Endangered Species Act Biennial Report

Status of Recovery Program

FY 1989-1991

U. S. Department of Commerce

National Oceanic and Atmospheric Administration

National Marine Fisheries Service

Office of Protected Resources

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1335 East-West Highway
Silver Spring, MD 20910
THE DIRECTOR

DEC 19 1991

Chairman, Committee on Environment
and Public Works
United States Senate
Chairman, Committee on Merchant
Marine and Fisheries
House of Representatives

Dear Sirs:

I am pleased to submit the biennial report of the National Marine Fisheries Service (NMFS) regarding the status of efforts to develop and implement recovery plans for species listed pursuant to section 4 of the Endangered Species Act (ESA). The report includes the status of all species for which recovery plans have been developed, as required by section 4(f)(3) of the ESA, as well as the status and trends of all listed species under NMFS' jurisdiction.

Sincerely,

William W. Fox, Jr.

Enclosure

THE ASSISTANT ADMINISTRATOR
FOR FISHERIES

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Introduction

During the 1988 reauthorization of the Endangered Species Act of 1973 (ESA), an amendment was added to the Act requiring the Secretaries of Commerce and the Interior to prepare a biennial report "on the status of efforts to develop and implement recovery plans for all species listed pursuant to this section and on the status of all species for which such plans have been developed."

To satisfy this reporting requirement, a summary of recovery efforts for species under National Marine Fisheries Service (NMFS) jurisdiction for the period of 1989 through 1991 has been prepared. Included in this report is the most current species status and trends information available.

Background

Comprehensive Federal efforts to protect endangered and threatened species began with the passage of the Endangered Species Preservation Act of 1966. The Endangered Species Conservation Act of 1969 strengthened the initial provisions. International conservation efforts mandated under the 1969 Act provided the impetus for the 1973 Convention on Trade in Endangered Species of Wild Fauna and Flora (CITES). Congress recognized that a more comprehensive effort than authorized in these Acts was needed in order to avoid continued losses of species. Passage of the Endangered Species Act of 1973 enhanced Federal abilities to protect endangered species and to develop measures for their recovery.

During each reauthorization of the Act, amendments have been added reflecting experience gained in administering its provisions. The 1978 amendments contained a requirement that the U.S. Fish and Wildlife Service (USFWS) in the Department of the Interior and the NMFS in the Department of Commerce develop and implement recovery plans for species under their jurisdiction.

On February 9, 1987, the Chairman of the Subcommittee on Fisheries and Wildlife Conservation and the Environment of the House Committee on Merchant Marine and Fisheries requested a General Accounting Office (GAO) evaluation of progress by NMFS and USFWS in the implementation of domestic recovery programs. This study was completed in 1988. The report stated that recovery plans had not been prepared for many listed species, and responsible agencies had not

always implemented completed recovery plans. Neither USFWS nor NMFS had tracking mechanisms for updating the status of species. As a partial result of this study, Congress amended the ESA in 1988 requiring NMFS and USFWS to prepare biennial reports summarizing recovery efforts.

Species Recovery Plan Tracking System

One of the recommendations of the GAO study was that NMFS and USFWS develop a means of tracking status of stocks and implementation of recovery plans. NMFS is developing an information management system that will track: (1) the status of endangered or threatened marine species; (2) the development and implementation of recovery plans to promote survival of species; and (3) expenditures and resources utilized in these efforts. This system is expected to be completed in FY 1992.

Recovery Plans Priorities

The ESA requires the Secretaries of Commerce and the Interior to develop and implement recovery plans unless they find that such plans will not promote the conservation of the species. Although the Act does not differentiate between domestic and foreign species in this regard, specific management actions are often not feasible for species whose range is either totally or primarily outside of U.S. jurisdiction. The range of a number of listed marine species is totally outside U.S. jurisdiction. In other cases, the range in areas under the jurisdiction of the United States is limited, and management actions in the U.S. portion of their range are not likely to contribute to recovery. Therefore, NMFS has focused recovery plans to those species under U.S. jurisdiction.

The Act also requires that priorities be established for development of recovery plans. On June 15, 1990, NMFS published its method of determining priorities in the **Federal Register** (55 FR 24296). Priorities are based on three criteria: magnitude of threat, recovery potential, and conflict with construction or other developmental projects or other forms of economic activity.

The first criterion, magnitude of threat is divided into three categories: high, moderate, and low. A high designation means extinction is almost certain in the immediate future because of a rapid population decline or habitat destruction. Moderate means the species will not face extinction if recovery is temporarily delayed, although there is a continuing population decline or threat to its habitat. Taxa in the low category are rare or are facing a population decline which may be a short-term, self-correcting fluctuation, or the impacts of threats to the species' habitat are not fully known.

The second criterion, recovery potential, assures that resources are used in the most cost-effective manner within each magnitude of threat ranking. Priority for preparing and implementing recovery plans would go to species with the greatest potential for success. Recovery potential is based on how well biological and ecological limiting factors and threats to the species' existence are understood, and the extent and feasibility of necessary management actions. A species has a high recovery potential if the limiting factors and threats to the species are well understood, and the needed management actions are known and have a high probability of success. A species has a low-to- moderate recovery potential if the limiting factors or threats to the species are poorly understood or if the needed management actions are not known, are cost-prohibitive, or are experimental with an uncertain probability of success.

The third criterion reflects the Act's requirement that recovery priority be given to those species that are, or may be, in conflict with construction or other developmental projects or other forms of economic activity. Thus, species judged as being in conflict with such activities will be given higher priority for recovery plan development and implementation than non-conflict species within the same magnitude of threat/recovery potential ranking.

Status of Recovery Plans and Recovery Actions

A Recovery Plan for Marine Turtles in the Atlantic was approved by the Assistant Administrator for Fisheries, NMFS, on September 19, 1984. This plan included the green, hawksbill, Kemp's ridley, leatherback and loggerhead sea turtles, and a recovery plan in the context of international cooperation for the olive ridley sea turtle.

The U.S. Fish and Wildlife Service and the National Marine Fisheries Service share responsibility for management of sea turtles. To better coordinate recovery efforts, both Services recognized the need to update the original recovery plan and to consider new biological information that had become available since the first plan was developed. To accomplish these objectives, a Loggerhead/Green Turtle Recovery Team, a Hawksbill/Leatherback Recovery Team, and a Kemp's Ridley Recovery Team were established in 1989. The teams were assigned the task of developing separate plans for each species to account for the uniqueness of the species and provide a greater focus to recovery efforts. Draft revised recovery plans have been completed for the Atlantic populations of green, Kemp's ridley, leatherback, and loggerhead sea turtles. The draft revised recovery plan for the Atlantic population of hawksbill sea turtles is in preparation.

A final recovery plan for the Hawaiian monk seal was completed in March 1983. In 1989, a recovery team was reconstituted to review the initial recovery plan and to make recommendations for revisions. Instead of updating the initial plan, the team has recommended attaching the results of its program review to the original plan.

Draft recovery plans have been completed for two of the eight whales species. The major cause of the decline of these species was commercial whaling, and prohibitions on their harvest by the International Whaling Commission (IWC) have reduced the magnitude of the threat. Domestic management activities would have a significant effect on only four of these species: humpback, northern right, gray, and bowhead. Significant portions of the life histories of populations of these species are in areas under U.S. jurisdiction. Draft recovery plans have been prepared for the humpback and northern right whales. The most recent status report indicates that the population of gray whales off the west coast has recovered, and a recovery plan will not be prepared.

A draft recovery plan has also been prepared for the Steller sea lion. A final recovery plan should be in place for this species by the end of 1991.

Draft recovery plans are being prepared for the shortnose sturgeon and the Sacramento River winter-run population of chinook salmon.

In addition to the four whale species for which recovery plans are a low priority, recovery plans for the Guadalupe fur seal and the Caribbean monk seal are considered to be low priorities. The Caribbean monk seal is probably extinct. The major portion of the range of the Guadalupe fur seal is outside of U.S. jurisdiction, and there is no evidence that activities in areas subject to domestic management are likely to jeopardize the species.

In addition to conducting Section 7 consultations on all of the listed species, NMFS has funded recovery activities for all of the species for which development of recovery plans is a priority. The activities are discussed in the portion of the report covering the individual species. It should be noted, however, that even for species without final recovery plans, the agency has identified information needs and conducted projects consistent with either draft recovery plans or identified priorities. These projects have covered such subjects as monitoring populations, determining basic biological parameters, and habitat requirements.

Some recovery actions can be applied to more than one species. In the northeast censusing operations have included fin, humpback, and northern right whale populations. Studies of habitat needs have also included all three of the species.

Similarly, some of the sea turtle projects have not been species specific. NMFS has provided funding to analyze stranding trends and causes and to determine the effects of pollution on sea turtles generally. Perhaps the best example of a recovery action that affects more than one species is the effort made to reduce sea turtle mortality in the shrimp fishery. NMFS has funded projects for Turtle Excluder Device (TED) technology transfer, evaluation, and certification; economic analysis of TEDs; evaluation of tow times; and economic analysis of TEDs.

Domestic Endangered and Threatened Species Under NMFS Jurisdication

	Species	Status	Recovery Plan
Whales	Blue whale (*Balaenoptera musculus*)	E	No
	Bowhead whale (*Balaena mysticetus*)	E	No
	Fin whale (*Balaenoptera physalus*)	E	No
	Gray whale (*Eschrichtius robustus*)	E	No
	Humpback whale (*Megaptera novaeangliae*)	E	Draft
	Northern right whale (*Eubalaena glacialis*)	E	Draft
	Sei whale (*Balaenoptera borealis*)	E	No
	Sperm whale (*Physeter catodon*)	E	No
Sea Turtles	Green turtle (*Chelonia mydas*)	E/Th	Yes[1]
	Hawksbill turtle (*Eretmochelys imbricata*)	E	Yes[1]
	Leatherback turtle (*Dermochelys coriacea*)	E	Yes[1]
	Loggerhead turtle (*Caretta caretta*)	Th	Yes[1]
	Kemp's ridley turtle (*Lepidochelys kempi*)	E	Yes[1]
	Olive ridley turtle (*Lepidochelys olivacea*)	E	Yes[1]
Pinnipeds	Caribbean monk seal (*Monachus tropicalis*)	E	No
	Guadalupe fur seal (*Arctocephalus townsendi*)	Th	No
	Hawaiian monk seal (*Monachus schauinslandi*)	E	Yes
	Steller (Northern) sea lion (*Eumetopias jubatus*)	Th	Draft
Fish		Sacramento River	
winter-run chinook salmon	(*Oncorhynchus tshawytscha*)	Th	No[2]
	Shortnose sturgeon (*Acipenser brevirostrum*)	E	No[2]

[1] Final Recovery Plan for Atlantic populations only. Pacific Basin Recovery Plan is in preparation.

