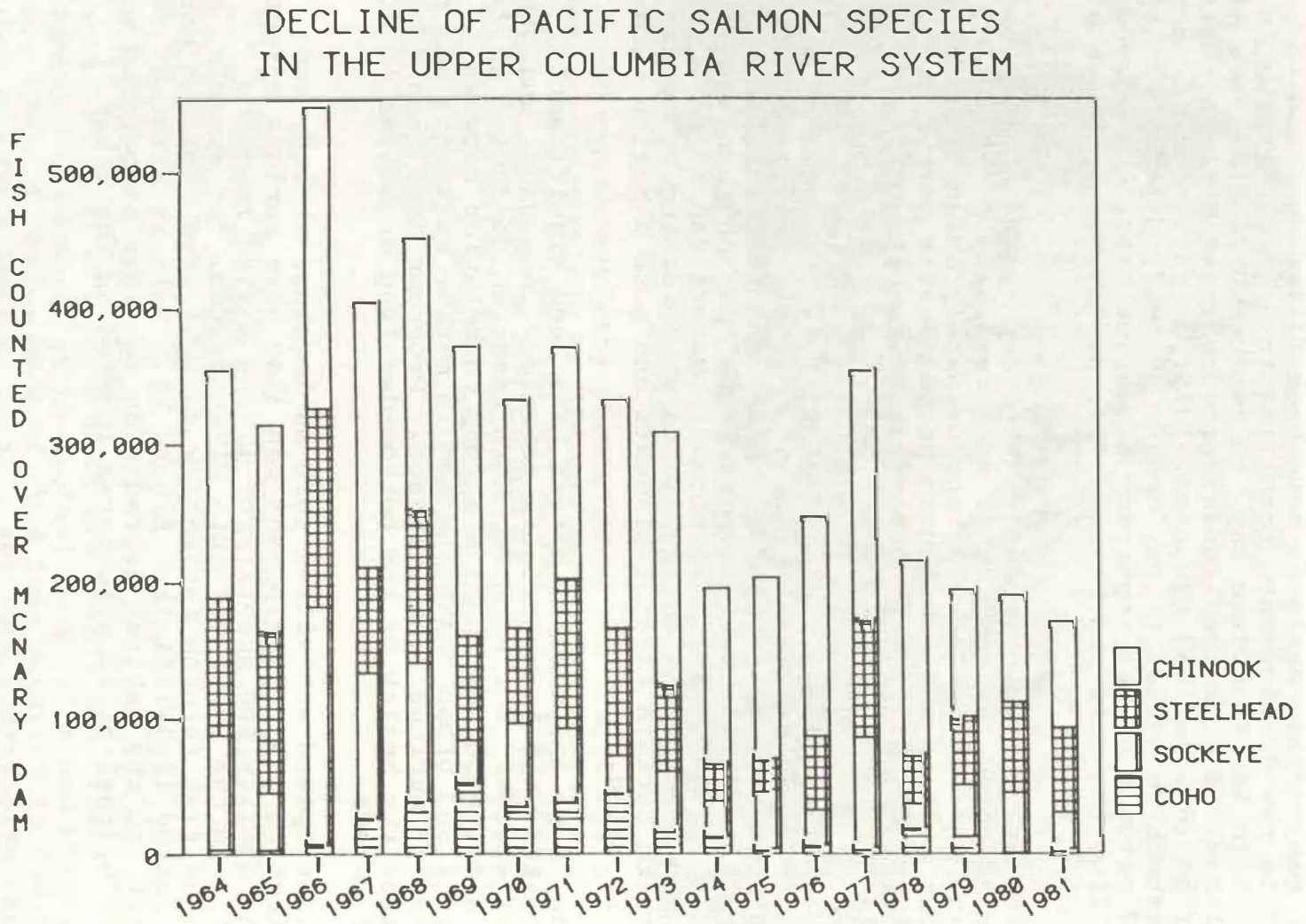
Discharges from numerous coastal and upland sources have greatly affected the quality of many remaining coastal and estuarine habitats. In 1974, approximately one-quarter of the shellfish beds in the contiguous United States were closed to harvesting, due mainly to contamination resulting from sewage disposal.

Coastal shellfish (particularly bivalves) serve as useful indicators of water quality because of their relative immotility and their use of sediments for shelter and feeding (these bottom habitats are usually the ultimate "sink" for any contaminants). Because many shellfish, most notably oysters and mussels, filter large amounts of water and sediments when feeding, they can concentrate certain harmful elements and pose a health threat to humans if eaten.

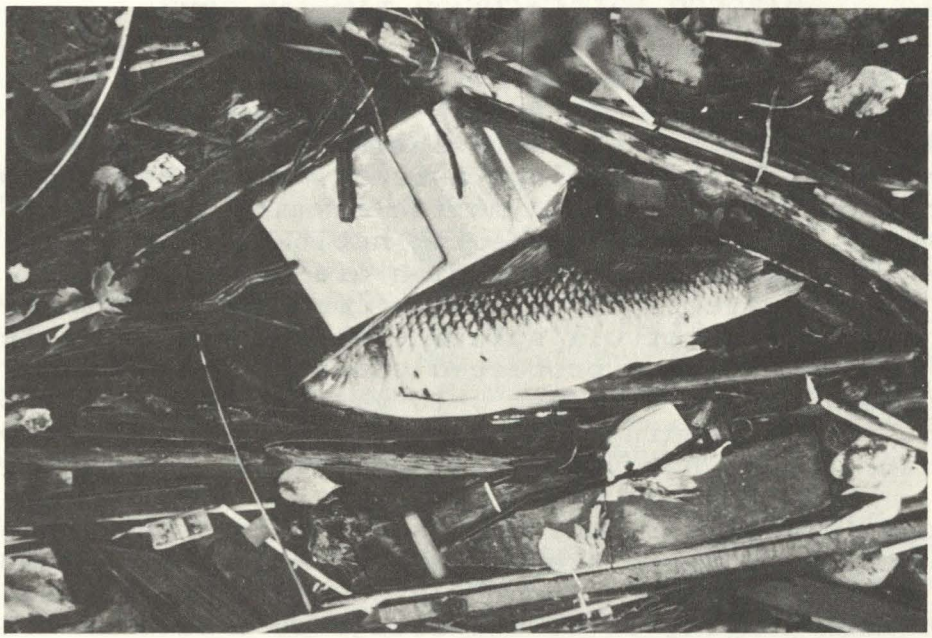
Many bays and coastal waters have been significantly contaminated with heavy metals, petroleum compounds, and other chemical wastes. For example, NMFS research conducted in Puget Sound, Washington has found a strong correlation between industrial and urban contamination in marine sediments and the incidence of serious fish diseases. Programs have been developed to monitor the health of the bottom-dwelling organisms in U.S. coastal waters.

Other upland activities such as logging, mining, and hydroelectric power development can also have serious effects upon the quality and quantity of living marine resource habitat. In the Upper Columbia River system, for example, adult anadromous fish returns (primarily salmon) have declined markedly in the period 1964-1981 (see figure 1). This is related, for the most part, to the habitat degradation and loss associated with numerous hydroelectric structures located on the river.

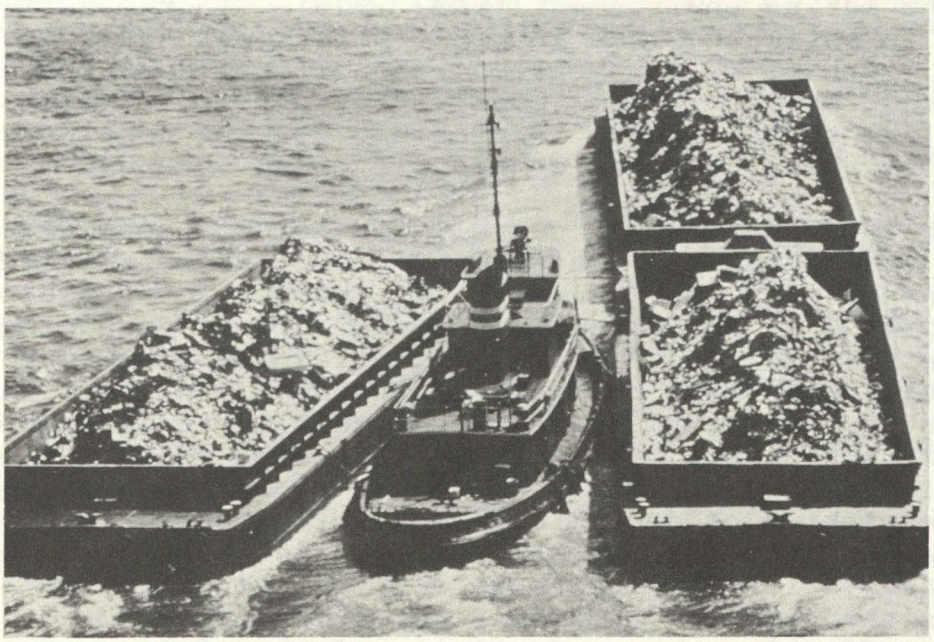
FIGURE 1




Source: Annual Fish Passage Report - 1981, U.S. Army Corps of Engineers Columbia River Projects, Snake River Projects, Oregon and Washington.



Above: Improper disposal of refuse can seriously degrade the productivity of a coastal habitat and create an aesthetic eyesore. Below: Habitats and associated organisms have been degraded by long-term ocean disposal, particularly of sewage wastes. Sewage pollution caused closure of shellfish beds, and occasionally, of public swimming areas. Additional research on the impacts of ocean waste disposal at deepwater dumpsites is urgently needed. Photos courtesy NMFS Habitat Conservation Division, Washington, D.C.



Petroleum discharges (resulting primarily from tanker or barge accidents, upstream discharges, and urban runoff) continually degrade coastal and estuarine areas. In addition, large infrequent offshore oil spills from exploration and transportation activities can move shoreward and seriously threaten important fish spawning, nursery, and feeding areas. Oil pollution can also threaten marine mammal, sea turtle and bird migratory, breeding, and feeding habitats. Free-floating fish larvae and eggs and juvenile fish are generally most vulnerable to the effects of petroleum compounds. Although in many cases the effects of oil spills appear to be short-term, localized, and reversible, protected coastal estuaries may not recover from spills for at least 5-10 years. Oil pollution can also disrupt normal feeding, migration, and reproduction of fish and shellfish in ways not yet fully understood.

Although large-scale habitat disruption has been observed more frequently in inshore areas, severe impacts have been documented at some offshore locations. Most notably, New York City's continued dumping of sewage sludge at a site 12 miles off the New York/New Jersey coast has degraded an area of several square miles and greatly displaced the resident bottom marine life. In addition, when this sewage system's capacity has been exceeded, sewage residue has occasionally appeared on long Island beaches; its characteristic consistency and color has been termed "black mayonnaise." (Ringold and Clark, 1980, p. 43).

Persistent oil discharges from marine transporation sources (principally ballasting and washing operations at sea) are believed to contribute approximately 33 percent of all petroleum entering the marine environment (NAS, 1975). In the Gulf of Mexico, it is estimated that in 1980 operational discharges far outweighed (perhaps by eight times) the oil released through spills to that marine system (NOAA, 1981, p 11). These discharges are thought to be responsible for the continuing problem of tar balls washing up on Gulf Coast beaches.

As our land-based resources dwindle and our population moves shoreward, the relentless pressures to utilize coastal and estuarine areas will pose significant problems for established and developing U.S. fisheries. In addition, new technologies and programs being developed for deepwater offshore areas may affect fishery habitats in ways not well understood. Examples include oil exploration and development, polymetallic ore mining of the ocean floor, sub-seabed disposal of high-level radioactive waste, ocean dumping of sewage sludge and other industrial and municipal wastes, the sinking of decommissioned nuclear submarines, and a myriad of alternative ocean energy proposals. NMFS, through the Habitat Conservation Program, will continue to participate actively in the planning and decision-making processes potentially affecting the productivity of the living marine resource habitats supporting the Nation's fisheries.

## NMFS HABITAT CONSERVATION PROGRAM

The NMFS Habitat Conservation Program activities are carried out nationwide as part of the overall NMFS fisheries research and management program. The activities result from numerous Federal laws. These laws (1) provide NMFS with the authority to manage and conserve living marine resources and their habitats, or (2) require consultation between NMFS and agencies proposing actions which may affect those resources and habitats. The most important of these are the Fish and Wildlife Coordination Act (as amended in 1958) (FWCA), the National Environmental Policy Act of 1969 (NEPA), and the Magnuson Fishery Conservation and Management Act of 1976 (MFCMA). Further information on these and other pertinent authorities is located in Appendix I.

The facilities involved include NMFS Centers and Laboratories (which conduct fisheries research), Regional Headquarters (which manage the Regional field activities), and field stations (which are responsible for on-site inspections and reviews of proposed actions). The NMFS Central Office, located in Washington, D.C., provides policy and technical guidance for the NMFS Regional and Center programs. Figure 2 shows the locations of the various habitat conservation facilities. The habitat programs are organized and administered differently in each area to respond most effectively to unique regional issues and geographic constraints.

All regional habitat conservation programs are a reflection of three important considerations: (1) the pressures on the living marine resource habitats in an area; (2) the size of the area managed; and (3) the commercial and recreational value of the species. In the southeastern U.S., large areas of tremendously productive and commercially valuable estuarine habitat are under severe pressure from urban industrial and residential development. The Northwest and Northeast Regions also have critical estuarine habitat to protect and face significant development pressures. These Regions also manage long-established, economically important offshore and coastal fisheries. However, the Alaska Region, which has large, valuable estuarine and offshore fisheries and habitats to manage, has not yet begun to experience the urban and industrial expansion typical in the contiguous U.S. The Southwest Region, which has relatively little productive estuarine habitat left to conserve, has focused on the remaining coastal wetlands, anadromous fish habitats, reef environments, and the important offshore fisheries of the area.

