

ANNUAL REPORT OF THE
MARINE MAMMAL COMMISSION, CALENDAR YEAR 1985

A REPORT TO CONGRESS

Marine Mammal Commission
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CHAPTER I

INTRODUCTION

Background

This is the thirteenth Annual Report of the Marine Mammal Commission, covering the period from 1 January through 31 December 1985. It is being submitted to Congress pursuant to Section 204 of the Marine Mammal Protection Act of 1972.

Established under Title II of the Act, the Marine Mammal Commission is an independent agency of the Executive Branch. It is charged with the responsibility for developing, reviewing, and making recommendations on actions and policies for all Federal agencies with respect to marine mammal protection and conservation, and for carrying out a research program.

Personnel

The Commission consists of three Commissioners who are appointed by the President. The Marine Mammal Protection Act requires that Commissioners be knowledgeable in marine ecology and resource management. Throughout 1985, the Commissioners were: William E. Evans, Ph.D. (Chairman), San Diego, California; Robert Elsner, Ph.D., Fairbanks, Alaska; and Karen Pryor, North Bend, Washington. Dr. Evans' nomination was confirmed by the Senate on 5 April 1984, Ms. Pryor's on 14 November 1985, and Dr. Elsner's on 12 December 1985.

The Commission's senior staff members are: John R. Twiss, Jr., Executive Director; Robert J. Hofman, Ph.D., Scientific Program Director; David W. Laist, Program Officer; Donald C. Baur, General Counsel; Douglas P. DeMaster, Ph.D., Deputy Scientific Program Director; Nancy L. Creason, Administrative Officer; and Jeannie K. Drevenak, L. Diane Roberts, and Eileen Shoemaker, Staff Assistants.

The Commission Chairman, with the concurrence of the other Commissioners, appoints the nine members of the Committee of Scientific Advisors on Marine Mammals, a committee of scientists statutorily mandated to be knowledgeable in marine ecology and marine mammal affairs. At the end of 1985, its members were: Robert L. Brownell, Jr., Ph.D., U.S. Fish and Wildlife Service; William W. Fox, Jr., Ph.D., University of Miami; Joseph R. Geraci, D.V.M., Ph.D., University

of Guelph; Daniel Goodman, Ph.D., Montana State University; Murray L. Johnson, M.D. (Chairman), University of Washington; Jack W. Lentfer, Alaska Environmental Consulting, Juneau, Alaska; George A. Llano, Ph.D., Naples, Florida; Jane M. Packard, Ph.D., Texas A&M University; and Forrest G. Wood, San Diego, California. During 1985, several individuals completed their terms of service on the Committee. They were: David G. Ainley, Ph.D., Point Reyes Bird Observatory; Douglas G. Chapman, Ph.D. (former Chairman), University of Washington; Paul K. Dayton, Ph.D., Scripps Institution of Oceanography; Douglas P. DeMaster, Ph.D., National Marine Fisheries Service, Southwest Fisheries Center; Daryl P. Domning, Ph.D., Howard University; James G. Mead, Ph.D., National Museum of Natural History, Smithsonian Institution; and William Medway, D.V.M., Ph.D., University of Pennsylvania.

Funding

The Marine Mammal Commission came into existence during the second half of Fiscal Year (FY) 1974 and was appropriated \$412,000 for that period. Subsequent appropriations were:

FY 75:	\$750,000
FY 76:	\$900,000
FY 77:	\$1,000,000
FY 78:	\$900,000
FY 79:	\$702,000
FY 80:	\$940,000
FY 81:	\$734,000
FY 82:	\$672,000
FY 83:	\$822,000
FY 84:	\$929,000
FY 85:	\$929,000

In FY 1986, the Commission was appropriated \$900,000. In its report on the appropriations, the Senate Appropriations Committee cited the need for adequate funding to allow the Commission to carry out its basic statutory responsibilities to affect national and international policies and actions related to marine mammals as well as to conduct a research program. The report cited the need to provide support to the Commission to allow it to develop and implement programs to protect endangered and threatened marine species, programs to facilitate the compilation and evaluation of data needed to make reliable stock determinations as an element in developing ecologically sound management strategies, and programs to improve methods and procedures for collecting and analyzing marine mammal data.