[2] Draft Recovery Plan is in preparation.

The Blue Whale
(*Balaenoptera musculus*)

A. Recovery Team / Plan Status

No recovery plan for this species has been prepared, nor has a recovery team been established. The principal cause of the decline in blue whales was commercial whaling, and prohibitions on their harvest by IWC have reduced the magnitude of the threat. No activities in waters under the jurisdiction of the United States are known to be adversely affecting recovery of this species at the present time. Therefore, management activities in the U.S. portion of its range are not likely to contribute substantially to recovery.

B. Recovery Actions / Plan Implementation

Through interagency coordination under Section 7 of the ESA, the species is protected from Federal actions that are likely to jeopardize the species. No other specific actions necessary for the recovery of the species have been identified, and no direct recovery actions are being implemented.

C. Species Status / Trends

The blue whale was listed as endangered throughout its range on June 2, 1970. Blue whales are severely depleted in all oceans of the world. The status of blue whales in the northern hemisphere is unknown. Sightings have increased off central California and on the Pacific side of Mexico and Central America, but these increases may be attributable to increased observer effort rather than trends in abundance. Blue whales have been studied in the Gulf of California, Mexico and the Gulf of St. Lawrence, Canada, but trends in abundance were not apparent. An increasing trend in abundance of 5.1 percent was reported between 1979 and 1988 west of Iceland.

The status of blue whales in the southern hemisphere is uncertain. Only seven sightings of calves have been made south of 60° S. since 1965. An analysis of 6 years of sightings in Antarctic waters conducted under the auspices of the IWC suggests that blue whales may not be recovering from commercial whaling. However, the consensus of opinion on abundance of blue whales in the Antarctic is that stocks are certainly larger than 500, and considerably larger for the Southern Oceans.

The Bowhead Whale (*Balaena mysticetus*)

A. Recovery Team / Plan Status

No recovery plan for this species has been prepared, nor has a recovery team been established. The principal cause of the decline in bowhead whales was commercial whaling, and the IWC has placed a prohibition on commercial harvest of this species. Although there is a limited subsistence take, the magnitude of the threat from direct takes is low. Exploitation of energy resources within its range may present a conflict with this species.

B. Recovery Actions / Plan Implementation

Through interagency coordination under Section 7 of the ESA, the species is protected from Federal actions that are likely to jeopardize the species. Regulations that allow a take of bowhead whales incidental to energy exploration in the Arctic include requirements to monitor the effects of these activities on bowhead whales. Research on the reaction of whales to drilling noise has been required.

Although a recovery plan has not been prepared, NMFS has sponsored a number of basic biological studies to gain information on this species. During the last 2 years, aerial surveys have been conducted to determine population abundance, and studies have been conducted on population dynamics and life history. During 1990, an analysis of data accumulated between 1984 and 1990 on life history and ecology was initiated.

C. Species Status / Trends

The bowhead whale was listed as endangered throughout its range on June 2, 1970. The status of the bowhead whale stocks in the Okhotsk Sea (North Pacific Ocean), and Spitsbergen-East Greenland, Davis Strait-Baffin Bay, and Hudson Bay-Foxe Basin (North Atlantic Ocean), is unknown. Infrequent sightings of bowheads in these areas in recent years suggest that these stocks are very small, perhaps in the low hundreds.

The western Arctic stock of bowheads in the Bering, Chukchi, and Beaufort Seas has increased since commercial whaling ended in about 1914, but at an unknown rate. Ice-based census sightings data collected between 1978 and 1988 suggest that the current rate of population growth is approximately 3.1 percent per year. The present stock size is estimated to be 7,800 animals. The initial stock size in 1848 is estimated to have been 18,000-20,000. Since the late 1970s, the take of bowhead whales by Alaskan Eskimos (including whales struck but lost) has been 25-40 animals per year.

The Fin Whale (*Balaenoptera physalus*)

A. Recovery Team / Plan Status

No recovery plan for this species has been prepared, nor has a recovery team been established. The principal cause of the decline in fin whales was commercial whaling, and prohibitions on their harvest by the IWC have reduced the magnitude of the threat. Although fin whales are known to compete with commercial fisheries for common prey species such as herring, anchovies, pollock, and capelin, this interaction will only be a problem if these prey species are severely overfished or if incidental take by fishing gear poses a threat. Management activities in the U.S. portion of the species' range could only make a minimal contribution to species recovery.

B. Recovery Actions / Plan Implementation

Through interagency coordination under Section 7 of the ESA, the species is protected from Federal actions that are likely to jeopardize the species.

Although a recovery plan has not been prepared, NMFS has sponsored research during the last 2 years off the coast of New England to determine species abundance and habitat utilization as part of general surveys of whale species in the area.

C. Species Status / Trends

The fin whale was listed as endangered throughout its range on June 2, 1970. The status of stocks of fin whales is unknown, but the species was severely depleted by commercial whaling activities. In this century, over 700,000 animals were landed in all oceans of the world. The present world population estimate is 120,000 individuals. While the species is depleted relative to historical levels, it is considered abundant compared to other large whale species. No trend analyses for this species are available.

The Gray Whale (*Eschrichtius robustus*)

A. Recovery Team / Plan Status

No recovery plan for this species has been prepared, nor has a recovery team been established. Preparation of a recovery plan for this species is not considered of high priority because the species appears to have fully recovered from commercial whaling.

B. Recovery Actions / Plan Implementation

Through interagency coordination under Section 7 of the ESA, the species is protected from Federal actions that might adversely affect recovery. In 1989, NMFS sponsored research to update estimates of population abundance.

C. Species Status / Trends

The gray whale was listed as endangered throughout its range on June 2, 1970. Two stocks of gray whales occur in the North Pacific Ocean. The status of the western North Pacific (Korean) stock of gray whales is uncertain, but is thought to be severely depleted. The eastern North Pacific (California) stock of gray whales has fully recovered and is at or above its initial stock size. This stock is increasing at a rate of 3.2 percent per year. The stock has increased in spite of direct competition with humans for coastal habitat, and a subsistence catch of 167 whales per year (5,006 total) by the Soviet Union during the past 30 years.

The Humpback Whale (*Megaptera novaeangliae*)

A. Recovery Team / Plan Status

During 1988/1989, the Humpback Whale Recovery Team developed a draft recovery plan, which was distributed to the public for comment in October 1989. Comments were received from Federal and state government agencies, academia, scientific and environmental communities and the public. The recovery team reviewed and incorporated comments received and submitted a draft final plan to NMFS. NMFS is reviewing the draft and anticipates final approval in November 1991. Once it is approved, the plan will be printed and distributed to the public.

The major actions recommended in the plan are listed below:

1. **Maintain and Enhance Habitats Used by Humpback Whales Currently or Historically.**

   - Identify and designate critical habitat.
   - Examine history of occupancy and potential for repopulation of important habitats.
   - Identify and minimize possible adverse impacts of human activities and pollution on important habitat.
   - Monitor parasite load, biotoxins and anthropogenic contaminant level in tissues of whales and prey.
   - Provide adequate nutrition.
   - Develop Federal-state-local partnerships for protecting humpback whale habitats.
   - Encourage multinational cooperation to protect humpback whale habitats.

2. **Identify and Reduce Direct Human-Related Injury and Mortality.**

   - Continue prohibition on commercial hunting of humpback whales.
   - Continue to identify sources and rates of human-induced injury and mortality and use information to reduce those factors.

3. **Measure and Monitor Key Population Parameters.**

   - Estimate and reevaluate historic population sizes.
   - Improve current population estimates by evaluating and reanalyzing existing data with improved techniques.
   - Systematize sampling methods for estimating population size.
   - Maintain and develop facilities for obtaining, archiving, and analyzing data on humpback whales.
   - Perform new field studies on population dynamics.
   - Assess population status and trends.

4. **Improve Administration and Coordination of Recovery Program for Humpback Whales.**

   - Select Director and implement recovery plan.
   - Improve governmental coordination.
   - Improve coordination with non-governmental agencies.
   - Expand or reconstitute a recovery implementation team, update the recovery plan and prepare comprehensive work plans for each stock.
   - Collect and archive available information on humpback whales, including translation of foreign literature.

- Improve process for obtaining permits to do research on marine mammals and make appropriate changes.

- Maintain coordination with other recovery programs.

- Reassess, as appropriate, the goals for population recovery.

- Develop educational materials in support of recovery plan objectives.

- The Humpback Whale Recovery Plan recommends actions designed to help the humpback whale populations to grow to at least 60 percent of their pre-whaling abundance and to expand into formerly occupied ranges. Since it is not possible to accurately estimate pre-hunting population sizes, an interim goal that populations double in size within the next 20 years is recommended. The plan contains four major objectives: (1) maintain and enhance habitat; (2) identify and reduce human-related mortality, injury and disturbance; (3) measure and monitor key population parameters to determine if recommended actions are successful; and (4) improve administration and coordination of the overall recovery effort for this species.