FIGURE 2

HABITAT CONSERVATION PROGRAM FACILITIES

REGIONAL OFFICES

| | | |
|---|---|---|
| F/NER | Northeast Regional Office | Gloucester, Massachusetts |
| F/NER54 | Habitat Protection Branch | |
| F/SER | Southeast Regional Office | St. Petersburg, Florida |
| F/SER11 | Environmental Assessment Branch | |
| F/SWR | Southwest Regional Office | Terminal Island, California |
| FSWR33 | Environmental Assessment Branch | |
| F/NWR | Northwest Regional Office | Seattle, Washington |
| F/NWR5 | Environmental and Technical Services Division | Portland, Oregon |
| F/AKR | Alaska Regional Office | Juneau, Alaska |
| F/AKR2 | Environmental Assessment Division | |
| F/AKR2WA | Anchorage Field Office | Anchorage, Alaska |

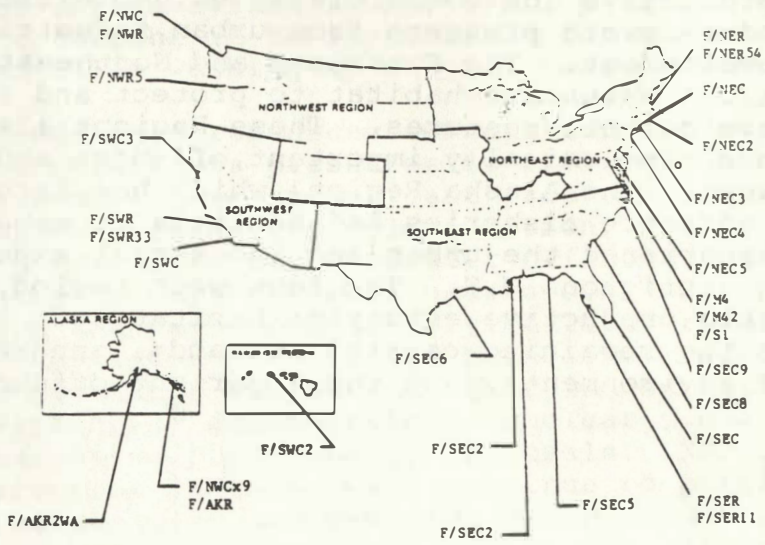
RESEARCH FACILITIES

| | | |
|---|---|---|
| F/NEC | Northeast Fisheries Center (NEFC) | Woods Hole, Massachusetts |
| F/NEC3 | Milford Laboratory* | Milford, Connecticut |
| F/NEC2 | Narragansett Laboratory | Narragansett, Rhode Island |
| F/NEC5 | Oxford Laboratory* | Oxford, Maryland |
| F/NEC4 | Sandy Hook Laboratory | Highlands, New Jersey |
| F/SEC | Southeast Fisheries Center (SEFC) | Miami, Florida |
| F/SEC9 | Beaufort Laboratory* | Beaufort, North Carolina |
| F/SEC8 | Charleston Laboratory | Charleston, South Carolina |
| F/SEC6 | Galveston Laboratory* | Galveston, Texas |
| F/SEC5 | Panama City Laboratory* | Panama City, Florida |
| F/SEC2 | Mississippi Laboratories | Bay St. Louis/Pascagoula Mississippi |
| F/SWC | Southwest Fisheries Center (SWFC) | La Jolla, California |
| F/SWC3 | Tiburon Laboratory* | Tiburon, California |
| F/SWC2 | Honolulu Laboratory* | Honolulu, Hawaii |
| F/NWC | Northwest and Alaska Fisheries Center (NWAFC) | Seattle, Washington |
| F/NWCx9 | Auke Bay Laboratory | Juneau, Alaska |

NOTE: A * indicates a Regional Field Office located at a Laboratory

CENTRAL OFFICE (Washington, D.C.)

| | |
|---|---|
| F/M4 | Office of Protected Species and Habitat Conservation |
| F/M42 | Habitat Conservation Division |
| F/S1 | Office of Resource Investigations |



Center habitat research programs are designed to help NMFS Regional and Headquarters staff address important resource management issues. The Northeast Fisheries Center (NEFC) conducts laboratory and field research on North and Mid-Atlantic offshore, coastal, and estuarine species and habitats. The work focuses upon the effects of ocean dumping, petroleum development, and coastal urban and industrial expansion on coastal and offshore fisheries and marine mammal resources. The NEFC has undertaken broad research programs to (1) monitor the distribution, abundance, and health of North and Mid-Atlantic biological resources and (2) examine the effects of pollutants and natural processes on these resources. The tremendous number research effort.

The Southeast Fisheries Center (SEFC) has focused upon the effects of habitat defradation and loss on the estuarine and coastal ecology and food webs of the Gulf of Mexico and the South Atlantic. Not surprisingly, much of the research is conducted on the status and habitat requirements of the Gulf shrimp fishery which was in 1982 the single most valuable U.S. fishery (worth over $509 million in ex-vessel prices alone).

The Southwest Fisheries Center (SWFC) habitat-related activities are concentrated on the valuable striped bass fishery and the effects of pollutants, fishing activities, and natural oceanographic events (such as El Nino) on the offshore and coastal fisheries of the region. Marine mammal research is also a key element of the SWFC habitat research program.

The Northwest and Alaska Fisheries Center (NWAFC) investigates habitats and resources affected by petroleum development, hydroelectric power development, logging, mining, and urban pollution. Field and laboratory research programs conducted in cooperation with other NOAA elements have examined relationships between environmental contaminants and diseases of demersal fish. The Alaskan arctic and subarctic environments pose unique challenges to the NWAFC research program because research results from other areas generally do not apply to these regions and research operations in these remote areas are very expensive.

## RESOURCES UNDER NMFS JURISDICTION

Although NMFS is generally responsible for the management of living marine resources and their habitats in the Federal Fisheries Conservation Zone (FCZ) 3-200 miles offshore, its responsibilities also extend into other geographic areas.

Because salmon and other anadromous fish migrate from the ocean to spawn in the rivers where they were born, NMFS works with the U.S. Fish and Wildlife Service and state and regional agencies to ensure that upriver spawning and migratory habitat is not unnecessarily blocked or disrupted by construction, damming, and logging activities. In addition, because estuaries are vitally important to many valuable commercial fish species (including shrimp, clams, crabs, and oysters), NMFS plays an active role in the development of estuarine management plans to allow for equal consideration of important fishery habitats during plan preparation.

## PROGRAM ACCOMPLISHMENTS

## MAJOR ISSUES AND EVENTS

### NMFS HABITAT CONSERVATION POLICY ADOPTED

The NMFS Habitat Conservation Program took a major step forward in 1983 with the completion and adoption of the NMFS Habitat Conservation Policy (HCP). The HCP emphasizes the importance of habitat conservation for sound fisheries management, forges a closer alliance between NMFS, the Regional Fisheries Management Councils, and coastal states, and provides guidance for improved coordination between NMFS habitat research and management activities.

The Regional Councils are independent bodies charged with the responsibility under the MFCMA for preparation of fisheries management plans (FMPs). Each management plan must specify the optimum yield (OY) for each fishery managed under the MFCMA. OY represents the maximum sustainable harvest of a species as modified by relevant ecological and economic factors. The amount and quality of suitable habitat is a major factor in the productivity of a fishery and on the calculation of OY. The HCP states that NMFS will rely to a greater degree on its partnership with the Councils in habitat conservation and enhancement during plan preparation and in addressing potential threats to the health of the fishery.

The HCP recognizes that NMFS Center fishery ecology and marine pollution research is important to the objectives of both the Regional programs and the Councils. It directs the NMFS Centers to provide information on the state of the fisheries being managed, work with Regional Offices to identify and weigh the threats to the habitats of those fisheries, and develop strategies to address the threats.

The NMFS will continue to provide recommendations, under the HCP and the laws mentioned above, to agencies proposing or licensing activities which may affect living marine resource habitats. Examples of these activities include the Army Corps of Engineers dredge and fill permit program, Outer Continental Shelf oil development, ocean dumping, and hydroelectric power projects. The HCP encourages NMFS to become more actively involved in the identification of potential issues or conflicts at the pre-application or early planning stage of projects. This greatly reduces the chances of unnecessary permit delays.

The NMFS Central Office is coordinating the implementation of the HCP across all NMFS program lines. See Appendix II for a complete text of the policy.

## NMFS SIGNS PILOT MITIGATION BANKING AGREEMENTS IN SOUTHERN CALIFORNIA AND LOUISIANA

Two interagency mitigation bank agreements signed by the NMFS Southwest and Southeast Regions will ensure enhancement of deteriorating habitat while allowing essential development to occur. Habitat rehabilitation or improvement, as measured in habitat "units," will establish credit to be drawn upon for debiting against future unavoidable habitat losses. NMFS has signed mitigation bank agreements with Tenneco, Inc. and the Port of Long Beach, California in an effort to conserve and enhance productive coastal habitats while reducing the chances of unnecessary delays which can occur during the normal permitting process. As these are the first mitigation bank agreements entered into by NMFS, they will be carefully evaluated over the coming year for their effectiveness in conserving important fisheries habitats.

The Tenneco mitigation bank, encompassing 5000 acres of marsh in Terrebonne Parish, Louisiana, will authorize the construction of several water management structures to help stop the accelerating marsh loss in the area (the Mississippi River Delta is currently losing over 50 square miles per year of productive coastal marshes, due to coastal erosion, saltwater intrusion, and canal dredging). An interagency team determined the value of the existing habitat for important fish and wildlife species, including brown and white shrimp, menhaden, and croaker. Each signatory agency must approve all debiting of habitat units previously credited to the bank as wetland improvements. This program, which is to last 25 years, or until all available habitat units are "spent," will be evaluated after the first, fifth, and twenty-fifth years of operation.

Under the Long Beach agreement, the port has agreed to restore tidal influence to a portion of degraded salt marsh habitat in the Upper Newport Bay Ecological Reserve as compensation for several anticipated port-related fill projects in Long Beach Harbor. Once completed, the restored area will serve as a shallow, protected embayment providing critical nursery habitat for numerous marine fish and shellfish of commercial and recreational importance. Future studies will evaluate the success of the restoration project. Although off-site trade-offs are not usually encouraged by NMFS, they are necessary in Southern California due to the lack of remaining coastal habitat available for enhancement.

## NORTHEAST REGIONAL ACTION PLAN ADDRESSES THREATS TO MARINE HABITATS

The Northeast Region and Center have developed a Regional Action Plan (RAP). They have jointly designed and implemented the RAP to identify, rank, and address future threats to the region's living marine resources and habitats. This process represents the first permanent, formally-established link in NMFS between research and management for habitat-related issues.

Using data generated by the Northeast Center and other research groups, NMFS identified six "water management units" (WMUs). Each of the six WMUs from Cape Hatteras to Nova Scotia is relatively consistent in its physical, chemical, and biological characteristics. The RAP goal is to develop long-range research and management strategies for addressing proposed or on-going actions potentially affecting important living marine resources or their habitats in each WMU.

Major regional habitat issues include non-point source pollution, coastal development (primarily dredge and fill), ocean disposal, industrial and domestic waste discharge, OCS petroleum activities and hydropower dams. Significant progress was made in developing strategies to deal with several of these issues. For example, the Ocean Dumping Working Group contributed substantially to the development of a NMFS/NOAA position paper on sewage sludge disposal in the New York Bight including scientific justification for the position.

RAP is expected to greatly aid the Northeast Region and Center in their work with Fishery Management Councils particularly with regard to the development of fishery management plans. The RAP process will be carefully evaluated for its applicability to other areas.

## NMFS PARTICIPATES IN THE DEVELOPMENT OF NATIONAL ARTIFICIAL REEF GUIDELINES

The NMFS Habitat Conservation and Fisheries Management staffs represented the Department of Commerce during the development of National artificial reef guidelines with four other Federal agencies. A Memorandum of Understanding (MOU), expected to be signed soon, encourages the proper placement and use of artificial reefs for the enhancement of fishery resources in order to improve recreational and commercial fishing opportunities in U.S. coastal waters.

Artificial reefs, if properly sited and constructed, can greatly enhance marine habitats, by providing shelter and food for many valuable species. The MOU focuses particularly upon the potential value of the approximately 4,000 oil production platforms currently offshore in the Gulf of Mexico. It outlines a coordinated approach to the siting and use of non-producing oil structures as artificial reefs. However, important legal and scientific questions must be addressed before extensive artificial reef development can occur. These include the potential for obstruction of navigation and trawling, the liability for fishing gear damage, and the appropriate criteria for reef site selection.

The NMFS Northeast Region has undertaken several activities to further interest and knowledge of artificial reefs. These include the funding of a project to translate to English and summarize Japanese literature on artificial reefs, assisting the state of Delaware in organizing and acquiring funding for an artificial reef siting program, and co-sponsoring artificial reef symposia.

## SIGNIFICANT FEDERAL PROJECTS REVIEWED AND MONITORED BY NMFS

During 1983, NMFS reviewed and monitored proposed projects and permits potentially affecting living marine resources and their habitats. The most significant of these are highlighted below.