CHAPTER II

RESEARCH AND STUDIES PROGRAM

The Marine Mammal Protection Act requires that the Commission: maintain a continuing review of research programs conducted or proposed to be conducted under the authority of the Act; undertake or cause to be undertaken such other studies as it deems necessary or desirable in connection with marine mammal conservation and protection; and take every step feasible to prevent wasteful, duplicative research. To accomplish these tasks, the Commission: conducts an annual survey of Federally-funded marine mammal research; reviews and recommends steps that should be taken to prevent duplication and improve the marine mammal research programs conducted or supported by the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, the Minerals Management Service, and other Federal agencies; convenes meetings and workshops to review, plan, and coordinate marine mammal research; and contracts for studies to help define and develop solutions to domestic and international problems affecting marine mammals and their habitats so as to facilitate and complement the other agencies' activities.

Survey of Federally-Funded Marine Mammal Research

Research directly or indirectly relevant to the conservation and protection of marine mammals and their habitats is conducted or supported by a broad range of Federal departments and agencies. To determine the precise nature of this research, to examine ways in which it can best be used to facilitate marine mammal conservation and protection, and to prevent wasteful duplication, the Commission annually requests and reviews information on the marine mammal research programs being conducted, supported, or planned elsewhere in the Federal Government.

In 1985, the Commission requested information from 21 Federal agencies and departments, at least 14 of which are known to be conducting or supporting research relevant to the conservation and protection of marine mammals. Those agencies and departments are the Department of Agriculture, the Department of State, the Minerals Management Service, the National Institutes of Health, the National Marine Fisheries Service, the National Marine Pollution Program Office, the

National Sea Grant College Program, the National Science Foundation, the Naval Ocean Systems Center, the Office of Ocean and Coastal Resource Management, the Office of Oceanography and Marine Assessment, the Office of Naval Research, the Smithsonian Institution, and the U.S. Fish and Wildlife Service. The Minerals Management Service, the National Marine Fisheries Service, and the U.S. Fish and Wildlife Service have had the largest and most diverse marine mammal research programs.

Information from the 1985 survey is due early in 1986. After it has been compiled and verified, the Commission, in consultation with its Committee of Scientific Advisors, will evaluate the information and make such recommendations as may be appropriate to better develop, focus, and coordinate agency programs.

Research Program Reviews, Workshops, and Planning Meetings

In 1985, the Commission, in consultation with its Committee of Scientific Advisors, reviewed, commented on, and/or made recommendations concerning: the tuna/porpoise, harbor porpoise, bottlenose dolphin, Hawaiian monk seal, North Pacific fur seal, Steller sea lion, bowhead whale, right whale, gray whale, and Antarctic marine living resources research programs being planned, conducted, or supported by the National Marine Fisheries Service; the research on southern sea otters, bowhead whales, gray whales, and other marine mammals being planned and supported by the Minerals Management Service; the manatee, sea otter, walrus, and polar bear research programs being conducted by the Fish and Wildlife Service; and the program being developed by the Air Force to verify predictions concerning Space Shuttle launch and landing effects on pinnipeds that haul out and breed on San Miguel Island. The Commission also convened, co-sponsored, or participated in meetings and workshops to: (1) describe research, education, and other programs necessary to better assess and resolve problems caused by lost and discarded fishing gear and other potentially hazardous marine debris; and (2) to better define and decide how best to meet essential information and management requirements relating to: bowhead whales; gray whales; right whales; porpoise affected by the yellowfin purse seine fishing in the eastern tropical Pacific; marine mammal/fisheries interactions in California coastal waters; polar bears; sea otters; walrus; and other marine mammals in Alaska; Mediterranean monk seals; and conservation of seals and whales in the seas surrounding Antarctica.