- The plan summarizes the team's understanding of the status of those humpback whale populations wholly or partly under U.S. jurisdiction. It recommends management activities to assist those and other populations to increase in numbers, and research activities to measure rates of population change. It emphasizes two major ways to achieve population growth: (1) protection of habitats and (2) reduction of human activities that interfere with annual life cycle processes.

B. Recovery Actions / Plan Implementation

Through interagency coordination under Section 7 of the ESA, the species is protected from Federal actions that are likely to jeopardize the species.

Specific actions necessary for the recovery of the species have been identified, and many direct recovery actions are being implemented. During the last 2 years, projects have included: maintenance of an individual photo-identification system on both coasts so that such things as reproductive rates can be determined; a project to estimate abundance on the east coast; a project to determine genetic relationships among whales; and a study of habitat requirements and utilization. Proposed

regulations on whalewatching designed to reduce harassment will be published in the Federal Register by the end of 1991.

C. Species Status / Trends

The humpback whale was listed as endangered throughout its range on June 2, 1970. As a species, humpback whales are probably the fourth most numerically depleted large cetacean worldwide, trailing the right whale (Eubalaena glacialis), blue whale (Balaenoptera musculus), and bowhead whale (Balaena mysticetus). Prior to commercial whaling the worldwide population is thought to have been in excess of 125,000. American whalers alone killed 14,164 - 18,212 humpbacks between 1805-1907 and the total North Pacific kill was estimated to be about 28,000. Today, perhaps no more than 10,000 to 12,000 exist, about 10 percent of the estimated initial abundance.

Although hunting caused the major decline in all humpback whale populations, they are no longer endangered by that activity. However, humpback whales occur adjacent to human population centers and are affected by human activities throughout their range. Both habitat and prey are affected by human-induced factors that could impede recovery. These factors include subsistence hunting, incidental entrapment or entanglement in fishing gear, collision with ships, and disturbance or displacement caused by noise and other factors associated with shipping, recreational boating, high-speed thrill craft, whale watching or air traffic. Introduction and/or persistence of pollutants and pathogens from waste disposal; disturbance and/or pollution from oil, gas or other mineral exploration and production; habitat degradation or loss associated with coastal development; and competition with fisheries for prey species may also impact the whales. These factors could affect individual reproductive success, alter survival, and/or limit availability of needed habitat.

The Northern Right Whale (*Eubalaena glacialis*)

A. Recovery Team / Plan Status

The Northern Right Whale Recovery Team was appointed in July 1987. A Draft Recovery Plan for the Northern Right Whale was distributed for public comment in February 1990. Comments were received from Federal, state and local governments, conservation organizations, and private individuals. Appropriate comments have been incorporated into the plan. The revised plan will be submitted for agency review.

The draft recovery plan recommends the following actions:

1. **Reduce or eliminate injury or mortality caused by ship collision.**

   - Identify the causes of ship collisions with northern right whales and implement measures to reduce ship collisions.

2. **Reduce or eliminate injury and mortality caused by fisheries and fishing gear.**

   - Develop or modify fishing gear to reduce the threat of entrapment or entanglement.
   - Implement appropriate seasonal or geographic regulations for use of certain fishing gear in northern right whale habitats.
   - Improve procedures for reporting and rescuing northern right whales entangled in fishing gear.

3. **Protect habitats essential to the survival and recovery of the northern right whale.**

   - Characterize habitats of special importance to the northern right whale and protect habitats already known to be of special importance to the northern right whale.
   - Improve knowledge of how northern right whales utilize their habitats.
   - Identify other habitats used by the northern right whale and protect these newly discovered habitats.

4. **Minimize effects of vessel disturbance.**

   - Determine the effects of whale watching on northern right whales and propose regulations as necessary.
   - Establish a program to improve the educational aspects of whale watching.
   - Implement appropriate controls on other vessel activities.

5. **Continue international ban on hunting and other directed take.**

6. **Monitor the population size and trends in abundance of the northern right whale.**

   - Maintain the northern right whale photo-identification catalog and sighting database.
   - Continue a program to monitor annual reproductive success.
   - Design and implement other programs for population monitoring.
   - Identify pre-exploitation population numbers for the western North Atlantic stock.
   - Encourage development of new technology useful for population monitoring.

7. **Maximize efforts to free entangled or stranded northern right whales and acquire scientific information from dead specimens.**

   - Improve and maintain the system for reporting stranded or distressed northern right whales.
   - Develop an improved program for handling live stranded or distressed northern right whales.
   - Improve the existing program to maximize data collected from dead northern right whales.

- Establish or identify funding sources for emergency rescue and rehabilitation efforts.

B. Recovery Actions / Plan Implementation

Through interagency coordination under Section 7 of the ESA, northern right whales are protected from Federal actions that might jeopardize the species. A portion of the recommended recovery actions is being implemented through the section 7 (Interagency Cooperation) consultation process. Dredge projects along the southeast coast are required to have observers on board to watch for northern right whales when the dredges are transiting to and from spoil dump sites. The designation of EPA dump sites are also subject to consultation, as are Outer Continental Shelf oil and gas activities.

NMFS has been petitioned by the recovery team to designate three areas along the Eastern Seaboard (Cape Cod Bay, Great South Channel, and the calving ground off the Florida/Georgia coast) as critical habitat for the northern right whale. The petition was determined to contain substantial information. Comments and further information were solicited from the public in July 1990. The comments received are being reviewed and a final determination on the petition will be made in 1991.

Although a final recovery plan has not been approved, a number of recovery actions identified in the draft recovery plan have been implemented during the last 2 years. Research has been conducted on population dynamics and migration patterns. The agency has also provided funding for the maintenance of an individual photo-identification system. Research has also been conducted on habitat requirements and utilization. Proposed regulations on whale watching designed to reduce harassment will be published in the **Federal Register** by the end of 1991.

C. Species Status / Trends

The northern right whale was listed as endangered throughout its range on June 2, 1970. Current estimates of the northern right whale populations indicate that there are no more than 600 individuals, with 300-350 found in the North Atlantic Ocean and 250-300 in the North Pacific Ocean. There are no other known northern right whale populations.

Commercial whaling was the major reason for the decline of the northern right whale. For a period that started more than 800 years ago and lasted well into the 20th century, the species was hunted extensively, primarily for its oil and baleen plates. The animal's commercially valuable products, slow swimming speed, the characteristic

of floating when dead, and generally coastal distribution combined to make this whale the "right" whale to kill - hence its common name. Hunting was largely restricted to the eastern north Atlantic at first. As that population was depleted and knowledge of the world's oceans increased, hunting pressure shifted to the western north Atlantic and then to the Pacific, eventually encompassing the species' entire range.

Observers noted that the northern right whale was in trouble as early as the 19th century. By 1935, the species had declined to such low numbers that the League of Nations was able to get most whaling nations to agree to stop hunting the northern right whale. Since that time, hunting or other purposeful take has been responsible for the death of only a few additional animals, and is no longer a serious threat to the species.

The northern right whale remains in a precarious position because a combination of human actions and natural forces appears to be preventing significant increases in the number of animals. The preponderance of evidence suggests that certain human actions are significantly impeding the recovery of this species. Principal among these are (in decreasing order of importance) ship collisions, entanglement in certain types of fishing gear, degradation of the northern right whale's habitat (especially the areas where they feed), and disturbance.

There is reason to believe that if the human actions having a negative effect on the species were reduced or eliminated, the chance for recovery would be significantly improved. Limits of knowledge of the genetic restrictions imposed upon the species by its present low numbers prevent NMFS from declaring with certainty that, even if all adverse affects caused by humans were eliminated, the northern right whale would recover. In any case, recovery will be not be quick. Even in the best of circumstances, rapid recovery cannot be anticipated. It is not expected that the northern right whale will increase in numbers in the next 75 years to a point where efforts can be relaxed.

The Sei Whale
(*Balaenoptera borealis*)

A. Recovery Team / Plan Status

No recovery plan for this species has been prepared, nor has a recovery team been established. The principal cause of the decline in sei whales was commercial whaling, and prohibitions on their harvest by the IWC have reduced the magnitude of the threat. No activities in waters under U.S. jurisdiction are known to be adversely affecting recovery of this species at the present time. Therefore, management activities in the U.S. portion of its range are not likely to contribute substantially to recovery.

B. Recovery Actions / Plan Implementation

Through interagency coordination under Section 7 of the ESA, sei whales are protected from Federal actions that are likely to jeopardize the species. No other specific actions necessary for the recovery of the species have been identified, and no direct recovery actions are being implemented.

C. Species Status / Trends

The sei whale was listed as endangered throughout its range on June 2, 1970. The status and recovery of sei whales is unknown anywhere in the world. The species was severely depleted by commercial whaling primarily in the 1950s-1970s. Although the sei whale does not appear to be in immediate danger of extinction, no relevant new information on any stock is available.

The Sperm Whale (*Physeter catodon*)

A. Recovery Team / Plan Status

No recovery plan for this species has been prepared, nor has a recovery team been established. The principal cause of the decline in sperm whales was commercial whaling, and prohibitions on their harvest by the IWC have reduced the magnitude of the threat. No activities in waters under U.S. jurisdiction are known to be adversely affecting recovery of this species at the present time. Therefore, management activities in the U.S. portion of its range are not likely to contribute substantially to recovery.

B. Recovery Actions / Plan Implementation

Through interagency coordination under Section 7 of the ESA, sperm whales are protected from Federal actions that are likely to jeopardize the species. No other specific actions necessary for the recovery of the species have been identified, and no direct recovery actions are being implemented.

C. Species Status / Trends

The sperm whale was listed as endangered throughout its range on June 2, 1970. During the past 2 centuries, commercial whalers took about 1,000,000 sperm whales. Despite this high level of take, the sperm whale remains the most abundant of the large whale species. The present world abundance is estimated at 2,000,000 individuals, which is over eight times greater than the combined total of the other seven large whale species. On the basis of total abundance, the species is not in danger of extinction, nor is it threatened with becoming endangered in the foreseeable future.