### WESTWAY HIGHWAY PROJECT, New York City

A NMFS review of this $2.4 billion highway, landfill, and development proposal for Manhattan's Lower West Side recommended against the proposed filling of 200 acres of the Hudson River. The project site appears to be critical overwintering habitat for the severely depleted striped bass and a variety of other commercially important species. Significant numbers of juvenile striped bass overwinter among the piers located at the project site. The exact reasons why this area is utilized remains unknown.

Striped bass population declines have been linked, in part, to loss of habitat and water quality degradation. Striped bass fishery management plans have noted the need for sound management of remaining habitat. A NMFS review of the environmental data submitted by the applicant revealed several technical problems resulting in the underestimation of project impacts. NMFS concluded that the project as proposed constituted an unacceptable loss of valuable striped bass habitat. In addition, NMFS called for additional studies to document the relative importance of the project site to the Hudson River populations of striped bass and other species.

The matter is the subject of a current court suit brought by Sierra Club and several other groups utilizing NMFS's findings. After much controversy and two court decisions overturning the Corps' decision to issue a permit, the Corps agreed to require a 2-year study of the Hudson River striped bass fishery before any permit can be issued. At present, the issue remains unresolved due to recent efforts by the State of New York and the Corps to review earlier decisions in a Supplemental Environmental Impact Statement.

### CORPUS CHRISTI, TEXAS SHIP CHANNEL DREDGING PROJECT (Nueces Bay)

NMFS was instrumental in preventing the proposed disposal of spoil material on 1200 acres of important intertidal and shallow-water habitat in Nueces Bay from the deepening of Corpus Christi's inner harbor. The project originally proposed the alteration of over 2240 acres of habitat. It was estimated that 30 percent of the white shrimp and 50 percent of the brown shrimp

reared in the entire Corpus Christi-Nueces Bay estuary are dependent upon Nueces Bay. The per acre fishery harvest value of the proposed disposal site was calculated at over $2,200 per year. Total annual losses to the shrimp fishery as a result of the project were estimated at $2.64 million.

Based upon these figures, NMFS and the Gulf of Mexico Fishery Management Council, with support from the fishing industry and conservation groups, opposed the spoil disposal plan and recommended a less damaging upland disposal alternative. As a result, the Corps revised the plan establishing upland disposal sites to accommodate the spoil material over the 25-year project life. Studies will be undertaken to assess the use of a less environmentally sensitive area for spoil disposal after 25 years. Nueces Bay stands as an excellent example of the effectiveness of a partnership between NMFS and the Councils in conserving productive fishery habitats.

MOUTH OF THE COLORADO RIVER PROJECT, Matagorda Bay, Texas

The NMFS, together with the Councils, Congressional representatives, and conservation groups, successfully convinced the Corps to concurrently authorize the construction of a navigation channel to the Gulf of Mexico and a fresh water diversion channel into Matagorda Bay. The fresh water diversion channel, designed to transport nutrients and sediments to Matagorda Bay, will add tremendously to the bay's fishery productivity (at an attractive benefit-cost ratio of 20.2). The project represents a rare opportunity to actually enhance important fishery habitat through man-made alteration.

NMFS PLAYS MAJOR ROLE IN PROTECTING ANADROMOUS FISH HABITATS AS A MULTITUDE OF SMALL HYDROELECTRIC POWER PROJECTS ARE PROPOSED

The NMFS is consulting with the Federal Energy Regulatory Commission (FERC) and project applicants on over 600 hydroelectric power project proposals nationwide. These projects have developed largely because of Congressional passage of the Public Utility Regulatory Policies Act of 1978 (PURPA), the Energy Security Act of 1980, and the Windfall Oil Profits Tax Act of 1980, which together encourage the development of alternative energy sources.

Much of this activity is occurring in the Pacific Northwest. NMFS Northwest Regional staff have been working for the past two years with the FERC on licenses for over 560 small hydropower projects, all of which pose some degree of threat to anadromous fish spawning and migratory habitat. The NMFS has experienced serious difficulties in dealing with the FERC on a

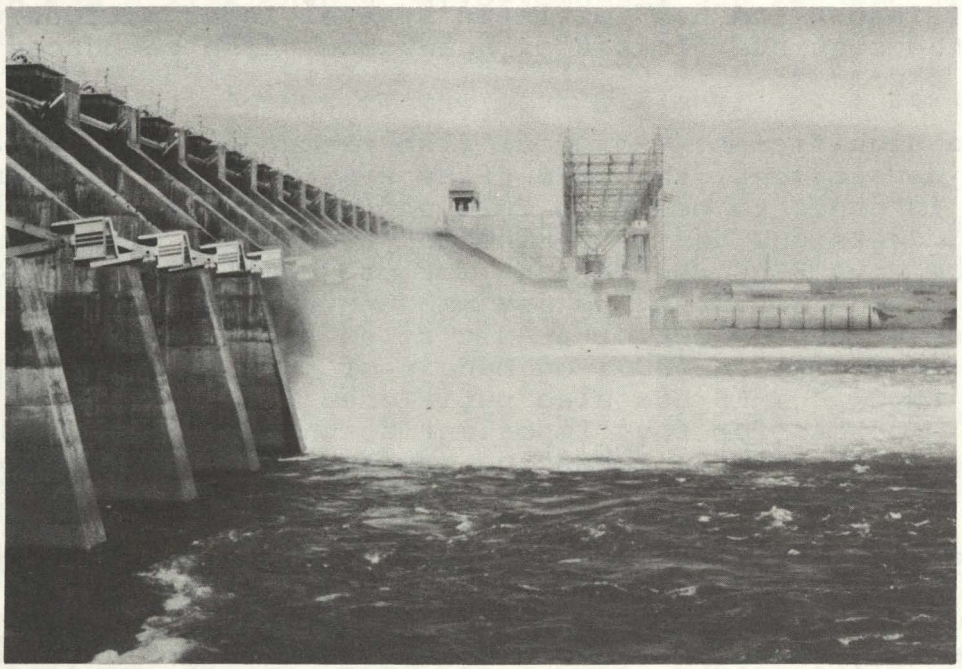
number of issues and has initiated several legal actions to prevent the continued losses of anadromous fish resources in this area.

When significant anadromous fish resources are threatened by proposed development, the NMFS files Petitions to Intervene with the FERC in order to become a full and active party to FERC licensing decisions and sets mandatory terms and conditions in accordance with FERC regulations for projects exempted from licensing. The authority to set mandatory terms and conditions is currently the subject of a suit filed against the FERC by the Department of Justice (DOJ) on behalf of the Department of Commerce (DOC). NMFS has also petitioned FERC to combine all proposed projects for four important Northwest river basins into consolidated basin-wide licensing proceedings to help assess the cumulative impacts of numerous project proposals.

Anadromous fish resources are extremely valuable to the region's economy. An example is the annual value of the anadromous fish in the North Umpqua River, Oregon, estimated by NMFS at $14.5 million. Such fish resources are extremely vulnerable to projects placed across the migration route. The FERC allowed the Winchester, Oregon Water Control District and the Elektra Power Corporation to construct a hydroelectric project on the North Umpqua River without enforcing the terms and conditions set by NMFS for that project. As a result of the FERC's lack of action and assertions regarding NMFS authority, the previously mentioned suit was filed by DOJ. The NMFS has sought assurances that adequate fish screening devices, seasonal operating restrictions, and other mitigating measures are utilized during project construction and operation.

In another case, NMFS succeeded in obtaining revised interim flows during 1983-84 for 54 miles of critically important salmon spawning habitat in the upper Columbia River just below the Priest Rapids Dam. In past years of low precipitation, millions of salmon fry have perished due to inadequate water flow below the dam. It is anticipated that this habitat will be assured permanent flow protection as a result of an upcoming June 1984 FERC hearing.

In another Columbia River case, DOJ has filed suit on behalf of the DOC in regard to the relicensing of Rock Island Dam to assure that adequate turbine bypass facilities are developed for juvenile salmon and steelhead migrating to the ocean. A decision is expected this year



Above: Priest Rapids Dam on the Columbia River. NMFS was successful in obtaining interim flows released downstream from this dam in 1983 to protect fall chinook salmon eggs and fry downstream. Below: Fall chinook salmon fry dug from spawning nests downstream from the Priest Rapids Dam in 1976, when millions of salmon perished due to inadequate river flow. Photos courtesy NMFS Northwest Region, Environmental and Technical Division, Portland, OR.

On December 16, 1983, the Northwest Region printed a brochure entitled "Policies and Role in Reviewing Small Hydroelectric Developments in the Pacific Northwest." This document has been developed to prevent misunderstandings on the part of developers during their consultations with NMFS.

The NMFS Alaska Region has moved to intervene in the Susitna River Hydroelectric Project which is the largest hydroelectric facility ever considered by the FERC. The project includes plans for an earthen/rockfill dam 900 feet high and a second downstream dam 650 feet high. All five species of Pacific salmon use this important Alaskan river system. NMFS is considering in-stream flow recommendations and mitigative measures to help offset lost salmon spawning habitat and has been meeting with the applicant to resolve the remaining fishery issues.

The NMFS has also worked with the FERC to protect anadromous fish from hydroelectric development on the Atlantic Coast. The Northeast Region has successfully cooperated with FERC on projects affecting Atlantic salmon, shad, and striped bass. Shortnose sturgeon, as an endangered species, has been afforded special consideration during hydroelectric project development.

## NMFS RECOMMENDS EXPERIMENTAL USE OF MID-ATLANTIC OCEAN DUMPING SITE

NOAA presented NMFS comments and recommendations in August 1983 to the Environmental Protection Agency (EPA) on the fisheries issues associated with an ocean dumping site 106 miles southeast of New York City. At present, sewage sludge from the New York metropolitan area is dumped at the 12-mile dumpsite in the nearshore New York Bight Apex. The Apex supports several important commercial fisheries, and is a spawning and nursery ground for over 50 species of coastal marine fish.

Studies have indicated that the discharge of sewage sludge at the 12-mile site has harmed shellfish, finfish, and other living marine resources (particularly those which live within or near contaminated bottom sediments). Shellfish harvesting has been prohibited within a 6-mile radius of the 12-mile site and adjacent coastal areas of Long Island and New Jersey.

The EPA proposed to designate the 106-mile site as an approved dumping site for sewage sludge and certain industrial wastes. The NMFS recommended that (1) the 106-mile site be used and monitored on an experimental basis, and (2) the EPA conduct a comprehensive assessment of all dumping options (including land-based options). The NMFS Northeast Fisheries Center has completed a report for EPA on the proposed 106-mile site which synthesizes the fisheries and environmental data for all waters

within or likely to be affected by the dumpsite. EPA is currently reviewing NMFS and other agencies comments on the proposed move.

## NMFS TECHNICAL ASSISTANCE AND RECOMMENDATIONS UTILIZED BY THE DEPARTMENT OF THE INTERIOR FOR OUTER CONTINENTAL SHELF OIL AND GAS LEASE SALE ACTIVITIES

NMFS, through NOAA, participated actively during 1983 in the Department of the Interior's (DOI) Outer Continental Shelf (OCS) lease sale activities providing fisheries data and recommendations to mitigate the potential impacts of offshore oil and gas development on living marine resources. NMFS furnished detailed comments and recommendations during all important OCS lease sale stages, served on Biological Task Forces for the Atlantic and Alaska OCS regions, and provided data and technical assistance to DOI on important fisheries resources and habitats potentially affected by OCS operations.

The OCS leasing, traditionally limited to Southern California and the Gulf of Mexico, has in recent years accelerated and expanded into previously unexplored "frontier" areas such as the Atlantic and Alaska. Of the 20 pre-lease decision stages reviewed by NMFS in 1983[1], 13 were for sales in frontier areas. Under the DOI's new "area-wide" offerings, virtually all OCS acreage in a region is offered and evaluated for leasing for an individual sale. This has required research and analysis by NMFS and others on the living marine resources inhabiting over 940 million acres; approximately 85 percent of this acreage is in frontier OCS areas.

The NMFS reviews and recommendations have helped DOI to assess more accurately the potential impacts of exploratory drilling on the habitats which support important recreational and commercial fisheries, marine mammals, and endangered species. For example, NMFS's Northeast Region and Center review of the Draft Environmental Impact Statement (DEIS) for North Atlantic Lease Sale 82 contributed significantly to DOI's successful efforts to prepare a much more complete and thorough impact assessment for the Final EIS. The revised document discusses a much broader range of alternatives, including several that NMFS proposed for evaluation because of their importance to living

[1]NMFS normally reviews all major public comment documents released during the 22-month OCS lease sale process. Comments are submitted on Resource Report Requests, Calls for Information, Draft Environmental Impact Statements, and Proposed Notices of Sale.

marine resources. The final document utilizes much data provided by the NMFS Region and Center and presents it in a more complete and accurate manner. The NMFS also worked with DOI in determining the boundaries of submarine canyons to be deleted from this sale. NMFS manned and unmanned surveys of these canyons found that they provide habitat for several commercially valuable fish and shellfish, including lobster, tilefish, hake, squid, and cod.

Of the several OCS Biological Task Forces (BTFs) on which NMFS serves, the most visible is the Georges Bank BTF. Originally set up in 1979 to monitor the impacts of OCS Lease Sale 42, this BTF developed a monitoring program which focuses upon the effects of oil and gas drilling discharges on bottom-dwelling organisms. Results of the first two years of monitoring indicated insignificant regional or site-specific changes in bottom communities. The BTF is currently reviewing the most recent results of the monitoring program and is developing new monitoring strategies to cover future North Atlantic lease sales.