Commission-Sponsored Research and Study Projects

The Departments of Commerce and the Interior have primary responsibility under the Marine Mammal Protection Act for acquiring the biological and ecological data needed to protect and conserve marine mammals and the ecosystems of which they are a part. This responsibility has been delegated to the National Marine Fisheries Service and the Fish and Wildlife Service, respectively.

As noted earlier, the Commission convenes workshops and contracts for research and studies to identify and evaluate threats to marine mammal populations. It also supports, within its budget limitations, such other research as it deems necessary to further the purposes and policies of the Act. Since it was established, the Commission has contracted for 526 projects, ranging in amounts from several hundred dollars to \$150,000. The average contract has been for about \$7,500. The total amounts of contracts awarded have been: \$258,787 in FY 1974; \$446,628 in FY 75; \$497,449 in FY 76; \$132,068 in the FY 76-77 three-month transition period; \$523,504 in FY 77; \$407,678 in FY 78; \$219,897 in FY 79; \$396,640 in FY 80; \$173,652 in FY 81; \$107,117 in FY 82; \$211,982 in FY 83; \$327,854 in FY 84; and \$226,160 in FY 85.¹

From time to time, the Commission's investment in research activities is in the form of transfers of funds to other Federal agencies, particularly the National Marine Fisheries Service and the Fish and Wildlife Service. When such funds are transferred, the Commission provides detailed scopes of work which describe precisely what the agency is to do or to have done and the requirements for reporting on progress to the Commission. In many instances, this approach has made it possible for agencies to start needed research sooner than might otherwise have been possible and then to subsequently support the projects on their own for as long as necessary. The Commission believes that it is valuable to maintain agency involvement to the greatest extent possible and that such transfers provide a useful means of doing so.

Projects undertaken by the Marine Mammal Commission in 1985 are summarized below. In those cases in which the Commission has jointly supported the work with other agencies, it is so noted in the project summary.

Final reports from Commission-sponsored studies completed in 1985 and earlier are available from the National

¹ This includes \$20,000 transferred to the Commission from the National Marine Pollution Office of the National Oceanic and Atmospheric Administration.

Technical Information Service; they are listed in Appendix B of this Report. Papers resulting from Commission-sponsored activities and published elsewhere are listed in Appendix C.

Survey of Federally-Funded Marine Mammal Research
(G. H. Waring, Ph.D., Southern Illinois University)

Each year the Commission identifies and publishes a report on the marine mammal research conducted or supported by other Federal agencies in the preceding fiscal year and that which is expected to be conducted or supported by those agencies in the current fiscal year. At the end of 1985, the contractor was preparing a report summarizing information being provided by the agencies on their Fiscal 1985 and Fiscal 1986 marine mammal research programs. The proof copy of this report, to be completed early in 1986, will be sent to the agencies to verify the accuracy of reported data on their marine mammal research programs. After verification, the Commission, in consultation with its Committee of Scientific Advisors, will review the report and, as appropriate, recommend actions to agencies for better developing, focusing, and coordinating their research programs. Copies of the final report will be provided to agencies conducting or supporting marine mammal research and will be available to other interested persons and organizations through the National Technical Information Service.

Update of the Commission's Bibliography of Selected Marine Mammal Literature
(R. R. Reeves, Okapi Wildlife Associates, Como, Quebec, Canada)

The Commission receives numerous requests from the general public for information about marine mammals and related conservation issues. To help respond to these requests, the Commission publishes an annotated bibliography of selected books, scientific papers, and other literature of general interest that generally can be found in public and university libraries. This contractor is revising and updating the bibliography which was last published in July 1981. The revision, expected to be completed early in 1986, will be available from the Commission on request.