The Green Turtle (*Chelonia mydas*)

A. Recovery Team / Plan Status

A recovery plan for the Atlantic population of the green sea turtle was approved in September 1984. A new recovery team was established in 1989 to revise the plan. In September 1990, the draft Green Turtle Recovery Plan for the Atlantic was completed and made available for public comment. Comments on the recovery plan have been provided to the recovery team, and appropriate revisions have been completed. In 1991, a recovery team for the Pacific Basin was established.

The draft of the revised Atlantic recovery plan recommends the following actions:

1. **Protect and manage nesting habitat.**

   - Ensure that beach nourishment projects are compatible with maintaining good quality nesting habitat.
   - Prevent degradation of nesting habitat from seawalls, revetments, sand bags, sand fences, or other erosion control measures.
   - Acquire or otherwise ensure the long-term protection of key nesting beaches.
   - Remove exotic vegetation and prevent its spread to nesting beaches.

2. **Protect marine habitat.**

   - Identify important habitat.
   - Prevent degradation and improve water quality of important turtle habitat.
   - Prevent destruction of habitat from fishing gears and vessel anchoring.
   - Prevent destruction of marine habitat from oil and gas activities.

- Prevent destruction of habitat from dredging activities.
- Restore important foraging habitats.

3. **Protect and manage populations on nesting beaches.**

- Monitor trends in nesting activity by means of standardized surveys.
- Evaluate nest success and implement appropriate nest protection measures.
- Determine influence of factors such as tidal inundation and foot traffic on hatching success.
- Reduce effects of artificial lighting on hatchlings and nesting females.
- Ensure beach nourishment and coastal construction activities are planned to avoid disruption of nesting and hatching activities.
- Ensure law enforcement activities eliminate poaching and harassment.
- Determine natural hatchling sex ratios.
- Define geographical boundaries of breeding aggregations.

4. **Protect and manage populations in the marine environment.**

- Determine green turtle distribution, abundance and status in the marine environment.
- Monitor and reduce mortality from commercial and recreational fisheries.
- Monitor and reduce mortality from dredging activities.
- Monitor and prevent adverse impacts from oil and gas activities.

- Reduce impacts from entanglement and ingestion of persistent marine debris.
- Maintain law enforcement efforts to reduce poaching in U.S. waters.
- Determine etiology of fibropapillomatosis.
- Centralize administration and coordination of tagging programs.
- Ensure proper care of sea turtles in captivity.

B. Recovery Actions / Plan Implementation

Through interagency coordination under Section 7 of the ESA, green sea turtles are protected from Federal actions that are likely to jeopardize the species. Minerals Management Service oil and gas activities, U.S. Army Corps of Engineers oil and gas and dredging activities, U.S. Navy explosive testing programs, and U.S. Environmental Protection Agency designations of dredged material disposal sites have been subject to consultations.

Although the revised recovery plan has not been finalized, many of the tasks identified in the original plan and identified in the revised draft have been initiated in the last 2 years. NMFS has made a major effort to reduce green turtle mortality in the shrimp fishery. During 1989, regulations requiring the use of Turtle Excluder Devices (TEDs) in certain areas became effective. Resources have also been devoted to TED evaluations and certification, TED technology transfer, economic evaluation of TEDs, and research on tow times.

NMFS has provided the resources to collect a range of basic biological information on sea turtles. It is supporting the Marine Turtle Cooperative Tagging Program and analyzing tag-recapture data. Projects are being conducted to determine species composition, relative abundance, and seasonal distribution of sea turtles in the inshore waters of North Carolina and South Carolina. A continuing project to determine distribution and species composition is being carried out in the Cedar Key area of Florida's west coast. Historically, this area supported large aggregations of green sea turtles. A similar study has been initiated to determine distribution and size/species composition in pelagic waters.

NMFS laboratories are conducting research on sea turtle habitat utilization in the Gulf of Mexico. The project focuses on known sea turtle "hot spots."

Analyses of sea turtle strandings have been conducted for the purpose of monitoring the level of strandings and possible causes of mortality.

Research has been conducted on the effects of pollutants on sea turtles.

In December 1990, NMFS sponsored a workshop on fibropapillomatosis. The workshop was set up to review existing knowledge of the disease and to develop research priorities in determining the cause of the disease and possible methods of reducing the impact of the disease on green turtle populations.

C. Species Status / Trends

The green turtle was listed as endangered/threatened on July 28, 1978, but populations have continued to decline. The breeding populations off Florida and the Pacific coast of Mexico are listed as endangered while all others are threatened.

Population estimates for the green turtle are unavailable, and trends are particularly difficult to assess because of wide year-to-year fluctuations in numbers of nesting females, inaccessibility of the early life stage, and long generation time. The number of nests has increased on Hutchinson Island, Florida, over the period 1971 - 1989, although nesting levels have been low on other nesting beaches. Populations in Surinam, and Tortuguero, Costa Rica, may be stable, although there are insufficient data collected in other areas to confirm a trend. The recovery team for the green turtle concluded that the species status has not improved appreciably since listing.

The greatest cause of decline in green turtle populations is commercial harvest for eggs and food. Other turtle parts are used for leather and jewelry, and small turtles are sometimes stuffed for curios. Incidental catch by commercial shrimp trawlers is a continuing source of mortality that adversely affects recovery.

The Hawksbill Turtle (*Eretmochelys imbricata*)

A. Recovery Team / Plan Status

A recovery plan for the Atlantic population of the hawksbill sea turtle was approved in September 1984. A new recovery team was established in 1989 to revise the plan. The draft of the revision of the recovery plan for the Atlantic population is in the final stages of preparation. In 1991, a recovery team for the Pacific Basin was established.

B. Recovery Actions / Plan Implementation

Through interagency coordination under Section 7 of the ESA, hawksbill sea turtles are protected from Federal actions that are likely to jeopardize the species.

Although the revised recovery plan has not been completed, some recovery actions identified in the original plan and being considered in the revised plan have been initiated in the last 2 years.

In order to reduce the pressure of commercial trade on hawksbill populations, the Secretaries of Commerce and the Interior utilized the Pelly Amendment to the Fishermen's Protective Act of 1967. On March, 20, 1991, Japan was certified as engaging in activities that diminish the effectiveness of CITES. The Pelly amendment provides that upon receipt of such a certification, the President may prohibit the importation of all or some wildlife products from the offending country. Subsequently, Japan announced on June 19, 1991, that it would end all trade in hawksbill sea turtles by the end of 1992 and withdraw its CITES reservation for hawksbills on July 1, 1994.

NMFS is involved with protecting nesting beaches and conducting surveys on primary hawksbill nesting areas in the Caribbean.

NMFS has made a major effort to reduce hawksbill turtle mortality in the shrimp fishery. During 1989, regulations requiring the use of TEDs in certain areas became effective. Resources have also been devoted to TED evaluations and certification, TED technology transfer, economic evaluation of TEDs, and research on tow times.

NMFS has provided resources to collect a range of basic biological information on sea turtles. It is supporting the Marine Turtle Cooperative Tagging Program and analyzing tag-recapture data. A study is being conducted to determine distribution and size/species composition in pelagic waters.

NMFS laboratories are conducting research on sea turtle habitat utilization in the Gulf of Mexico. The project focuses on known turtle "hotspots."

Analyses of sea turtle strandings have been conducted for the purpose of monitoring the level of strandings and possible causes of mortality.

Research also has been conducted on the effects of pollutants on sea turtles.

C. Species Status / Trends

The hawksbill sea turtle was listed as endangered throughout its range on June 2, 1970. Since the time of listing its status has not changed. The hawksbill turtle is a solitary nester. Thus, population trends or estimates are difficult to determine. The decline of nesting populations is accepted by most researchers. In 1983, the only known apparent stable populations were in Yemen, northeastern Australia, the Red Sea, and Oman. Commercial exploitation is the major cause of the continued decline of the hawksbill sea turtle. There is a continuing demand for the hawksbill's shell as well as other products including leather, oil, perfume, and cosmetics. Until the June agreement, Japan had been importing about 20 metric tons of hawksbill shell per year, representing approximately 19,000 turtles. The hawksbill shell commands high prices (currently $225/kilogram), a major factor preventing effective protection.

The Kemp's Ridley Turtle (*Lepidochelys kempi*)

A. Recovery Team / Plan Status

A recovery plan for the Kemp's ridley sea turtle was approved in September 1984. A new recovery team was established in 1989 to revise the plan. A draft of the revised recovery plan has been completed and was made available for public comment in August 1991. The recovery team will incorporate appropriate comments into a final plan.

The draft of the revised identifies the following priorities:

1. **Identify important marine habitat and investigate juvenile/subadult habitat use.**
2. **Protect nesting females and their nests, and increase hatchling protection.**
3. **Monitor population trends.**
4. **Investigate migrations and foraging of adults.**
5. **Enforce and expand TED regulations.**
6. **Prohibit trawling near Rancho Nuevo and promote TED use in Mexico.**
7. **Maintain sea turtle stranding and salvage network.**

B. Recovery Actions / Plan Implementation

Through interagency coordination under Section 7 of the ESA, Kemp's ridleys are protected from Federal actions that are likely to jeopardize the species. Minerals Management Service oil and gas activities, U.S. Army Corps of Engineers oil and gas and dredging activities, U.S. Navy explosive testing programs, and U.S. Environmental Protection Agency designations of dredged material disposal sites have been subject to consultations.

Although the revised recovery plan has not been finalized, many of the tasks identified in the original plan and identified in the revised draft have been initiated in the last 2 years. NMFS has made a major effort to reduce Kemp's ridley mortality in the shrimp fishery. During 1989, regulations requiring the use of TEDS became effective. Resources have also been devoted to TED evaluations and certification, TED technology

transfer, economic evaluation of TEDs, and research on tow times. In addition, NMFS has provided technical assistance to the Government of Mexico on TED utilization.

NMFS has provided the resources to collect a range of basic biological information on sea turtles. It is supporting the Marine Turtle Cooperative Tagging program and analyzing tag-recapture data. Technical assistance is being provided to Mexican scientists to evaluate tag-recapture data on nesting female Kemp's ridleys.