Alaska's OCS, which represents 65 percent (by area) of the nation's total, is currently seen as the most promising region for offshore oil and gas exploration. Alaska's OCS and coastal waters also support some of the nation's most valuable commercial fisheries (including salmon, halibut, crab, and herring) and provide habitat for many marine mammals including bowhead, humpback, gray, sperm, sei, and right whales, the northern fur seal, and the sea otter. NMFS, as the Federal steward for most marine mammals, continued to consult in 1983 with DOI and the oil industry on measures to minimize the impact of oil and gas operations in the Bering Sea and the Beaufort Sea.

Much of this consulation focuses on the endangered bowhead whale. The NMFS assisted DOI in developing seasonal drilling restrictions and monitoring programs to protect the bowhead whale from oil and gas construction and drilling operations during this whale's annual migration between the Bering Sea and the Beaufort Sea. The bowhead's depleted population (estimated at less than 3900 individuals) and continuing controversy surrounding the limited harvest allowed for native Alaskan Eskimos ensures that efforts to protect this whale's critical migratory and feeding habitats will remain a high priority in 1984.

Above: Malibu (CA) Lagoon before habitat restoration. Below: Lagoon after restoration. Tidal influence has been restored to the area seaward of the highway bridge. Projects like this are used as compensation for fish habitat destruction. Photos courtesy NMFS Southwest Region, Environmental Assessment Branch, Terminal Island, CA.

## NMFS REVIEWS ARMY CORPS OF ENGINEERS PERMIT ACTIVITIES

The activities described previously are only a part of a nationwide NMFS effort to assess and review actions which could potentially affect living marine resources' habitats. NMFS's participation in the Army Corps of Engineers dredge-and-fill regulatory program remains an important program priority. In 1983, NMFS reviewed and provided recommendations on proposed projects regulated by the Corps affecting over 40,000 acres of marine habitat. A statistical summary of NMFS's involvement in the Corps program is presented in Appendix III.

Over 57 percent of all acreage proposed for alteration was recommended for approval by NMFS. For many projects, NMFS recommended minor or major alterations in project design and revised construction and operation procedures to minimize the cumulative effects of coastal and marine activities on fisheries productivity. For 1983, NMFS recommended approval of 523 projects with minor modifications and 424 projects with major modifications from a total of 7544 public notices received. NMFS recommended that 169 projects (2.2 percent of the total received) be denied.

Often NMFS will meet with an applicant prior to the submittal of an application in order to identify and address problems before the formal application process. As an example, NMFS Northeast Regional staff met with representatives of Bath Iron Works, a shipyard in Central Maine, four times to discuss a proposed 1.5 acre fill project in a wetland. As a result of these meetings, the parties agreed that the fill would be allowed provided an adjacent degraded coastal salt marsh owned by the applicant was restored. When the application was filed, NMFS had no objection to the permit which was subsequently issued without delay. Obviously, the amount of habitat conserved by these informal pre-application consultations is difficult to document, but it is clear that this procedure helps to reduce the scope and effect of many projects while allowing essential development to proceed.

Current Corps regulations require that a permit be issued only if found to be in the public interest. This determination is based upon whether (1) the project is water-dependent, (2) the need for the project has been demonstrated, (3) there exist any feasible alternatives, and (4) environmental damage is minimized. In evaluating an applicant's permit request, the Corps is required to give great weight to the views of the Federal and state fish and wildlife agencies on fish and wildlife considerations.

Mitigation (e.g. minimizing or compensating for habitat loss) is an important tool for allowing permit approval for projects which satisfy other Corps criteria. Generally, "mitigation" means a reduction in project impacts; defined strictly, it means a modification of project design and operation to reduce impacts. The creation or enhancement of like habitat to offset the loss of habitat due to a project is more appropriately termed "compensation."

Eelgrass planting activities in California. Eelgrass transplants are currently being evaluated for their use as a mitigation technique for permits authorizing development. Photo courtesy NMFS Southwest Region, Environmental Assessment Branch, Terminal Island, CA.

In 1983, NMFS recommended that over 13,800 acres be generated or restored as mitigation for habitat losses. Some mitigation proposals (as in the case of the Bath Iron Works project) are quite small while others may involve thousands of acres. Some new approaches to project mitigation are currently under review. For example, NMFS Southwest Regional staff are working on pilot eelgrass transplanting project in Humboldt Bay (CA) to determine the feasibility of restoring eelgrass as project mitigation. The pilot planting has been highly successful, and it is hoped that eelgrass transplants can be used as mitigation for the proposed development of two offshore oil platform construction sites in the area.

As a general rule, compensation must be carried out using like habitat within the same area; however, the lack of suitable compensation habitat left in areas like Southern California has necessitated off-site habitat restoration or generation. NMFS Southwest Regional staff continued in 1983 to identify all available coastal sites suitable for habitat generation or restoration.

On occasion, projects which involve unacceptable losses of fisheries habitat are recommended for denial by NMFS but are approved by the Corps. A 1982 interagency Memorandum of Agreement between the Corps and the resource agencies allows NMFS to elevate these permits for consideration at higher levels of both agencies if all earlier efforts to negotiate a compromise have failed.

## NMFS FOLLOW-UP STUDIES

### NMFS REGIONAL STUDY ON CORPS ACCEPTANCE OF NMFS RECOMMENDATIONS INDICATES DECLINING SUCCESS RATE; APPLICANT COMPLIANCE APPEARS IMPROVED

The third year's results of a study conducted by the NMFS Southeast Region indicate that the NMFS's success in conserving fisheries habitats through recommendations to the Corps on dredge and fill permits is declining. Earlier nationwide data found that 90 to 95 percent of all Corps permits issued contained NMFS recommendations; this percentage varied widely among Corps districts, ranging from 100 percent in some to 66 percent in others. The 1983 results of a Southeast Region follow-up study on Corps permits concluded that NMFS recommendations were included in 82 percent of the permits issued. In two Corps districts, NMFS recommendations were included in only 55 and 68 percent of the permits issued.

The Southeast study is conducted in two phases. First, approximately 100 Corps permits are selected at random to determine whether NMFS recommendations were included. Second, each project site is visited to determine the applicant's compliance with the permit conditions. A comparison of the 1981, 1982, and 1983 data indicates a steady decline (from 98 to 82 percent) in the percentage of permits issued with NMFS recommendations. Most of this decline occurred in the Jacksonville District ( a decline from 93 to 55 percent acceptance) and the Mobile District ( a decline from 94 to 68 percent acceptance).

The Southeast study also indicates that applicant compliance with permit conditions has improved to 90 percent (as compared to 82 percent in 1981 and 75 percent in 1982). This is an encouraging change from the results of earlier studies. For example, a 1981 Northeast Region study on applicant compliance with permit conditions for bulkhead projects found that 25 percent of the projects visited were not built in compliance with permit conditions recommended by NMFS. As a result, important intertidal and wetland habitats were lost or degraded.

These data should be examined with caution since they are not complete and do not necessarily reflect nationwide trends. NMFS will continue in 1984 to monitor, when possible, the acceptance of and compliance with recommendations to minimize project impacts upon important fishery habitats. This analysis will focus upon the extent to which the revised 1982 Memorandum of Agreement (MOA), which grants important new authorities to the Corps District Engineers, reduces NMFS's ability to raise

important fisheries issues for high level Agency consideration. In addition, NMFS will continue to examine, where feasible, applicant compliance and will strive to inform project developers and contractors of the importance of coastal and estuarine habitat to the Nation's living marine resources and economy.

## NMFS INTERAGENCY PLANNING

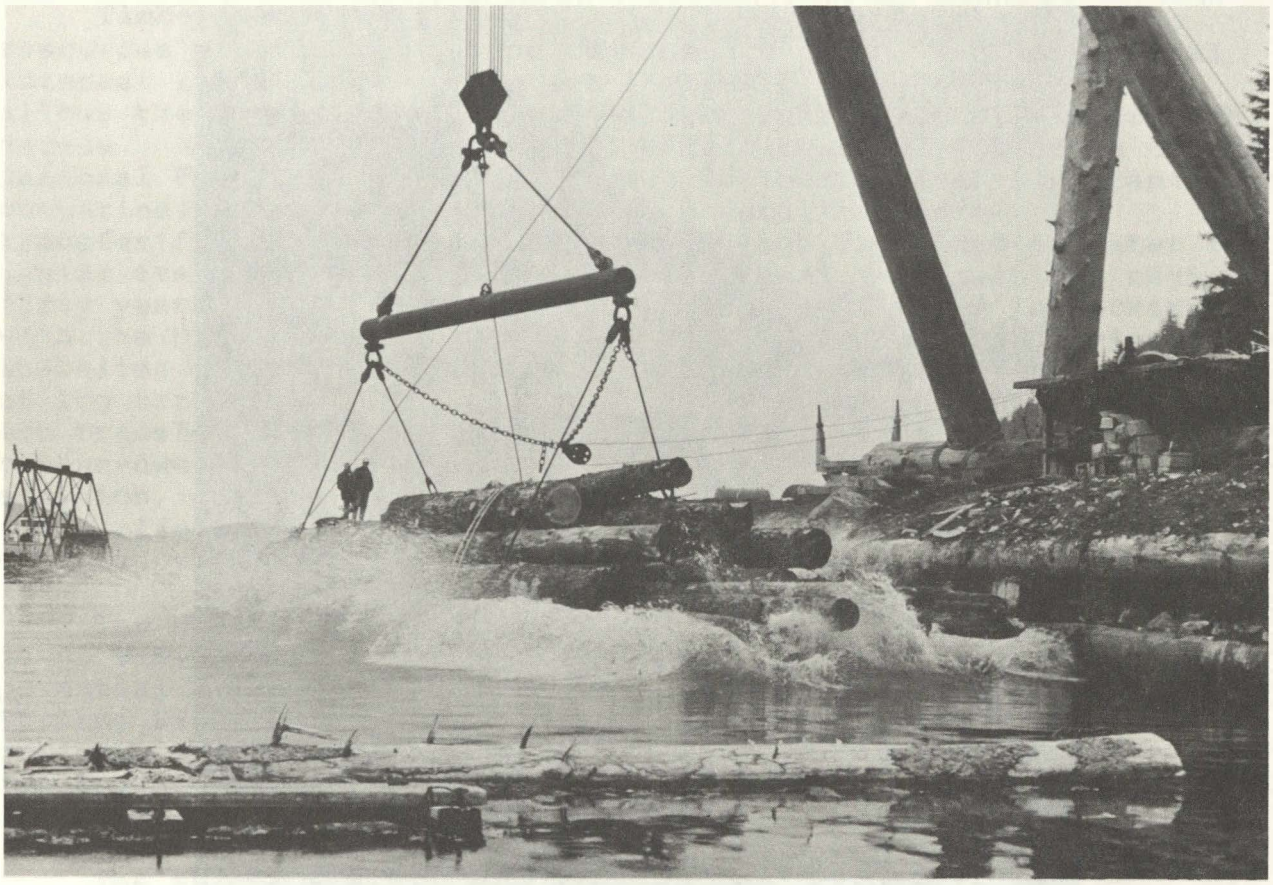
NMFS Regions and Centers participated in 1983 in several planning efforts intended to conserve and protect fisheries habitats during future major resource development programs. These activities are among the most important activities undertaken by the NMFS Habitat Conservation Program. NMFS is also identifying the research needed to support these management programs. These efforts are attempting to change the traditional "reactive" stance adopted by NMFS and other resource agencies when confronted by major new development proposals. Earlier lack of planning has often led to controversial permitting or licensing delays and added costs to both agencies and developers.

With active interagency planning, fish habitat concerns can be presented early in the project planning phase and mitigated far more easily, and NMFS can become involved in large numbers of projects with much less effort than on an individual permit or project basis.

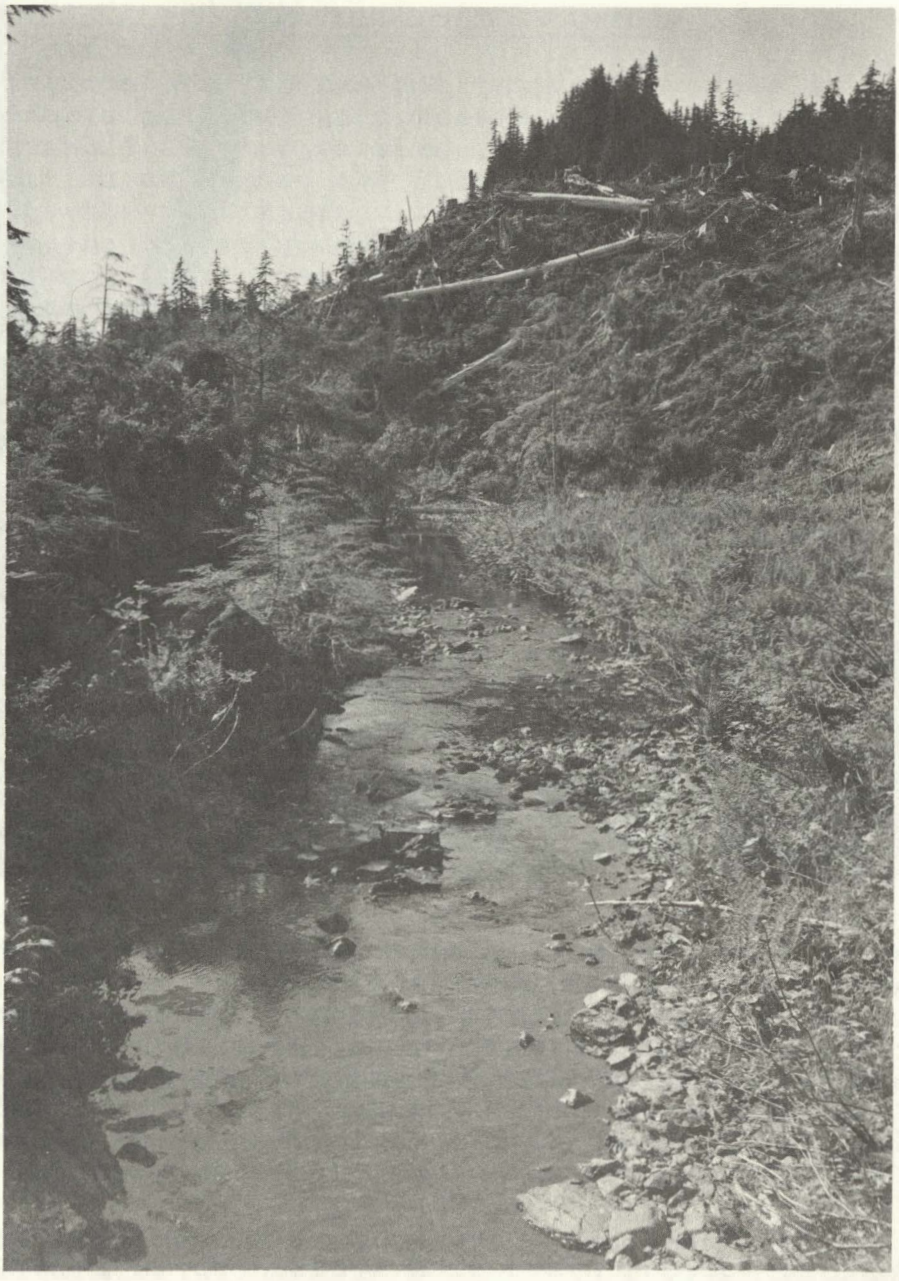
### 1983 INTERAGENCY PLANNING ACTIVITIES AND ACCOMPLISHMENTS

NMFS takes part in interagency work nationwide including ongoing planning efforts in Alaska where NMFS staff have assisted in the planning of major new mining and logging activities in coastal and offshore areas. For example, a proposed 70-year, open-pit molybdenum mine at Quartz Hill in Southeast Alaska, which will result in the removal and disposal of 2.3 billion tons of ore, waste rock, and overburden, is undergoing a detailed environmental review by NMFS and other agencies. The total land area to be affected by the mine is an estimated 3,000 acres. Of foremost concern to NMFS is the planned disposal of mine tailings in a marine fjord (causing increased siltation and sedimentation) and the loss of anadromous fish habitat due to road, wharf, building construction, and water withdrawal. NMFS research will be conducted on the potential physical, chemical, and biological effects of tailings disposal onto productive coastal habitats.

Another important mining proposal in Alaska that will be reviewed by NMFS is the Beluga Coal Field Project in Cook Inlet, an open-pit mining operation which would de-water or reduce flow rates for several streams providing spawning and rearing habitat for king, pink, chum, and silver salmon. Other future proposed activities include a world class zinc mining project in the foothills adjacent to the Chukchi Sea and several gold dredging and placer mining projects.



Releasing a bundle of logs at a log transfer facility in Southeast Alaska. Large quantities of bark are lost during this process resulting in localized accumulations of woody debris on the bottom which are harmful to Dungeness crabs, clams, and other marine organisms. Photo courtesy NMFS Auke Bay Laboratory.



The borders of a small stream in southeast Alaska have been clearcut removing the forest canopy that formerly provided good rearing habitat for juvenile coho salmon. Fry production in such areas is enhanced by more light and food, but overwinter habitat is reduced resulting in less over all smolt production. Photo courtesy NMFS Auke Bay Laboratory.

Timber harvest is also a major threat to Alaska's marine resources particularly since the passage of the Alaska National Interest Lands Conservation Act (ANILCA). This legislation allows the harvest of over 4.5 billion board-feet of timber each decade. A 10-year harvest would affect over 180,000 acres of National Forest land, most of which is located near important estuarine, riverine, and nearshore coastal habitats. Log transfer facilities (used to transfer logs from land to water for easier transport) are expected to more than triple in the next fifty years (from 87 in 1981 to 305 in 2030). NMFS is working with the U.S. Forest Service and the timber industry to minimize shoreline alterations and prevent major water quality degradation at log transfer and storage sites. Deposits of woody debris at log transfer and storage facilities can cause a reduction in botton-dwelling organisms important to many fish species. In addition, certain compounds leached from the logs may have direct toxic effects upon local aquatic life. Each log transfer site may occupy 10 to 15 acres of valuable coastal habitat.

The NMFS Regional personnel are also participating in a joint U.S./Canada planning and research program to document the potential effects of five proposed hydroelectric dams on Canada's Stikine River. In 1983, NMFS conducted studies to determine the projects' effects upon juvenile salmonid habitats. Of major concern are the changes in juvenile salmon rearing habitat anticipated from regulated flows.

The NMFS Northwest Regional and Center staff have participated in the Columbia River Fish and Wildlife Program, one of the most complex regional planning efforts ever undertaken. Federal and state fish and wildlife agencies, Indian tribes, the Bonneville Power Administration (BPA), and hydropower operators have cooperated in the development of "water budgets" to provide minimum instream flow rates for anadromous fish. They are intended to protect juvenile salmon species during their out-migration and will enhance present spawning, incubation, and rearing habitats for the Columbia River fish resources (estimated to be worth $132 million annually to the region's economy). Several important habitat protection features recommended by NMFS were incorporated into BPA's Regional Energy Plan. These include compensation for unavoidable fish or habitat losses and assurances that fish and wildlife agencies will be consulted during all phases of project planning.

The NMFS Southwest Region and Center staff contributed to the recent development of the California State Water Availability Study. This study, which will be used as the basis for establishment of water quality standards for the San Francisco Bay-Delta region, is intended, in part, to help rebuild the

declining salmon and striped bass populations in this region. At present, several hydroelectric and other power projects are killing significant percentages of both upstream and downstream migrating salmon and striped bass due to inadequate fish protection and passage facilities.

NMFS Habitat Conservation staff have focused their efforts in California on measures to conserve and enhance the habitats of striped bass (whose adult populations in the area have declined 75 percent in the past twenty years) and other anadromous fish resources. The decline of these resources is thought to be the result of several factors including degraded water quality and the numerous water diversion structures built in the Delta and Sacramento - San Joaquin River systems.

NMFS staff are involved in planning efforts to mitigate the impacts of several existing and proposed projects adversely affecting anadromous fish resources in Northern California. These activities include streambank riprap construction, hydroelectric dams, water diversion structures, stream gravel excavation, and mining acid runoff. NMFS efforts are focused on the Sacramento-San Joaquin River System. This area is valuable fish habitat; it is estimated that the average annual value of the chinook salmon run in the Sacramento River alone is $80 million.

Two projects are particularly noteworthy. In August, 1983, NMFS became involved in a proposed project to divert 400,000 acre-feet of water from the Tulare Lake Basin into the San Joaquin drainage system. White bass, a potentially voracious predator of juvenile salmonids, were discovered in Tulare Lake. The NMFS worked closely with the Corps, the project sponsor, and resource agencies on measures (i.e. fish screens and seasonal pumping restrictions) to ensure that white bass will not be discharged into the San Joaquin River system.

NMFS has also worked for some time on the Red Bluff Diversion Dam which has caused a serious decline in fall-run chinook salmon spawning above the dam. Fish are delayed from 1 to 40 days by poorly designed fish passage facilities; over 26 percent of the fish never ascend the fishway and are forced downstream. In addition, a proposed hydroelectric project for the dam could potentially kill or injure 20 million outmigrating juvenile salmon (10 percent of the total outmigration). NMFS personnel are assisting in the development of better fish passage facilities and seeking a positive barrier screen for the hydroelectric project to prevent fish from entrainment into the power turbines.

In coastal Louisiana, where coastal areas are under severe pressures from natural subsidence, urbanization, and extensive canal dredging, NMFS has cooperated with several coastal counties and private landowners on the development of Marsh Management Plans for over 128,000 acres of marsh. These plans are intended to conserve and enhance the habitats and resources of these vital spawning and nursery areas.

The Northeast and Southeast Centers and Regions held a workshop with the U.S. Army Corps of Engineers (Corps) to discuss problems experienced by the Corps in determining benefits to commercial fishing from port development projects. The workshop sought to ensure that the Corps correctly interprets NMFS biological and economic data, and understands all aspects of NMFS interest in a project. For example, fisheries management and development issues are often involved in new port development; these concerns need to be coordinated with the position forwarded to the Corps by the Habitat Conservation staff. This workshop resulted in an agreement to designate single points of contact and develop interagency mechanisms for cooperation on these projects.

In the Northeast Region, several interagency planning efforts are helping to address complex resource management issues. The Northeast Habitat staff participated in the development of harbor enhancement plans for Baltimore and Philadelphia, and served on the Delaware Estuary Urban Waterfront Action Group to help coordinate projects with prospective developers. NMFS also represented marine fishery interests with the Maryland and Delaware Mosquito Control Advisory Committees during the development of mosquito management measures for thousands of acres of coastal marsh and dealt with other interagency committees responsible for planning of projects such as highway construction, dredge spoil disposal, and shoreline stabilization. NMFS participation ensured that fisheries concerns were considered during the environmental review process.

## NMFS FISHERIES ECOLOGY AND MARINE POLLUTION RESEARCH

The NMFS Centers have developed laboratory and field research programs intended to support the Regional and National Habitat Conservation Program activities. Continuous coordination of research and management objectives has been and will remain a high priority for the Habitat Conservation Program. This coordination is accomplished in both an informal and formal manner. The more formal mechanisms consist of workshops and conferences held periodically to identify future research needs and develop more effective ways to integrate research results into the management process.

In 1983, habitat-related research focused upon two important areas: (1) the identification and observation of the habitats and processes supporting fisheries and marine mammals and (2) the effects of man-made alterations and contaminants on these habitats and resources. This research, which is often conducted over a period of years, yielded several important findings over the past year. These are highlighted below:

### NORTHEAST FISHERIES CENTER (NEFC)

The Northeast Monitoring Program (NEMP), a multi-year ecosystem assessment effort undertaken by the NEFC, developed several important reports during 1983. A major report prepared for the Environmental Protection Agency (EPA) synthesized the fisheries and environmental data for the proposed 106-mile dumpsite on the continental shelf southeast of New York City. The report covers the oceanographic and biological characteristics of the site, and the inputs, fates, and effects of the dumped materials. EPA is using this report to determine whether to use this location for future dumping.

The NEMP program also produced the second "Health of Habitats" Annual Report summarizing the results of a broad monitoring effort covering North Atlantic estuarine, coastal, and continental shelf habitats and fisheries. This information will be used in the Regional Action Planning process to address future habitat threats.

Additional research was conducted on the effects of pollutants on marine organisms. Studies on the sub-lethal effects of oil and other pollution are receiving increased attention as they provide important information on living resources inhabiting chronically polluted waters and sediments. For example, a study conducted by the Sandy Hook, New Jersey lab found that clams placed on oil-contaminated sediments burrowed more slowly and to lesser depths than clams on uncontaminated sediments, thus making them more vulnerable to predation. A

study conducted by the Milford, Connecticut lab has found that cellular mutation frequencies in fish living in polluted coastal waters vary more and are higher than frequencies for fish in cleaner offshore waters. It is hoped that this research will yield important information on living marine resources' ability to withstand pollutant-related stress. This in turn will help answer complex management questions related to ocean dumping, non-point source pollution, and OCS oil and gas development.

SOUTHEAST FISHERIES CENTER (SEFC)

Recent SEFC research has further documented the important link between healthy estuarine and coastal habitats and fisheries. It is estimated that 86 percent of the commercial fisheries yield and over 70 percent of the recreational fisheries yield in the Southeast United States are from estuarine-dependent species. The SEFC research is attempting to predict and quantify the effects of habitat alteration or loss on the food chains supporting these resources.

Several important findings emerged in 1983. Research at the Beaufort, North Carolina lab concluded that juvenile menhaden may be directly dependent upon marshes for most of their food. This finding conflicts with earlier conclusions that menhaden are primarily algae feeders. Menhaden's direct usage of marsh material (principally Spartina cord grass) supports the view that marsh destruction or alteration will directly affect coastal menhaden production. In 1982, menhaden landings were 2.8 billion pounds, accounting for 43 percent of all U.S. commercial fisheries landings. Work at the SEFC's Galveston (TX) lab has uncovered new evidence of the importance of intertidal Spartina marsh habitat to juvenile shrimp. New data shows that several species of shrimp utilize this habitat as a nursery ground, for feeding, and as cover against predators.

The SEFC is currently working on a joint research project on transplanting temperate and tropical seagrass. Seagrasses provide critical feeding, spawning, and nursery habitat for shrimp and other important species. Site evaluation criteria, planting techniques, engineering guidelines, and measures to reduce costs have been developed for two temperate species of eelgrass; work is continuing on the tropical species. This research will aid NMFS Regional staff in recommending habitat compensation for coastal development projects in the Southeast United States.

Satellite imagery was used in 1983 by the SEFC to identify hypoxic (oxygen-poor) waters off Louisiana. High nutrient levels in surface waters stimulate algae blooms which sink to the bottom, thus depleting bottom water oxygen levels to toxic

levels. These hypoxic areas, which usually occurred in waters less than 50 meters deep, are virtually absent of shrimp and finfish. The area identified through satellite analysis encompassed approximately 3,000 square miles. Investigators are continuing to assess the effects of this condition on the Gulf shrimp fishery.