Projects are being conducted to determine species composition, relative abundance, and seasonal distribution in the inshore waters of North Carolina and South Carolina. A continuing project to determine distribution and species composition is being carried out in the Cedar Key area of Florida's west coast. Historically, this area supported large aggregations of Kemp's ridleys. A similar study has been initiated to determine distribution and size/species composition in pelagic waters.

NMFS laboratories are conducting research on sea turtle habitat utilization in the Gulf of Mexico. The project focuses on known sea turtle "hotspots." Kemp's ridleys are equipped with radio and sonic tags in order to determine ranges and residency time within these areas.

Analyses of sea turtle strandings have been conducted for the purpose of monitoring the level of strandings and possible causes of mortality.

Research has been conducted on the effects of pollutants on sea turtles.

In order to attempt to create a second nesting beach at Padre Island, Texas, a headstart program has been conducted. A second nesting site would reduce the vulnerability of the species.

C. Species Status / Trends

The Kemp's ridley was listed as endangered throughout its range on December 2, 1970, and its status has remained unchanged. The population of Kemp's ridleys fell from an estimated 40,000 nesting females in 1947 to an average of slightly over 500 during the last 13 years. Since 1978 the number of nests have declined at a rate of approximately 14 nests per year. Numbers continue to decline despite protection of the Kemp's ridley primary nesting beach. The decline of this species was primarily due to human activities including collection of eggs, fishing for juveniles and adults, killing of adults for meat and other products, and direct take for indigenous use. In addition to these sources of mortality, Kemp's ridleys have been subject to high levels of incidental take by shrimp trawlers which is believed to have adversely affected recovery.

The Leatherback Turtle (*Dermochelys coriacea*)

A. Recovery Team / Plan Status

A recovery plan for the Atlantic population of the leatherback sea turtle was approved in September 1984. A new recovery team was established in 1989 to develop a revised recovery plan. In January 1991, a draft of the revised recovery plan was completed and made available for public comment. Comments on the recovery plan have been provided to the recovery team. They made appropriate revisions and are preparing a final plan for agency approval. In 1991, a recovery team for the Pacific Basin was established.

The draft of the revised Atlantic recovery plan recommends the following actions:

1. Protect and manage nesting habitat.

   - Ensure beach replenishment projects are compatible with maintaining good quality nesting habitat.
   - Prevent degradation of nesting habitat from seawalls, revetments, sand bags, or other erosion control measures.
   - Identify and ensure long-term protection of important nesting beaches.

2. Protect marine habitat.

   - Identify important habitat.
   - Prevent degradation of habitat from oil and gas developments, refining and trans-shipment activities.
   - Prevent degradation of coastal habitat from industrial and sewage effluents.
   - Identify other threats to marine habitat and take appropriate actions.

3. **Protect and manage populations on nesting beaches. Predators, poaching, tidal inundation, artificial lighting, and human activities on nesting beaches diminish reproductive success.**

   - Monitor nesting activity trends on important nesting beaches with standardized surveys.
   - Evaluate nest success and implement appropriate nest protection measures.
   - Reduce effects of artificial lighting on hatchlings and nesting females.
   - Eliminate vehicular traffic on nesting beaches during nesting and hatching season.
   - Ensure beach replenishment and coastal construction activities are planned to avoid disruption of nesting and hatching activities.
   - Prevent waste disposal on nesting beaches.
   - Ensure adequate law enforcement activities prevent poaching and harassment.
   - Determine natural hatchling sex ratios at selected nesting beaches.
   - Determine genetic relationship of U.S. Caribbean populations to other major nesting populations.

4. **Protect and manage populations in the marine environment.**

   - Determine distribution, abundance and status in the marine environment.
   - Monitor and reduce mortality from commercial and recreational fisheries.
   - Prevent oil spills, and monitor and prevent adverse impacts of oil spills and gas activities.

- Reduce impacts from entanglement and ingestion of persistent marine debris.
- Centralize administration and coordination of tagging programs.
- Ensure proper care of rehabilitating sea turtles in captivity.

B. Recovery Actions / Plan Implementation

Through interagency coordination under Section 7 of the ESA, leatherback sea turtles are protected from Federal actions that are likely to jeopardize the species. Minerals Management Service oil and gas activities, U.S. Army Corps of Engineers oil and gas and dredging activities, U.S. Navy explosive testing programs, and U.S. Environmental Protection Agency designations of dredged material disposal sites have been subject to consultations.

Although the revised recovery plan has not been finalized, some of the tasks identified in the original plan and identified in the revised draft have been initiated.

NMFS has provided the resources to collect a range of basic biological information on sea turtles. It is supporting the Marine Turtle Cooperative Tagging Program and analyzing tag-recapture data. Projects are being conducted to determine species composition, relative abundance, and seasonal distribution of sea turtles in the inshore waters of North Carolina and South Carolina. A similar study has been initiated to determine distribution and size/species composition in pelagic waters.

Analyses of sea turtle strandings have been conducted for the purpose of monitoring the levels of strandings and possible causes of mortality.

Research has been conducted on the effects of pollutants on sea turtles. In addition, NMFS has conducted research on the amounts and sources of plastic marine debris.

C. Species Status / Trends

The leatherback sea turtle was listed as endangered throughout its range on June 2, 1970. Nesting populations for leatherback sea turtles are especially difficult to discern because the females frequently shift beaches, and some nesting populations are strays from larger populations located elsewhere. Leatherbacks do not nest frequently enough in the United States to assess an accurate trend. The draft recovery plan for the leatherback sea turtle concludes that nesting trends in the United

States appear stable, but the population faces significant threats from incidental take in commercial fisheries and plastics pollution.

In other parts of the world, populations have declined in Malaysia, India, Sri Lanka, Thailand, Trinidad, Tobago, and French Guiana. Habitat destruction, incidental catch in commercial fisheries, the harvest of eggs and flesh are the greatest threats to the survival of the leatherback.

The Loggerhead Turtle (*Caretta caretta*)

A. Recovery Team / Plan Status

A recovery plan for the Atlantic population of the loggerhead sea turtle was approved in September 1984. A new recovery team was established in 1989 to develop a revised recovery plan. In September 1990, a draft of the revised recovery plan was completed and made available for public comment. Comments on the recovery plan have been provided to the recovery team. They made appropriate revisions appropriate revisions and are preparing a final plan for agency approval. In 1991, a recovery team for the Pacific Basin was established.

The draft of the revised Atlantic recovery plan recommends the following actions:

1. **Protect and manage nesting habitat.**

   - Ensure that beach nourishment projects are compatible with maintaining good quality nesting habitat.
   - Prevent degradation of nesting habitat from seawalls, revetments, sand bags, sand fences, or other erosion control measures.
   - Evaluate and implement measures to enhance important nesting habitat where erosion or tidal inundation destroy over 40 percent of nests in a typical year.
   - Acquire or otherwise ensure the long-term protection of important nesting beaches.
   - Remove exotic vegetation and prevent spread to nesting beaches.

2. **Protect marine habitat.**

   - Identify important habitat.
   - Prevent degradation and improve water quality of important turtle habitat.

- Prevent destruction of habitat from fishing gears and vessel anchoring.
- Prevent destruction of marine habitat from oil and gas activities.
- Prevent destruction of habitat from dredging activities.

3. **Protect and manage populations on nesting beaches.**

- Monitor trends in nesting activity by means of standardized surveys.
- Evaluate nest success and implement appropriate nest protection measures.
- Determine influence of factors such as tidal inundation and foot traffic on hatching success.
- Reduce effects of artificial lighting on hatchlings and nesting females.
- Eliminate vehicular traffic during nesting and hatching season.
- Ensure beach nourishment and coastal construction activities are planned to avoid disruption of nesting and hatching activities.
- Ensure that law enforcement activities eliminate poaching and harassment.
- Determine natural hatchling sex ratios.
- Define geographical boundaries of breeding aggregations.

4. **Protect and manage populations in the marine environment.**

- Determine loggerhead distribution, abundance and status in the marine environment.
- Monitor and reduce mortality from commercial and recreational fisheries.

- Monitor and reduce mortality from dredging activities.
- Monitor and prevent adverse impacts from oil and gas activities.
- Reduce impacts from entanglement and ingestion of persistent marine debris.
- Maintain law enforcement efforts to reduce poaching in U.S. waters.
- Centralize administration and coordination of tagging programs.
- Ensure proper care of sea turtles in captivity.

B. Recovery Actions / Plan Implementation

Through interagency coordination under Section 7 of the ESA, loggerhead sea turtles are protected from Federal actions that are likely to jeopardize the species. Minerals Management Service oil and gas activities, U.S. Army Corps of Engineers oil and gas and dredging activities, U.S. Navy explosive testing programs, and U.S. Environmental Protection Agency designations of dredged material disposal sites have been subject to consultations.

Although the revised recovery plan has not been finalized, many of the tasks identified in the original plan and identified in the revised draft have been initiated in the last 2 years. NMFS has made a major effort to reduce loggerhead sea turtle mortality in the shrimp fishery. During 1989, regulations requiring the use of TEDs in certain areas became effective. Resources have also been devoted to TED evaluations and certifications, TED technology transfer, economic evaluation of TEDs, and research on tow times.

NMFS has provided the resources to collect a range of basic biological information on sea turtles. It is supporting the Marine Turtle Cooperative Tagging Program and analyzing tag-recapture data. Projects are being conducted to determine species composition, relative abundance, and seasonal distribution of sea turtles in the inshore waters of North Carolina and South Carolina. A similar study has been initiated to determine distribution and size/species composition in pelagic waters.

NMFS laboratories are conducting research on sea turtle habitat utilization in the Gulf of Mexico. The project focuses on known sea turtle hotspots.

Analyses of sea turtle strandings have been conducted for the purpose of monitoring the level of strandings and possible causes of mortality.

Research has been conducted on the effects of pollutants on sea turtles.