SOUTHWEST FISHERIES CENTER (SWFC)

The SWFC provided valuable new data on the effects of pollutants on larval and adult fish. A major thrust of the SWFC work is the study of striped bass which has been severely affected by pollution and habitat disruption. Field research indicates that striped bass chronically exposed to elevated pollutant levels can become more susceptible to diseases and parasites and suffer reduced reproductive capacity. These pollution-related stresses are magnified by continued mortality and injury resulting from poorly designed fish passage and protection facilities at hydroelectric and other power stations.

The SWFC data has been widely used by Federal and state agencies involved in the conservation and enhancement of the remaining striped bass habitat in the San Francisco Bay-Delta Region. This work, which is to be synthesized into a book, will also be useful in enhancing and conserving habitat for other species.

NORTHWEST AND ALASKA FISHERIES CENTER (NWAFC)

The NWAFC's research program produced many important findings on the effects of habitat alteration on living marine resources. Research has focused upon the impacts of urban development and industrial activities on the habitats supporting anadromous species, bottom-dwelling species, and marine mammals.

The Auke Bay Laboratory (Alaska) recently completed a summary report on 10 years of lab and field research concerning petroleum's effects on living marine resources. This research examined the effects of oil-contaminated sediments and food on commercially important species such as Tanner crab, king crab, pink shrimp, and pink salmon. In addition, Auke Bay personnel (as NMFS's representatives on the Alaska Working Group on Forestry-Fisheries Research) (1) produced several papers summarizing the effectiveness of streamside uncut buffer zones in mitigating the impacts of clearcut logging and (2) completed a major study on the effects of log transfer activities on estuarine crab and clam habitats. This work has been widely used by government and industry timber managers.

Research at the Seattle Laboratory has documented the prevalence of liver diseases in bottom-dwelling fish and shellfish living in certain urban waters of Puget Sound. The animals and sediments in these waters have relatively high concentrations of many contaminants including polychlorinated biphenyls (PCBs), petroleum aromatics, and heavy metals. The areas of highest pollutant and disease levels are generally located near highly industrialized and populated coastal areas. The results of this research have been widely reported in scientific journals, the news media, and at two Congressional hearings. These studies have utilized increasingly sophisticated analytical techniques; tremendous advances have been made in detecting and understanding the ways in which contaminants are taken up and metabolized by marine species.

The NWAFC also provided biological and physical information to Federal and state agencies on the key species and habitats of the Columbia River. Research on the transportation of salmon smolts led to actions which increased steelhead runs from 11,000 to 80,000 on the Snake River (a tributary of the Columbia River). Additional research on the effectiveness of fish passage facilities at dams, the maintenance of minimum water flows, and the impacts of dredging and mining operations has also been utilized by all agencies interested in rejuvenating the resource potential of the Columbia River. It is estimated that present runs of anadromous fish in the Upper Columbia River can be increased to seven times their present levels by the 1990's. This enhancement would be worth over $200 million per year to the region's economy.

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## APPENDIX I

### NMFS NATIONAL HABITAT CONSERVATION PROGRAM AUTHORITIES AND RESPONSIBILITIES

This section lists laws of primary importance to the NMFS Habitat Conservation Program:

Fish and Wildlife Coordination Act: This Act is the original Federal policy for fish and wildlife habitat. It requires interagency consultation to assure that fish and wildlife are given equal consideration when a Federal or Federally-authorized project is proposed which controls, modifies, or develops the Nation's waters. The NMFS reviews a wide variety of projects under the FWCA, including the Army Corps of Engineers dredge and fill permit program for U.S. waterways, ocean dumping permits, hydroelectric power project proposals, Federal water projects, and Outer Continental Shelf mineral leasing activities.

National Environmental Policy Act: This legislation specifies that any Federal agency proposing an action which significantly affects the human environment prepare an Environmental Impact Statement (EIS) and consult with the agencies having legal jurisdiction or expertise for the affected resources. NMFS Habitat Conservation field staff review EISs and provide recommendations to mitigate any expected impacts to living marine resources and habitats.

Magnuson Fishery Conservation and Management Act: The MFCMA seeks to develop, manage, and conserve living marine resources and their habitats for the general good of the nation. The law applies to fishery resources found in the Federal Fisheries Conservation Zone (FCZ) 3-200 miles offshore, as well as the stocks which move between state (0-3 miles offshore) and Federal waters. The Act also requires fisheries research, including investigations of the impacts of pollution and wetland/estuarine degradation on fish abundance and quality.

Statutes dealing primarily with protected species also provide for NMFS involvement in marine resource habitats. The Marine Mammal Protection Act of 1972 (MMPA) which establishes (with some exceptions) a moratorium on the taking and importing of marine mammals and their products by persons under U.S. jurisdiction is jointly administered by NMFS and the U.S. Fish and Wildlife Service (FWS). The Endangered Species Act of 1973 (ESA), also handled jointly by NMFS and FWS, provides for the management and recovery of endangered fish and wildlife species, and the designation and protection of their critical habitats.

Other laws, such as the Clean Water Act, the River and Harbors Act, the Continental Shelf Lands Act, the Coastal Zone Management Act and the Marine Protection, Research, and Sanctuaries Act call for NMFS and other natural resource agency involvement in the environmental planning and decision-making process.

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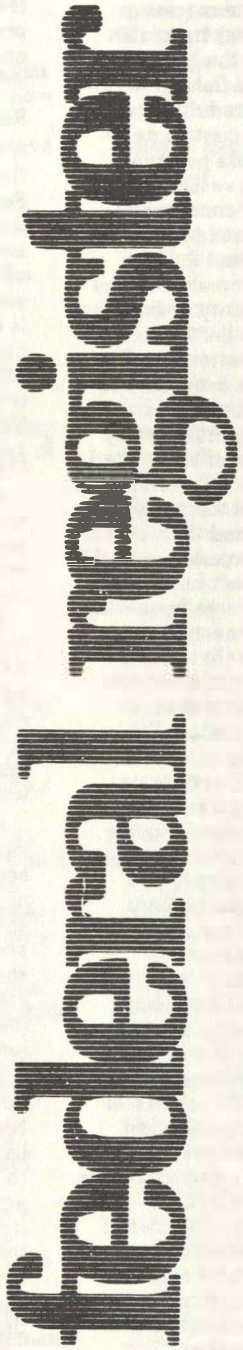


Friday
November 25, 1983

**Habitat Conservation; Policy for National Marine Fisheries Service (NMFS)**

**AGENCY:** National Oceanic and Atmospheric Administration (NOAA), Commerce.

**National Oceanic and Atmospheric Administration**

**[Docket No. 31028-211]**

## Habitat Conservation; Policy for National Marine Fisheries Service (NMFS)

**AGENCY:** National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** Notice of effective NMFS habitat conservation policy.

**SUMMARY:** NOAA issues a policy for the National Marine Fisheries Service (NMFS) which provides a focus for NMFS' habitat conservation activities, while at the same time integrating habitat conservation considerations throughout the major programs and activities of the Agency. The policy also encourages greater participation by the Regional Fishery Management Councils, the States and others in habitat conservation matters. This action is necessary in order to allow NMFS to focus its habitat conservation activities on those species for which NMFS is primarily responsible or which are the subject of a NMFS program. The effect of this policy will be to make NMFS' habitat conservation activities more responsive to the goals and objectives of the Agency as set forth in the NMFS Strategic Plan, and to allow priorities to be set and defended.

**EFFECTIVE DATE:** November 21, 1983.

**FOR FURTHER INFORMATION CONTACT:** Herbert L. Blatt, Chief, Policy Group, NMFS, 202-653-7551, or Kenneth R. Roberts, Chief, Habitat Conservation Division, NMFS 202-634-7490.

**SUPPLEMENTARY INFORMATION:**

### Background

The NMFS has primary Federal responsiblity for the conservation, management, and development of living marine resources and for the protection of certain marine mammals anda endangered species under numerousa Federal laws. The Agency also hasa responsibilities to the U.S. commerciala and marine recreational fishing industry,a including fishermen, and to the Statesa and the general public. Thesea responsibilities are inherent in NMFS'a mission which is "To achieve aa continued optimum utilization of livinga marine resoures for the benefit of thea Nation." NMFS is vitally concerneda about the habitats that support livinga marine resources since the well-being ofa these resources and the fishing industrya depends upon healthy and productivea habitats.a

The U.S. commercial and marine recreational fishing industry makes an important contribution to the Nation's economy. The commercial fishing segment of the industry produces food and industrial goods that contribute $7 billion annually to the gross national product. Including fishing vessels and shoreside businesses, the commercial fishing segment employs nearly 300,000 persons. Marine recreational fishing provides opportunities for recreation as well as a substantial quantity of food for 15 to 20 million anglers in the United States. Catch by marine recreational fishermen accounts for an estimated 30 to 35 percent of the total U.S. finfish harvest used for food. Expenditures by these fishermen, the value of associated industries (such as tackle, boat, and trailer manufacturers, and the party and charter boat industries), and the value of the recreational fishing experience itself are significant components of the U.S. economy. Direct expenditures by marine recreational fishermen are estimated to be at least $5 billion annually, not to mention the indirect economic impacts generated from these expenditures.

Marine mammals and endangered species are also important to the Nation in terms of their domestic and international significance—aesthetic, recreational, ecological and economic.

Coastal and estuarine areas and their associated wetlands are vitally important as spawning and nursery grounds for both commercial and marine recreational fishery resources. Approximately two-thirds of our important fishery resources depend upon these areas which also serve as habitat for many species of marine mammals and endangered species. However, population shifts to coastal areas and associated industrial and municipal expansion have accelerated competition for use of the same habitats. By 1990, 75 percent of the U.S. population will live within 50 miles of the coastlines. Increasing efforts to develop new or alternate sources of energy are further stressing important living marine resource habitats. As a result, these habitats have been substantially reduced and continue to suffer the adverse effects of dredging, filling, coastal construction, energy development, pollution, waste disposal, and other human-relatd activities. In the case of wetlands, from 1954 to 1978 there was a average annual loss of 104,000 acres which was a ten-fold annual increase in acreage lost between 1780 and 1954.

Recognizing the importance of habitat to the management and conservation of living marine resources, NMFS proposed a new habitat conservation policy for the Agency. The notice of proposed policy, published in the **Federal Register** on July 19, 1983 (no. 139), at 48 FR 32847, solicited public comments.

### Response to Public Comments

During the comment period, twenty-five letters were received from other Federal agencies, State governments, Regional Fishery Management Councils, and organizations representing millions of citizens. The commenters, in general, supported the proposed policy, stating it is long overdue and commending the approach. However, certain of the commenters had specific concerns which are set forth below along with NMFS' response.

*Policy*

*Comment:* Implicit in the goal and mission statement of NMFS is the assumption that populations concerned would be usable. This should be clarified.

*Response:* NMFS agrees that the policy should make clear that the habitat conservation activities of the agency are to maintain or enhance the capability of the environment to, among other things, produce fish and shellfish that are safe and wholesome. The wording has been amended accordingly.

*Comment:* Several commenters caution against too narrowly defining scope of policy. It should signify the need to give priority attention to those species for which direct managment presently is Agency responsibility and it should *clearly* state that NMFS has stewardship responsibility for all living marine resources under Federal jurisdiction.

*Response:* NMFS does not believe the language needs modification. While NMFS has overall responsibilty for living marine resources, it is necessary to focus NMFS' habitat conservation activities on those resources over which it can influence management regimes throughout the range of the species. NMFS' activities with respect to one species could benefit other species that depend on a particular habitat.

*Policy Framework*

*Comment:* Suggest clarifying paragraph 1, Policy Framework, to indicate NMFS also has management responsibility for species for which no Fishery Management Plans are planned, such as squid or herring in the Gulf of MexicoaThis could be accomplished by rewording clause "(1) covered or to be covered" to "(1) covered or subject to being covered."

*Response:* For clarity, NMFS agrees to suggested change.

*Implementation*

*Comment:* The coordination mechanism for policy's implementation is not described. It is also not clear how interested public and conservation groups will be able to interact and have input into this important decision.

*Response:* The coordination mechansim will be developed by each region, following national guidelines, during the implementation phase. It is expected that NMFS Regional and Center Directors will discuss their programs with their constituents in order to make determinations with respect to priorities.

*Comment:* In Implementation Strategy No. 4, second sentence, urge addition of "artificial impoundments" to list of activities which have potential for habitat degradation.

*Response:* NMFS agrees to this addition.

*Comment:* Under Implementation Strategy No. 7, suggest policy cover catadromous as well as anadromous species.

*Response:* Suggestion refers to NMFS' involvement in fresh water. While catadromous species are not excluded, NMFS intends to focus on anadromous species.

*Comment:* Implementation Strategy No. 3(a) implies that fishermen may be a threat to fishery habitats. Statement should be clarified to address possible conditions under which fishing poses a threat to habitat.

*Response:* Under certain conditions, fishermen can cause damage to habitats, e.g., bottom gear fishing, vessele discharges, etc. The Regional Fisherye Management Councils may deal withe such under the Magnuson Fisherye Conservation and Management Acte (Magnuson Act), but may not controle actions by others. There was noe intention to single out fishermen as ae threat to habitat as they realize thee importance of healthy habitats and aree beneficiaries of such.e

*Comment:* Implementation Strategy No. 3(a) states that Fishery Management plans should include "proposal of measures to preserve, protect and restore habitat." Should be clarified to indicate range of "measures" which could be implemented. Should also indicate that no measures may be required in many fisheries where habitat issues are not significant.

*Response:* The range of measures is intentionally left up to each Regional Fishery Management Council, depending on needs of the fishery. The Councils will have the same prerogatives regarding habitat conservation that they have with respect to any other management measure contained in the Fishery Management Plans. The language of 3(a) has been modified to indicate that measures will be proposed only where appropriate.