C. Species Status / Trends

The loggerhead sea turtle was listed as threatened throughout its range on June 2, 1970, and its status has not changed. Most recent evidence suggests that the number of nesting females in South Carolina and Georgia may be declining, while the number of nesting females in Florida may be stable or increasing.

Current trends indicate that over the last 20-30 years on some nesting beaches (South Carolina and Georgia), the population is declining at an alarming rate. However, Florida's Melbourne Beach and Hutchinson Island populations have not declined and may possibly be increasing. The recovery team concluded that nesting trends for the loggerhead are generally declining with the most significant threats being coastal development, commercial fisheries, and pollution.

Loggerhead populations in Honduras, Mexico, Colombia, Israel, Turkey, Bahamas, Cuba, Greece, Japan, and Panama were reported to have declined in a previous status review. This decline continues and is primarily attributed to shrimp trawling, coastal development, increased human use of nesting beaches, and pollution. Loggerheads are the most abundant species in U.S. coastal waters, and are often captured incidently in shrimp trawls. Shrimping is thought to have played a significant role in the population declines observed for the loggerheads.

The Olive Ridley Turtle (*Lepidochelys olivacea*)

A. Recovery Team / Plan Status

A recovery plan for olive ridley sea turtles was approved in September 1984. This original plan included suggestions in the context of international cooperation.

Future recovery actions for the olive ridley will be addressed in the Pacific Basin Sea Turtle Recovery Plan. This effort will incorporate a draft Hawaiian Sea Turtle Recovery Plan. Expansion of the geographic range of recovery efforts is based on research documenting the widespread pelagic distribution of sea turtles and the need for coordinated research and management measures. This plan is expected to be completed within 2 years.

B. Recovery Actions / Plan Implementation

Although the Pacific Basin Recovery Plan has not been completed, actions have been underway to aid in the protection and recovery of olive ridley turtles. Since olive ridleys are seldom found in U.S. waters, most of the recovery actions occur at an international level. NMFS supports the activities of the Wider Caribbean Sea Turtle Recovery Team and Network to protect these turtles on their nesting beaches in Surinam and Costa Rica. Bilateral agreements with Mexico have resulted in some efforts to protect the east Pacific population of olive ridleys. In addition, interagency coordination under Section 7 of the ESA, consultations are conducted whenever Federal activities may jeopardize the species.

In order to reduce the pressure of commercial trade on olive ridley populations, the Secretaries of Commerce and the Interior utilized the Pelly amendment to the Fishermen's Protective Act of 1967. On March 20, 1991, Japan was certified as engaging in activities that diminish the effectiveness of CITES. The Pelly amendment provides that upon receipt of such a certification, the President may prohibit the importation of all or some wildlife products from the offending country. Japan has announced that it will prohibit all importation of olive ridley products and withdraw its CITES reservation on the species.

C. Species Status / Trends

The olive ridley sea turtle was listed as endangered for the "Mexican nesting population" and threatened for all other populations on July 28, 1978. Since listing, there has been a decline in abundance of this species, and it is recommended that the olive ridley be reclassified as endangered throughout the western hemisphere. The need for this

classification is based on continued direct and incidental take, and information showing that they move along the eastern Pacific coast from Mexico as far south as Ecuador and mix with other Central American populations. This mixing makes it impossible to differentiate among separate populations.

A decline in the number of nesting females and the low frequency of encounters with wild turtles indicates that populations are declining. Both eggs and adults are being heavily exploited. Olive ridleys in Mexico have been overharvested for international trade with Japan. There is evidence that the turtles are being taken in shrimp trawls and gill nets. In comments submitted to NMFS, reference is made to data from Fretey (1990) showing that olive ridleys appear to be attracted to trawling areas due to the abundance of discarded prey. The turtles are often captured and drowned in these trawls suggesting that trawling could be a significant source of mortalities.

Olive ridleys have been observed and captured in the Eastern Tropical Pacific as part of the Tuna Vessel Observer Program. Of the 63 turtles caught between March 1 - April 1, 1990, 75 percent were olive ridleys. The catch rate in 1990 is lower than in 1975 (the only other year of incidental catch data). The lower catch rate suggests that fewer turtles are in the area, or that their distribution has changed.

The population of olive ridleys in Surinam and adjacent waters in northern South America has also declined by more than 80 percent since 1967. The count of females nesting on beaches in Surinam annually between 1977 and 1982 was estimated at 400-600. The number of nests has declined in recent years indicating a reduction in nesting females. It has also been well documented that nesting females in the Guianas have declined over the last 20 years.

The Caribbean Monk Seal (*Monachus tropicalis*)

A. Recovery Team / Plan Status

No recovery plan for this species has been prepared, nor has a recovery team been established.

B. Recovery Actions / Plan Implementation

No specific actions necessary for the recovery of the species have been identified, and no direct recovery actions are being implemented.

C. Species Status / Trends

The Caribbean monk seal was listed as endangered throughout its range on April 10, 1979. The last reliable sighting of a Caribbean monk seal occurred in 1952. None were seen in aerial surveys in 1973, and no confirmed sightings have been reported since then. Many scientists believe that the species has been extinct since the early 1950s.

The Guadalupe Fur Seal (*Arctocephalus townsendi*)

A. Recovery Team / Plan Status

No recovery plan for this species has been prepared, nor has a recovery team been established. The principal cause of the decline in Guadalupe fur seals was commercial sealing. The species is now protected from such activity throughout its range, and the magnitude of the threat to the species is considered to be low. The portion of the Guadalupe fur seal's range which is under U.S. jurisdiction is at the limit of the species range. No activities in areas under U.S. jurisdiction are known to be adversely affecting recovery of this species at the present time. Therefore, management activities in the U.S. portion of its range are not likely to contribute substantially to recovery.

B. Recovery Actions / Plan Implementation

Through interagency coordination under Section 7 of the Endangered Species Act, Guadalupe fur seals are protected from Federal actions that are likely to jeopardize the species. No other specific actions necessary for the recovery of the species have been identified, and no direct recovery actions are being implemented.

C. Species Status / Trends

The Guadalupe fur seal was listed as threatened throughout its range on December 16, 1985. Although a systematic survey of population abundance has not been conducted for some time, there is anecdotal evidence that the population continues to increase. Mexican scientists have indicated that the numbers of animals on Guadalupe Island seem to be increasing. In addition, the species seems to be expanding its range. In addition to regular sightings of animals on San Miguel and San Nicolas Islands off the southern California coast, animals were observed hauled out on San Clemente Island during 1991.

The Hawaiian Monk Seal (*Monachus schauinslandi*)

A. Recovery Team / Plan Status

A new Hawaiian monk seal recovery team was appointed by NMFS in 1989. The first team, appointed in 1980, did not continue meeting after submitting its final recovery plan to NMFS in 1982. The plan, which includes a comprehensive research and management plan for the recovery of the Hawaiian monk seal, was published by NMFS in March 1983. The new recovery team is reviewing the plan, making recommendations for implementing it, and evaluating current research and management activities.

The following actions were recommended in the recovery plan:

1. **Identify and, where possible, mitigate the natural factors causing or contributing to the decreased survival and productivity of monk seals.**

2. **Characterize the marine and terrestrial habitat requirements of the monk seal, including use patterns and feeding habits.**

3. **Assess the monk seal population and monitor population trends.**

4. **Document, and where possible, mitigate the direct and indirect effects of human activities on monk seals.**

5. **Implement appropriate management actions leading to conservation and recovery of the species.**

6. **Develop an education program to foster greater conservation efforts among the users of the Northwestern Hawaiian Islands and the public.**

After the new recovery team's first meeting in 1989, recommendations were submitted to NMFS. Subjects addressed included research programs, data analyses, the Kure Atoll Head Start Project, a male mobbing problem, population monitoring, recovery actions at Midway Island, the repair of facilities at Tern Island, defining the point at which monk seals may be considered recovered, and priorities for the 1990 field season. At its 1990 meeting, the team reviewed plans for the coming field seasons, and made recommendations to NMFS concerning

a need for observers aboard long-line swordfish vessels operating near the northwest Hawaiian Islands.

The recovery team concluded that the 1983 plan still provides a useful guide to overall recovery needs. Instead of updating the plan, the team has recommended attaching the results of its program review to the 1983 plan.

B. Recovery Actions / Plan Implementation

In May 1988, NMFS designated critical habitat for the Hawaiian monk seal out to 20 fathoms in 10 areas of the northwestern Hawaiian Islands. NMFS believes these areas require special management consideration or protection now and in the reasonably foreseeable future. Critical habitat designation directly affects only federal agencies and those who need Federal authorization or funding for their actions. The agencies most likely to be affected by this designation include the U.S. Coast Guard, U.S. Navy, U.S. Fish and Wildlife Service, Minerals Management Service, Western Pacific Regional Fishery Management Council, and NMFS.

Using the 1983 recovery plan, the recommendations of the recovery team, and the recommendations of the Marine Mammal Commission; NMFS has developed a draft 3-year comprehensive work plan that will serve as the mechanism for identifying funding needs for fiscal years 1991, 1992 and 1993. The identified tasks focus on recovery of monk seal populations in the western end of the species' range, resolution of the mobbing problem at Laysan and Lisianski islands and monitoring monk seal populations at the five major breeding locations of French Frigate Shoals, Laysan Island, Lisianski Island, Pearl and Hermes Reef, and Kure Atoll. It also identifies a need to continue the Head Start Project at Kure Atoll in 1991 and 1992 and Midway Island in 1992 and 1993.

Since 1985, NMFS has been studying abnormal mobbing behavior by adult male seals at some islands. This behavior can result in the death or serious injury of adult females and young animals. Preliminary studies are being completed before implementing any type of action plan. NMFS' goal is to identify a method of controlling this behavior for field use in 1991. There were 21 known mortalities from mobbings at Laysan Island in 1988 and 1989.

In 1981, NMFS began a Head Start Project to help rebuild a breeding population at Kure Atoll. The program involves removing newly weaned female pups from the beaches of Kure, placing them in an enclosed pen on the shoreline, raising them through their first summer of life, and then releasing them at Kure. From 1981 to 1989, 25 pups were

headstarted. In 1990, three more pups were collected and released. To supplement these efforts, pups unlikely to survive on their own were taken from French Frigate Shoals, rehabilitated at facilities in Honolulu, and released at Kure. Eleven rehabilitated pups were released between 1985 and 1989, and three were released in 1990. Also, five healthy female pups were taken from French Frigate Shoals after weaning and released at Kure in 1990. The efforts to rebuild the Kure population have been successful. All but 2 of the 13 seals released during the first 5 years of the program have been resighted annually at Kure through 1990, and one of two not resighted at Kure was seen in 1990 at nearby Midway Island. Average beach counts at Kure have increased from about 22 animals per count in 1981 to 31 animals per count in 1990. Between 1987 and 1990, 13 pups were born to female seals that had been headstarted.

Based on recommendations made in the recovery plan, NMFS has monitored populations of monk seals at all primary breeding locations since 1983. Each site requires individual attention since each shows a wide spectrum of differences. Tagging of seals on these five sites has shown high survival of immature monk seals, but three island populations are not growing. Some counts include information on the age and sex composition of the population which helps to predict future trends. The ratio of juveniles and subadults to adults varies significantly among atolls.

In response to reports of Hawaiian monk seals being incidentally taken by long-line swordfish operations off French Frigate Shoals, NMFS investigated island beaches for interactions between monks seals and fishing operations. Enforcement agents interviewed all long-line, lobster, and bottomfish fishermen returning from fishing trips. In November 1990, NMFS published an emergency rule submitted by the Western Pacific Fishery Management Council that requires any fishing vessel operating within 50 miles of the Northwest Hawaiian Island to notify NMFS who will then determine whether that vessel should carry an observer. It also requires long-line vessels to obtain permits from NMFS and submit daily fishing logs on interactions with monks seals and other protected species. A final rule will be published in October 1991.

Because of the limited terrestrial habitat available to the Hawaiian monk seal, any loss of pupping, nursing and haulout areas is critical to the survival of the species. Also, any former habitat than can be regained will promote recovery. Recently, monk seals have been sighted regularly around Kauai, the westernmost of the main Hawaiian Islands. The boundaries of the small Kilauea Point National Wildlife Refuge which serves as monk seal habitat on the island, do not extend seaward

of the shoreline. At the request of the Marine Mammal Commission, the Hawaii Department of Land and Natural Resources is taking steps to designate about 650 acres of nearshore waters off Kilauea Point as a State Marine Life Conservation District.

Tern Island, which has served as a permanent field station for the U.S. Fish and Wildlife Service since 1979, provides an essential base for NMFS to monitor all islands in French Frigate Shoals. These shoals provide habitat for more than half of the total population of Hawaiian monk seals. In the late 1980s, USFWS considered abandoning the station because of the expense involved in its operation and maintenance. However, after completing recommendations for a long-term course of action on the field station at Tern Island, USFWS has begun to develop a plan to completely restore and refurbish the island's facilities. Restoration will require the cooperation of the State of Hawaii, USFWS, the Navy, the Corps of Engineers, and the Coast Guard.

C. Species Status / Trends

The Hawaiian monk seal was listed as endangered throughout its range on November 23, 1976. Counts have been made at the atolls, islands and reefs where they haul out in the northwest Hawaiian Islands since the late 1950s. In 1982, the highest count for all atolls was about 50 percent of the highest counts made in 1957-58. NMFS estimates that the monk seal population is slightly more than 1,000 animals. It is not known whether the population is increasing, decreasing, or stable. However, based on data collected at the five major haulouts, the number of births recorded in 1990 declined by 23 percent from the average annual levels recorded between 1983 and 1989.

The Hawaiian monk seal is most abundant on Kure Atoll, Midway Islands, Pearl and Hermes Reef, Lisianski Island, Laysan Island, Maro Reef, Gardner Pinnacles, French Frigate Shoals, Necker Island and Nihoa Island. This species is vulnerable to human disturbance on pupping and haulout beaches, entanglement in marine debris, incidental take in commercial fisheries, possible die-offs from disease and naturally occurring biotoxins, male mobbing of female seals, and shark predation.

The Steller (Northern) Sea Lion (*Eumetopias jubatus*)

A. Recovery Team / Plan Status

On November 21, 1989, the Environmental Defense Fund and 17 other environmental organizations petitioned NMFS to publish an emergency rule listing the Steller sea lion as an endangered species and to initiate a rulemaking to make the listing permanent. On February 22, 1990, NMFS determined that under Section 4 of the ESA, the petition presented substantial information indicating that the action may be warranted and requested comments. (55 FR 6301) On April 5, 1990, NMFS issued an emergency interim rule (55 FR 12645) listing the Steller sea lion as threatened.

On July 20, 1990, NMFS proposed listing the Steller sea lion as a threatened species. (55 FR 29793) On the same date, NMFS also issued an advanced notice of proposed rulemaking (55 FR 29792) requesting public comments to assist NMFS in its efforts to develop separate, more comprehensive protective regulations and critical habitat designation.

NMFS took this dual-track rulemaking approach because it wanted to avoid any lapse between the expiration of the emergency interim listing and the final listing. There was not sufficient time to issue a proposed rule with comprehensive protective regulations including a proposed critical habitat designation, solicit public comments, provide an opportunity for public hearings, conduct the required regulatory and economic analyses, and issue a final rule by the time the emergency listing expired at the end of the 240 days on December 3, 1990.

Further NMFS believed that it was preferable to consider the information provided in the recovery plan prior to publishing comprehensive protective regulations. Therefore, NMFS listed the Steller sea lion as a threatened species on November 26, 1990 (55 FR 49204) with a limited set of protective measures and will propose more comprehensive protective regulations and critical habitat in a separate rulemaking.

Lastly, the specification of critical habitat, as required under the ESA, will be proposed at the earliest possible date as part of the comprehensive protective regulations which will be published in a separate later rule. NMFS will consider physical and biological factors essential to the conservation of the species that may require special management consideration or protection including breeding rookeries, haulout sites, feeding areas, and nutritional requirements. Additionally, NMFS will consider terrestrial habitats adjacent to rookeries and their

need for protection from development and other uses, such as logging or mining.

In March 1990, NMFS appointed the Steller Sea Lion Recovery Team which is responsible for drafting a recovery plan and providing recommendations to NMFS on necessary protective regulations for the Steller sea lion. The draft Steller Sea Lion Recovery Plan was completed and made available for public comment on March 15, 1991 (56 FR 11204). The comments have been reviewed and the draft recovery plan is being revised. A final recovery plan should be submitted to the Assistant Administrator for Fisheries for final approval by the end of 1991.

The draft recovery plan recommends the following actions:

1. **Identify species habitat requirements and protect areas of special biological significance.**

2. **Identify specific management stocks.**

3. **Monitor population status and trends.**

4. **Conduct age and sex class studies on rookeries and tag animals for future studies.**

5. **Determine and minimize causes of mortality.**

6. **Investigate feeding ecology and factors affecting energetics.**

B. Recovery Actions / Plan Implementation

Through interagency coordination under Section 7 of the ESA, Steller sea lions are protected from Federal actions that are likely to jeopardize the species. Activities that present a potential conflict include fisheries and oil exploration. The species is also protected under the Marine Mammal Protection Act (MMPA).

Although a final recovery plan has not been approved, a number of recovery actions identified in the draft recovery plan have been initiated. Population surveys and research on population dynamics have conducted. Research to determine primary prey species has been conducted. Analyses of tissues have been done to determine levels of organochlorine pollutant residues and levels of heavy metals. Satellite tag studies are being conducted to monitor movement and possibly to identify areas to be designated as critical habitat.

The following protective regulations were adopted as limited protective measures until the final recovery plan and designation of critical habitat are completed.

1. **Discharge of a firearm at or within 100 yards of a Steller sea lion is prohibited with certain exceptions.**

   - Exceptions include: for permits issued under subpart C of ESA; for government officials if taking is in a humane manner, for the protection or welfare of the animal, the protection of the public health and welfare, or the nonlethal removal of nuisance animals; and for subsistence purposes.

2. **Buffer zones of 3 nautical miles were established around all principal Steller sea lion rookeries in the Gulf of Alaska and the Aleutian Islands.**

   - Generally, no vessel will be allowed to operate within the 3-mile buffer zones and no person will be allowed to approach on land closer than one-half mile with certain exceptions.

   - Exceptions include: for permits issued under subpart C of ESA; for government officials if taking is in a humane manner, for the protection and welfare of the animal, the protection of the public health and welfare, or the nonlethal removal of nuisance animals; for government officials conducting activities necessary for national defense or the performance of other legitimate government activities; and for emergency situations that present a threat to the health, safety or life of a person or a significant threat to a vessel or property. Additionally, a mechanism is provided where the Alaska Regional Director may issue exemptions for traditional or historic activities (including subsistence taking) that do not have a significant adverse effect on sea lions and for which there is no readily available and acceptable alternative. Notice of all such exemptions will be published in the Federal Register.

3. **An annual incidental kill quota of 675 Steller sea lions was established for Alaskan waters and adjacent areas of the Exclusive Economic Zone (EEZ) west of 141 W. Longitude.**

   - To monitor this quota, NMFS retained the observer authority of the emergency rule to allow the Alaska Regional Director

to place an observer on any vessel. If collected data indicate that the quota is being approached, NMFS will issue emergency rules to close areas to fishing, allocate the remaining quota among fisheries, or take other action to ensure that commercial fishing operations do not exceed the quota.