*Role of Regional Fishery Management Councils*

*Comment:* Implementation Strategy No. 3(a) imposes strict requirements on the Regional Fishery Management Councils above and beyond the requirements of the Magnuson Act. Talk of a partnership between NMFS and the Councils is contradicted by a clear threat to disapprove Fishery Management Plans that do not meet requirements proposed by NMFS. Moreover, this strategy is an attempt to reduce the responsibilities of the Councils assigned by Congress.

*Response:* Implementation Strategy No. 3(a) strengthens, not weakens or reduces, the role of the Councils regarding habitat conservation. This strategy does not impose requirements beyond the Magnuson Act, since habitat is an important element in fishery management.

*Comment:* It would be appropriate to refine the planning and implementation strategies to assure the Councils a partnership level role in any actions taken under the policy once it is implemented. If workshops to further develop the policy format are being considered, the Councils would appreciate an opportunity to participate.

*Response:* The Councils are intended to have an important partnership role and NMFS expects to contact them from time to time during policy implementation planning and development.

*Comment:* Minimum Fishery Management Plan descriptions called for could impose an impractical burden on plan development. For example, 80% of salmon catch in Alaska includes fish from habitat areas outside Alaska. The Councils are conscious of importance of habitat and need to protect it, but the Councils are not in a position to carefully review the work of everyone on the coasts and oceans and assess or restate the assessments of other agencies which do monitor the impact those actions may have on the environment.

*Response:* NMFS believes an erroneous impression was created by wording in Implementation Strategy No. 3(a) which stated "The Regional Fishery Management Councils should address habitat considerations in their Fishery Management Plans, where applicable, based on the best available information *from all sources which can be coordinated by NMFS/NOAA.*" The underlined words have been deleted to make clear the Councils will be obliged to review only information made available to them by NMFS/NOAA and others during their plan deliberations. This will be an evolutionary process and will not impose an impractical burden on the Councils in plan development. NMFS will work closely with the Councils to make them aware of habitat conservation matters they might need to consider.

*Comment:* Several commenters stated that Implementation Strategy No. 3 outlines the development of a potentially powerful framework for building a constructive partnership between the Councils and NMFS for habitat conservation. Although the Councils presently may become as involved in maintenance of habitat as their authorities allow, they have played a minor role in habitat conservation to date. If this strategy is to be implemented successfully, NMFS will have to be highly responsive to Council needs with technical assistance and information delivered both timely and adequately. Parhaps Implementation Strategies Nos. 1 and 2 should make an even stronger reference to development of research priorities and programs in response to Council needs.

*Response:* NMFS expects that Implementation Strategy No. 3(b) will result in NMFS providing the Councils with needed information and support. Again, this will be an evolutionary process so as not to place an undue burden on the Councils. The products resulting from implementation of Strategies Nos. 1 and 2 will provide the basis for the information provided to the Councils.

*Comment:* Suggest following change in Implementation Strategy No. 3(a), second paragraph: "Where appropriate, existing FMPs *should* be amended to meet these standards."

*Response:* NMFS agrees to recommended change.

*Comment:* Caution against over reliance on Councils as their desires may not always lead to non-overfishing or non-resource exploitation policies that NMFS supports in conjunction with wetlands protection and fisheries management.

*Response:* NMFS has every confidence that the Councils, in partnership with NMFS, will not undertake actions that will lead to overfishing or over exploitation of the resource.

*NMFS' Role Vis-a-Vis Regional Fishery Management Councils and States*

*Comment:* Several commenters believe that a number of statements within the policy convey the impression that NMFS intends to inject itself into an

active role of fishery management in the Fishery Conservation Zone (which is the responsibility of the Regional Councils) and within the territorial seas (which is under States' jurisdictions). Overall conclusiom is that the policy, as written, suggests the intention of assigning to NMFS a role in fishery management which heretofore has ben filled by the Councils and concerned coastal States.

*Response:* The policy recognizes a partnership between NMFS and the Councils under the Magnuson Act and does not create any greater role for NMFS or the Councils than that which is currently required under the Act. The policy is not intended to usurp the Council's responsibilities. It provides the bsis for considering habitat during the Councils' development of Fishery Management Plans. Moreover, the policy does not provide for NMFS' intervention in State management of State resources in State waters. It indicates that NMFS and the Councils have an interest in conservation of the habitats of species managed under the Magnuson Act.

*Comment.* The policy should provide for recognition of States' roles in habitat conservation and for more definitive mechanisms for working with States in this regard. Several opportunities exist: (a)dUnder Implementation Strategy No. o 1. Regional Directors should includeo State programs in their inventory ofo strategies to address habitat issues.o There should be formal consultationo with. and opportunity for comment by,o States prior to adoption of regionalo habitat protection plans; (b) existingo grant programs should recognize theo validity of habitat conservation matters;o and (c) procedures for NMFS'o coordination with the States regardingo Fish and Wildlife Coordination Acto reviews should be adopted.o

*Response:* Implementation of the policy will be in full recognition of States' roles in habitat conservation. The policy in no way evisions a reduction of State activities. It is expected that States will be consulted during planning and implementation. It is expected that NMFS' grant programs, as well as other programs, will consider habitat as part of the integration process.

*Interactions With Other Agencies*

*Comment:* One State commented that the Corps of Engineers has been traditionally recognized as the Federal agnecy for coastal habitat protection. The Corps' working relationship with coastal States is a long proven process. Implementation of the policy will add another layer of Federal involvement to what is already in place.

*Response:* The policy does not provide for replacement of the Corps of Engineers or any other agencies having interests in habitat conservation. NMFS, under the Fish and Wildlife Coordination Act, will continue to provide recommendatons to the Corps regarding its issuance of permits for construction which could have an impact on living marine resources. The Corps will continue to make final decisions on issuance of permits.

*Comment:* Several commenters stated that NMFS should coordinate its habitat conservation programs not just with other elements of NOAA, but also with other key Federal and State agencies which have interests in or responsibilities for habitat conservation

*Response:* In this regard, NMFS has every expectation of building in other Federal and State agencies. Implementation Strategy No. 6 specifically addresses this concern.

*Comment:* Suggest development of interagency memorandum between NMFS and the Fish and Wildlife Service, perhaps with Army involved also, to remove duplication of effort when commenting on Corps of Engineers water resource projects and permit applications.

*Response:* If needed, such a memorandum could be one of many provided for in Implementation Strategy No. 6.

*Benefit of Proposed Policy to Other Wildlife*

*Comment:* Recommend inserting at appropriate place, language that states that migratory birds will benefit from policy.

*Response:* NMFS agrees. Language has been added to reflect that implementation of the policy will be beneficial to other wildlife resources, including migratory birds.

*Impact of Energy Development*

*Comment:* Quoting a statement in the Background section that coastal habitats "have been substantially reduced and continue to suffer the adverse effects of . . . energy development . . .," one commenter suggested that unless NMFS could fully document the statement, it should be deleted.

*Response:* The impacts of energy development on living marine resource habitats were listed along with impacts of other human-related activities such as dredging, filling, coastal construction, pollution and waste disposal. In the case of wetlands, actual loss figures were quoted from *The Coastal Almanac for 1980—The Year of the Coast* (Ringold and Clark, 1980).

*Predator-Prey and Ecosystem Relationships*

*Comment:* Recommend adding language that specifically addresses the predator-prey relationship.

*Response:* The proposed policy implicitly recognized the importance of prey species which support species of importance to man. However, for clarity, the policy has been revised to specifically recognize the importance of the predator-prey relationship by using the language recommended by several of the commenters.

*Comment:* Several commenters stated that marine life is part of an aquatic ecosystem where food and nutrient sources are so interwoven as to make precise determination of relationships between managed and non-managed species extremely difficult. Proposed policy seems not to provide explicit credence to value of ecosystems in maintaining diversity of species.

*Response:* The importance of ecosystem planning and research is clearly recognized and dealt with in Implementation Strategies Nos. 1 and 2. This matter is also addressed in the amendment to the policy with respect to the predator-prey relationship.

*Funding/Resources*

*Comment:* Several commenters stated that for effective implementation of the policy, an adequate funding base for habitat research and conservation activities must be maintained. Moreover, while delegation of authority to States may be appropriate, lack of money may prevent it from working properly.

*Response:* Implementation of the policy is not premised upon an increase in funding, but better utilization of funds available. Recognizing that State and local governments also face budget constraints, NMFS expects they will set priorities regarding utilization of resources. The Federal Government will help to the extent it can, such as acting as a catalyst.

*Comment:* The policy would demand a redirection of NMFS' effort. With no mention of funding for increase in habitat conservation effort, development programs and interests must necessarily diminish as environmental protection programs and emphasis expand.

*Response:* Although the policy is not intended to significantly diminish specific programs, NMFS cannot forecast the effect on such programs with adoption of the policy. NMFS will deal with the direction of habitat conservation and other activities during its strategic planning efforts.

*Research*

*Comment:* Applaud scientific/research thrust, but would like to see requirement for sharing research findings with a variety of non-Federaln organizations concerned with habitat conservation.

*Response:* Implementation Strategy No. 2 has been amended to clearly reflect NMFS' obligation to disseminate information to the public.

*Comment:* NMFS' role in research activities should receive greater emphasis than is implied in proposed policy statement.

*Response:* Implementation Strategies Nos. 1, 2 and 3(b) reflect NMFS' desire to give greater emphasis to habitat research activities.

*International Habitat Activities*

*Comment:* Regarding NMFS' participation in international habitat activities in support of obligations of the U.S. under international agreements, it occurs that negotiations with foreign nations who are seeking fishing rights in U.S. waters, may offer opportunities for international habitat protection activities. Foreign nations with the best habitat protection records might be given preferential treatment in the fisheries allocation process.

*Response:* The policy does not preclude this suggestion. NMFS will bring it to the attention of the Department of State with which NMFS cooperates in making allocation determinations. Implementation Strategy No. 6 recognizes the need for interagency cooperation and agreements.

For the reader's benefit, the modified Statement of Policy follows.

**Policy Framework**

Traditionally, the habitat conservation activities of NMFS have been based primarily on the policies developed in response to the Fish and Wildlife Coordination Act (FWCA) and the National Environmental Policy Act (NEPA). These laws give NMFS an important advisory role, primarily with respect to reviewing and commenting on proposed Federal projects, licenses, permits, etc. which could affect living marine resources. Because of this advisory role, NMFS' habitat conservation activities have been determined largely by the policies, actions, and deadlines of others. For the most part, these activities have dealt primarily with general concerns of habitat loss and degradation and not with specific habitat problems relating to the species of living marine resources for which NMFS has primary management responsibilities, i.e. species (1)rcovered or subject to being coveredn under Fishery Management Plansn developed under the Magnuson Fisheryn Conservation and Management Actn (Magnuson Act) and (2) assigned ton NMFS under the Marine Mammal Protection Act and the Endangered Species Act. Within this framework these activities have been successful inn carrying out the objectives of the FWCAn and NEPA. However, evolving missionn and programs require the Agency ton focus its activities on habitats important to the species referred to above.

In addition to the need for a change resulting from the foregoing, a number of events have occurred that give NMFS the opportunity to enhance substantially its overall role in habitat conservation. These include opportunities to use all of NMFS' legislative authorities to take an active role in habitat conservation and to ensure that it is appropriately considered in all of NMFS' programs, and opportunities to make the program more effective through strategic planning. Additional events include changing Federal and State roles under Administration policies and reduced Federal budgets.

Although NMFS' past role in habitat conservation was largely determined by the FWCA and NEPA, significant recent legislation, particularly the Magnuson Act gives NMFS broader authority and more opportunities for achieving habitat conservation objectives. This Act also provides comprehensive authority to integrate habitat conservation throughout the Agency's conservation, management, and development programs. This can be accomplished through the Agency's strategic planning process which is the mechanism for setting priorities based on NMFS' resources and responsibilities.

Changes in traditional Federal and State roles are expected to occur as a result of sorting out responsibilites among Federal, State, and local governments and shifting decisionmaking and responsibility for a variety of policy, budgetary, and regulatory matters to State and local governments. Implementation of this policy will give State and local governments more control over activities that may be more appropriately conducted at those levels and, as a consequence, reduce direct Federal expenditures and involvement.

With respect to living marine resources and their habitats, the sorting out of responsibilities between State and Federal governments is complex. Generally, the States have overall responsibility within their inland and coastal waters (0–3 miles from shore) for management of living marine resources with the exception of marine mammals and endangered species. NMFS has been assigned the Federal management responsibility, in partnership with the Regional Fishery Management Councils, for fishery resources in the U.S. Fishery Conservation Zone (generally 3–200 miles). However, the Magnuson Act recognizes a need for management throughout the range of the species. Moreover, many of the species of living marine resources for which NMFS is responsible spend a portion of their life cycles in habitats primarily located in State waters such as rivers, wetlands, and estuaries. Many of these common property resources cross State as well as international boundaries. Therefore, consistent with the Magnuson Act, NMFS clearly has a role with respect to certain living marine resource habitats located in State, interstate and international waters. NMFS also has a long history of cooperation and interaction with the States on State/Federal fisheries activities under number authorities other than the Magnuson Act.

**Policy**

Habitat conservation activities will be responsive to the mission and programs of NMFS. The goal of NMFS' habitat conservation activities will be to maintain or enhance the capability of the environment to ensure the survival of marine mammals and endangered species and to maintain fish and shellfish populations which are used, or are important to the survival and/or health of those used, by individuals and industries for both public and private benefits—jobs, recreation, safe and wholesome food and products.