C. Species Status / Trends

The Steller (northern) sea lion was listed as threatened throughout its range on December 4, 1990. The Steller (northern) sea lion ranges from Hokkaido, Japan, through the Kuril Islands and Okhotsk Sea, the Aleutian Islands, and central Bering Sea, Gulf of Alaska, southeast Alaska, and south to central California. There is not sufficient information to consider animals in different geographic regions as separate populations. The centers of abundance and distribution are the Gulf of Alaska and Aleutian Islands, respectively. Rookeries (breeding colonies) are found from the central Kuril Islands to Ano Nuevo Island, California; most large rookeries are in the Gulf of Alaska and Aleutian Islands. More than 50 Steller sea lion rookeries and a great number of haulout sites have been identified.

During the 1985 breeding season, 68,000 animals were counted on Alaska rookeries from Kenai Peninsula to Kiska Island, compared to 140,000 counted in 1956-60. A 1988 Status Report concluded that the population size in 1985 was probably below 50 percent of the historic population size in 1956-60 and below the lower bound of its Optimum Sustainable Population level under the MMPA. A comparable survey conducted in 1989 showed that the number observed on rookeries from Kenai to Kiska declined to 25,000 animals. This indicates a decline of about 82 percent from 1956-60 to 1989 in this area. Preliminary results from the 1990 Steller sea lion survey show that about 25,000 adult and juvenile sea lions were counted, similar to the 1989 count. These results indicate that the population has not declined further in areas where the decline has been significant, and that the 1989 counts were not anomalous. The counts are not an estimate of total numbers of animals but include only those animals on the beach (excluding pups) at the time of the survey. As such, they can be used to indicate trends in abundance, rather than to estimate total species abundance.

Species abundance estimates during the late 1970s ranged from 245,000-290,000 adult and juvenile animals. A current total population estimate is not available. However, counts at rookeries and haulout sites throughout most of Alaska and the USSR in 1989, plus estimates from surveys conducted in recent years at locations not counted in 1989, provide a minimum number for the species during 1989. The summaries of these counts and estimates are: Alaska - 53,000 animals;

Washington, Oregon and California - 4,000 animals; British Columbia - 6,000 animals; and USSR - 3,000 animals for a total population estimate of 66,000 animals.

Based upon this evidence, NMFS determined that the Steller sea lion is likely to become an endangered species within the foreseeable future.

The Sacramento River Winter-Run Chinook Salmon (*Oncorhynchus tshawytscha*)

A. Recovery Team / Plan Status

The Sacramento River winter-run chinook salmon was listed as threatened November 30, 1990. It had been listed on an emergency basis since August 4, 1989. A recovery team has been appointed and will draft a recovery plan. At its first meeting, the team reviewed an interagency 10-point Restoration Plan as a basis for a more comprehensive recovery plan.

B. Recovery Actions / Plan Implementation

Because of this species' dependence on an adequate flow of water at a specific temperature in the Sacramento River where drought conditions have existed for the past 5 years, most of the recovery actions for the winter-run chinook salmon concern consultations under section 7 of the ESA with Federal agencies that either control the diversion of water in the river or permit activities by other water users.

NMFS is a member of the Bureau of Reclamation's temperature advisory committee, and is working with the Bureau on temperature management strategies for attracting winter-run as far up the Sacramento River as possible and increase the amount of spawning in the reach of the river that the Bureau can protect with available water. NMFS is also working with the State of California by reviewing impacts of state actions on the winter-run chinook.

In 1988, NMFS, the State of California, USFWS, and the Bureau of Reclamation signed a cooperative agreement to restore the winter-run chinook in the Sacramento River. The Ten-Point Winter-Run Restoration Plan includes actions such as raising the gates at the Bureau's Red Bluff Diversion Dam from December 1 through April 1 to allow free passage of adult winter-run chinook to suitable spawning habitat and maintaining water temperatures at levels below lethal limits in the reach of river above Red Bluff Dam that is used for spawning.

In June 1991, NMFS issued a biological opinion to the Army Corps of Engineers that issuance of a permit to the Glenn-Colusa Irrigation District would likely jeopardize the continued existence of the winter-run chinook because the District did not plan to install new fish screens that would exclude fish when water is diverted from the Sacramento River. NMFS requested that the District take immediate action to prevent a take of juvenile winter-run chinook before they would pass the District's pumping station. NMFS requested the Department of Justice to move to enjoin the operation of the pumping plant when the fish are likely to be

taken. A Federal District Court Judge issued a temporary restraining order against the District which was effective on August 19 and cuts diversion of water by about 50 percent. The Temporary Restraining Order will be in place until November 1991 when a hearing on a preliminary injunction has been scheduled.

NMFS has consulted under section 7 with the Pacific Fishery Management Council and issued a biological opinion to the Council. Because a direct take of winter-run chinook salmon by sport or commercial fishermen is not allowed, the biological opinion includes measures in the incidental take statement that decrease the potential incidental take of the species. These measures include not approving an early opening of the commercial fishery south of Point Arena, California, and delaying the recreational fishery for 2 weeks and closing it 2 weeks early south of Point Arena.

Currently, NMFS is consulting with the Bureau of Reclamation on the operation of its Central Valley Project, and the Army Corps of Engineers on gravel mining operations, dredging, and flood control projects in the Sacramento River.

The Army Corps of Engineers has been consulting with NMFS on permit applications for disposal of dredge material at a site in San Francisco Bay near Alcatraz Island. NMFS is concerned about the effects of disposing of contaminated dredge material at the site because juvenile chinook spend time in the Bay after migrating downstream before entering the Pacific Ocean.

Although a recovery plan has not been prepared, NMFS has sponsored basic biological studies to gain information on this species. In FY 1989, research was conducted to determine habitat needs. In FY 1990, research was conducted to determine the effects of predation and levels of temperature tolerance on developing eggs.

C. Species Status / Trends

Winter-run chinook salmon in the Sacramento River, California, are a unique population of chinook salmon, and are distinguishable from the other three runs in the river on the basis of timing of their upstream migration and spawning season. For the most part, the winter-run chinook salmon population is comprised of three year-classes that return to spawn as 3-year-old fish. NMFS determined that the winter-run chinook salmon should be listed as threatened under the ESA because the run has declined more than 97 percent over a period of less than 20 years. From 1967 through 1969, average run size was about 84,000 fish; in 1982 through 1984, the average was about 2,000 fish. In 1989,

only 550 salmon returned to the river; in 1990, the return was around 450 fish; and in 1991, about 200 fish returned.

The winter-run chinook has declined in the Sacramento River primarily due to the actions of water management projects. These projects have modified the river and taken away spawning habitat in the upper Sacramento River through water diversion which lowers water level in the river and raises the temperature to a level that is lethal to salmon eggs. Winter-run chinook spawn from mid April to mid August with peak spawning in May and June. The eggs incubate and hatch in about 2 months. If the water temperature is too high (especially during the peak incubation and hatching months of July through September), the eggs do not hatch. Juveniles migrate to the sea from August into the spring months. Water diversions and other water management actions such as inadequate fish screens at diversion facilities can be lethal to migrating juveniles. Adult fish begin returning from the sea during the winter. While at sea, they may be taken incidentally to commercial and recreational fishing for other species of salmon.

The continuing drought in California, contracts for water that the Bureau believes it is obligated to fulfill, the water management practices of local and state water districts, and actions that have not been taken at water diversion facilities to allow the passage of juvenile fish all combine to make restoration of the winter-run chinook salmon a difficult process.

The Shortnose Sturgeon (*Acipenser brevirostrum*)

A. Recovery Team / Plan Status

A new shortnose sturgeon recovery team was appointed by NMFS in 1988. The first team, appointed in the late 1970s, did not continue meeting after submitting a draft recovery plan to NMFS in 1981. The 1988 team is reviewing new information on the species and will recommend whether there should be a change in the status of the species. Also, the team is revising and updating the recovery plan submitted by the first team.

The team expects to complete revision of the plan in 1992.

B. Recovery Actions / Plan Implementation

While the recovery plan is being revised, NMFS is taking recovery actions through the ESA section 7 consultation process and has issued scientific research permits directed at recovery of the species.

Recently issued scientific research permits allow studies in the southern rivers where there is the greatest lack of information on shortnose sturgeon. Current research is being conducted by the Georgia Department of Natural Resources, the South Carolina Wildlife and Marine Resources Department, USFWS, and the North Carolina State University.

C. Species Status / Trends

The shortnose sturgeon was listed as endangered throughout its range on March 11, 1967. It is an anadromous fish that spawns in the coastal rivers along the east coast of North America from the St. John's river in Canada to the Saint John's river in Florida. It prefers the nearshore marine, estuarine and riverine habitat of large river systems. Unlike the more typical anadromous species such as salmon and shad that are found in the same river systems, the shortnose sturgeon is not known to use the offshore marine environment.

No estimate of the historical population size of shortnose sturgeon is available. While the shortnose sturgeon was rarely the target of a commercial fishery, it was often taken incidentally to the commercial fishery for Atlantic sturgeon. In the 1950s, sturgeon fisheries declined on the east coast which resulted in a lack of records of shortnose sturgeon. This led the USFWS to conclude that the fish had been eliminated from the rivers in its previous range (except the Hudson River) and was in danger of extinction. USFWS believed the population

level of the shortnose sturgeon had declined because of pollution and overfishing, both directly and incidentally in shad gillnets.

Placing the species on the endangered species list resulted in a great deal of research on the species in the northern river systems.

By the mid 1980s, NMFS had enough information on population levels in one mid-Atlantic and four northern rivers to recommend changes in the listing of the shortnose sturgeon. Also, in its 1987 status review, NMFS recommended listing the species according to river specific populations rather than as a single species. In the St. John's River in Canada, and the Kennebec River in Maine, NMFS recommended removing the sturgeon from the ESA list because the population numbers were stable and the species faced few adverse impacts to its habitat. Although the population levels are known and considered stable in the Connecticut, Hudson and Delaware Rivers, NMFS recommended listing as threatened (rather than delisting) due to some remaining habitat threats and a need for further information on population levels. In all other river systems, mainly southern rivers, NMFS recommended maintaining the endangered listing until further information on population levels could be obtained.