NMFS will direct its habitat conservation activities to assist the Agency in (1) meeting its resource management, conservation, protection, or development responsibilities contained in the Magnuson Fishery Conservation and Management Act, the Marine Mammal Protection Act, and the Endangered Species Act; and (2) carrying out its responsibilities to the U.S. commercial and marine recreational fishing industry, including fishermen, and the States pursuant to programs carried out under other authorities.

Since most of NMFS' programs under its broad mandates are influenced by habitat considerations, habitat conservation will be considered and included in the Agency's decisionmaking in all of its programs. NMFS will bring all of its authorities to bear in habitat conservation. These authorities include those which give NMFS an active, participatory role and those, particularly the Fish and Wildlife Coordination Act, which give NMFS an advisory role.

In carrying out its programs, NMFS' activities will be conducted in a fashion designed to achieve necessary, orderly coastal development in a timely fashion, while the renewability and productivity of the Nation's living marine resources are maintained or, where possible, enhanced. This action will also benefit other wildlife resources, such as migratory birds.

Also, NMFS will use its scientific capabilities to carry out the research necessary to support its habitat conservation objectives.

Implementation

Implementation of the policy will be governed by general Federal policies such as the multiple use of coastal areas. Also, implementation will be governed by the principle that the Federal Government has an obligation to conserve the habitats of living marine resources for which it has primary management responsibility or which are the subject of NMFS program, whether such habitats are under State or Federal jurisdiction. This will require close cooperation and coordination by NMFS with other NOAA elements, Federal and State agencies, the Regional Fishery Management Councils, and the commercial and recreational fishing constituencies. It is particularly important that NMFS and the States work cooperatively to define their respective roles with each directing its habitat conservation activities according to its responsibilities and capabilities.

While this policy emphasizes NMFS' domestic habitat conservation responsibilities, it does not preclude NMFS' participation in international habitat activities in support of obligations of the U.S. under international agreements. International habitat issues will continue to be addressed on a case-by-case basis depending upon the demands of the United States under the provisions of the governing treaty or convention.

Implementation Strategies

In consultation with its Regions and Centers, NMFS' Central Office will prepare guidance for the policy implementation recognizing that each Region has unique resource and/or development issues that require flexibility in addressing particulare problems. The following implementatione strategies will be used.

1. Each Region, working with the appropriate Center, and the Central Office, will establish a formal planning and coordinating mechanism to implement this policy on a continuing basis. At a minimum, this mechanism will be use to: (1) Identify the living marine resources of importance and the major habitat threats to these resources; (2)ænumerate the identified habitate issues in order of priority; (3) develope strategies to address these issues; ande (4)æoversee the integration of habitate considerations throughout all NMFS'e programs. To accomplish the purposese of this planning and coordinatinge mechanism, NMFS will call on thee Assistant Administrators of othere elements of NOAA (e.g., Office of Oceane and Coastal Resource Management,e Office of Oceanography and Marinee Services), the States, the Regionale Fishery Management Councils ande others, as appropriate. The results ofe this mechanism will be incorporatede into the objectives and subobjectives ofe NMFS' Strategic Plan as well as thee performance contracts of its employees.e

2.æNMFS Research Centers will conduct environmental and ecological research, including long-term studies necessary to implement this policy. Research efforts will be coordinated with other elements of NOAA (e.g., National Ocean Service), the States and others, as appropriate. Research results will provide an integral part of the informational basis for MNFS' activities related to its conservation, management, protection, and/or development responsibilities. The needs of NMFS' decisionmakers will be the essential consideration in determining research priorities. Specific research objectives and activities will be determined through Regional and Center collaboration using the planning and coordinating mechanism described previously. Dissemination of information to the public is and will remain one of NMFS' major objectives.

3.æSince the opportunities afforded by the Magnuson Act are important factors in developing and adopting this policy, in the future NMFS will rely to a greater degree on its partnership with the Regional Fishery Management Councils in habitat conservation as it affects those fisheries subject to Fishery Management Plans developed by the Councils. The Councils provide a unique mix of representatives from the commercial and recreational fishing industries, conservation groups, State and Federal Governments, and the general public. Under this partnership, NMFS will assist the Councils to the extent possible.

(a) The Regional Fishery Management Councils should address habitat considerations in their Fishery Management Plans, where applicable, based on the best available information. While threats to fishery habitat posed by sources other than fishermen are not subject to regulation under the Magnuson Act, an adequate description of the fishery, its maximum sustainable yield, or its optimum yield may require significant discussion of important habitat and threats to it.

At a minimum, Fishery Management Plans should include identification and descriptions of habitat requirements and habitats of the stock(s) comprising the management unit; assessment of the condition of these habitats, to the extent possible, as they relate to the continued abundance and distribution of the species; identification, where possible, of causes of pollution and habitat degradation; description of programs to protect, restore, preserve and enhance the habitat of stock(s) from destruction or degradation; and, where appropriate, proposal of measures intended to preserve, protect, and restore habitat determined to be necessary for the life functions of the stock(s). Failure to describe adequately the condition of the fishery habitat and any likely changes to it may raise questions under several of the national standards and under section 303(a)(1) of the Magnuson Act. Where appropriate, existing Fishery Management plans should be amended to meet these standards.

(b) NMFS must be prepared to respond to the Councils in an agreed upon time when support or information is requested. Section 304(e) of the Magnuson Act authorizes NMFS to acquire the basic knowledge necessary to meet the Councils' needs. Equally important, NMFS will establish a mechanism to systematically consider and follow up on the Councils' recommendations for habitat conservation. If Councils' recommendations are not accepted, NMFS will notify them of the reasons. If Councils' recommendations are accepted, NMFS will adopt them and keep the Councils informed on a continuing basis regarding the results of actions taken to implement the recommendations. If the Secretary does not have the authority to carry out the Councils' recommendations, the Secretary will submit the recommendations to the authorities having jurisdiction over the matter.

4.æNMFS will continue to usee procedures and options available under the FWCA and other advisory authorities to influence decisions about important habitats identified by NMFS. These activities will include addressing decisions regarding dredge and fill projects, OCS oil and gas development, ocean dumping, water diversion, artificial impoundments, energy facility

siting, water quality degradation, and removal or degradation of tidal and intertidal wetlands.

5. NMFS will work closely with the States, the Interstate Marine Fisheries Commissions, and the Regional Fishery Management Councils to ensure that State/Federal Fishery Management Plans and the Councils' Fishery Management Plans are fully coordinated with regard to living marine resource habitat conservation. This coordination can be served through the Coastal Zone Management, or State/Federal Action plan process which could also provide mechanisms for sharing responsibilities and costs.

6. Since other Federal, State and locale agencies are involved in living marine resource habitat matters, NMFS will support existing or new interagency operating arrangements to help define and assign appropriate roles and responsibilities. These arrangements may be informal or formal.

7. NMFS will focus its freshwatere habitat activities on anadromous species. This does not preclude NMFS' involvement in a freshwater project if the project could adversely affect living marine resources for which NMFS has primary management responsibility or which are the subject of a NMFS program.

8. Where possible, NMFS will become more actively involved with governmental agencies and private developers during preapplication or early planning stages. This involvement will allow NMFS to better anticipate problems, identify alternatives for achieving objectives, reduce possibility of conflict, and minimize adverse effects on living marine resources and their habitats. In the case of essential public interest projects where practical alternatives are unavailable, NMFS will recommend measures to mitigate habitat losses. Also, when appropriate, NMFS will recommend habitat enhancement measures including rehabilitation.

9. As habitat considerations are integrated across all program lines, each major program office of NMFS will review its authorizing legislation and implementing regulations in conjunction with the Office of General Counsel to determine if these adequately provide for consideration of habitat. Legislative or regulatory changes will be recommended as needed.

10. Recognizing NOAA's broad responsibilities for ocean management, NMFS will continue to cooperate with other NOAA program elements in environmental activities conducted by these elements and will emphasize those activities affecting living marine resources for which NMFS has primary responsibility. NMFS will also seek assistance from other NOAA elements with expertise in areas relating to living marine resources and their habitats.

11. During the implementation of the Federal regulatory reform processes, NMFS, particularly its Central Office, will actively review and participate in the development of evolving Federal and State laws, regulations, policies and actions (e.g., Section 404 of the Clean Water Act) that affect habitats of species for which NMFS has primary management responsibility or which are the subject of a NMFS program to ensure that habitat conservation is appropriately considered.

12. To generate greater interest ine perpetuating healthy living marine resource habitats, NMFS will emphasize greater communication of its habitat conservation activities to its constituency. This includes commercial and marine recreational fishing interests, academia, environmental groups, coastal residents, marine-oriented industries, the general public, and the Congress.

Dated: November 21, 1983.

**William G. Gordon,**

*Assistant Administrator for Fisheries, National Marine Fisheries Service.*

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APPENDIX III

SECTION 10 AND 404 PUBLIC NOTICES REVIEWED BY NMFS FROM JANUARY 1 TO DECEMBER 31, 1983

| | Region NE | SE | SW | NW | AK | Total | 1982 Total |
|---|---|---|---|---|---|---|---|
| Public Notices Received | 1719 | 3941 | 591 | 812 | 484 | 7544 | 7847 |
| Section 404 | 161 | 327 | 133 | 158 | 176 | 956 | 1089 |
| Section 10 | 628 | 1969 | 235 | 380 | 92 | 3304 | 3460 |
| Combined 10/404 | 930 | 1645 | 223 | 274 | 212 | 3284 | 3298 |
| Permits reviewed with minor NMFS recommendations[1]/ | 192 | 194 | 58 | 36 | 43 | 523 | 544 |
| Permits reviewed with major NMFS recommendations[2]/ | 35 | 327 | 13 | 46 | 3 | 424 | 517 |
| Permits referred by NMFS under Section 404(q) MOA | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Decisions supporting NMFS | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Decisions supporting applicant | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Compromise decisions | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Permits recommended for denial at Corps district level | 51 | 53 | 9 | 33 | 18 | 164 | 169 |
| Permits issued over NMFS objections but not referred under MOA | 2 | 1 | 2 | 0 | 4 | 9 | 36 |
| Acreage proposed for alteration | 1539.4 | 21323.4 | 3166.8 | 828.2 | 13652.1 | 40509.9 | 2097139.2[3]/ |
| Dredge | 1118.4 | 1957.9 | 2549.6 | 474.7 | 5952.5 | 12053.1 | 2085655.6 |
| Fill | 270.9 | 5927.2 | 457.7 | 320.5 | 7481.9[4]/ | 14458.2 | 9129.9 |
| Impoundment | 150.1 | 9438.3 | 0 | 28.0 | .1 | 9616.5 | 1311.4 |
| Other[5]/ | 0 | 4000.0 | 159.5 | 5.0 | 217.6 | 4382.1 | 1042.2 |
| Acreage of alterations not objected to by NMFS | 834.2 | 5895.6 | 3100.6 | 415.9 | 13024.2 | 23270.5 | 1569883.8 |
| Dredge | 586.0 | 1221.9 | 2526.6 | 239.9 | 5856.4 | 10430.8 | 1565019.9 |
| Fill | 98.1 | 1308.1 | 422.0 | 146.0 | 7062.9 | 9037.1 | 3855.0 |
| Impound | 150.1 | 3365.6 | 0 | 28.0 | .1 | 3543.8 | 17.7 |
| Other | 0 | 0 | 152.0 | 2.0 | 104.8 | 258.8 | 262.9 |

APPENDIX III

(2)

| | Region NE | SE | SW | NW | AK | 1983 Total | 1982 Total |
|---|---|---|---|---|---|---|---|
| Acreage for which NMFS recommended against alteration | 705.3 | 15427.8 | 66.2 | 412.4 | 627.9 | 17239.6 | 528601.8 |
| Dredge | 532.5 | 736.0 | 23.0 | 234.9 | 96.1 | 1622.5 | 521043.0 |
| Fill | 172.8 | 4619.1 | 35.7 | 174.5 | 419.0 | 5421.1 | 5493.4 |
| Impound | 0 | 6072.7 | 0 | 0 | 0 | 6072.7 | 1293.2 |
| Other | 0 | 4000.0 | 0 | 3 | 112.8 | 4123.3 | 772.4 |
| Acreage recommended for mitigation | 369.8 | 12437.6 | 959.7 | 75.6 | 11.9 | 13854.5 | 56252.4 |
| Restore habitat | 300.0 | 11813.0 | 674.1 | 13.0 | 9.2 | 12809.3 6/ | 2122.5 |
| Generate habitat | 69.8 | 624.6 | 285.3 | 62.6 | 2.7 | 1046.2 | 54134.0 |
| Permits issued with major NMFS recommendations: | | | | | | | |
| included | 7 | - | 23 | 21 | 0 | 51 | DATA NOT |
| not included | 2 | - | 2 | 0 | 0 | 4 | AVAILABLE |

1/ Minor recommendations are those where elevation of the case under the Clean Water Act Section 404(q) Memorandum of Agreement (MOA) would be highly improbable

2/ Major recommendations are those where elevation under the 404(q) MOA would be seriously considered should the recommendations be excluded from a permit

3/ The 1982 acreage figures are much larger than those normally expected each year, due to several large shell-dredging projects proposed in Louisiana

4/ 5081 acres of this total were in tundra habitats in Alaska; NMFS did not object to alteration of 4967.5 acres of tundra

5/ This category includes proposals to drain wetlands, or construction of riprap, docks, piers, and log rafts

6/ Over 9900 acres of this is more appropriately termed "enhancement;" this consists of wetland acreage in coastal Lousiana now covered by Marsh Management Plans

A dash (-) indicates no data available

NOTE: Figures may not add up due to rounding