Development of a Long-Range Plan to Protect and Conserve Marine Mammals in Alaska
(J. W. Lentfer, Juneau, Alaska)

A diverse assemblage of marine mammals inhabit the coastal waters of Alaska. Many of these species, some of which are hunted by Alaska Natives for subsistence purposes,

are being or could be affected by coastal and offshore development, fisheries, and other human activities. The purpose of this project, begun in 1984, is to organize species-oriented working groups, comprised of informed representatives of relevant State agencies, Federal agencies, Native groups, the academic community, and public interest groups, to cooperatively undertake status reviews and develop recommended research and management plans for those species most likely to be affected by human activities (walrus, polar bear, sea otter, Steller sea lion, ringed seal, bearded seal, harbor seal, spotted seal, ribbon seal, and beluga whale). To facilitate the operation of these working groups, the Commission contracted with several experts (see below) to compile, synthesize, and evaluate available life history, demographic, and management data. By the end of 1985, draft reports on eight species had been completed and submitted to the working groups and to the Commission for review. Draft reports on the remaining two species are expected to be completed by the end of February 1986. Final species accounts, which will include recommended research and management programs, are expected to be completed by mid-1986. They are intended to provide useful guidance to the State and Federal agencies with research and management responsibilities for these species and will be incorporated into a comprehensive research and management plan.

Review of Information Concerning Steller Sea Lion and Harbor Seal Populations in Alaska
(A. A. Hoover, Pacific Rim Research, Seward, Alaska)

The contractor is compiling, synthesizing, and evaluating available information on the biology, demography, exploitation, and management of Steller sea lion and harbor seal populations in Alaska coastal waters. Draft reports submitted in August and September of 1985 indicate that both harbor seal and Steller sea lion populations are declining in certain areas of Alaska. While the causes of the decline are not known, it could be due to factors such as entanglement in lost and discarded fishing gear, entanglement in active fishing gear, and depletion of important food species as a result of fishing. The drafts were reviewed and currently are being revised to take account of comments and questions raised by members of the Commission, its Committee of Scientific Advisors, and members of the species working groups constituted pursuant to the preceding contract. The final species reports, expected to be completed by mid-1986, will contain recommendations on priority research and management needs.

Review of Information Concerning Bearded and Spotted Seal Populations in Alaska

(University of Alaska, Arctic Environmental Information and Data Center, Anchorage, Alaska)

The contractor is compiling, synthesizing, and evaluating available data on the biology, demography, exploitation, and management of bearded and spotted seal populations in Alaska coastal waters. In August 1985, a draft report was completed and sent to working group members and the Commission for review and comment. Although the draft report indicates that Soviet and U.S. subsistence harvests are a significant source of bearded and spotted seal mortality in the Bering and Chukchi Seas, these populations appear sufficiently large to sustain current harvest levels without causing substantial declines. The draft report also notes that Bering Sea fisheries may affect and be affected by bearded and spotted seals and that planned oil and gas exploration and development in the Bering and Chukchi Seas could harm both species. The final report, expected to be completed by mid-1986, will contain recommendations on priority research and management actions. It will be included in the comprehensive research and management plan on Alaska marine mammals.

Review of Information Concerning Ringed and Ribbon Seals in Alaska

(B. P. Kelly, Institute of Marine Science, University of Alaska, Fairbanks, Alaska)

The contractor is compiling, synthesizing, and evaluating available data concerning the biology, demography, exploitation, and management of ringed and ribbon seal populations in Alaska coastal waters. A draft report on ringed seals, with research and management recommendations, was completed and sent to working group members and the Commission for review and comment in October 1985. A draft report on ribbon seals will be distributed for review in January 1986. The draft ringed seal report indicates that ringed seals have been harvested for thousands of years by Eskimos throughout the Arctic rim, that knowledge of ringed seal population dynamics is limited because of the species' wide distribution in mostly ice covered areas and that, while the best available population estimates suggest that subsistence harvesting or other activities are not causing population declines, the estimates are based upon a number of unverified assumptions. Both reports are expected to be in final form early in 1986 for inclusion in the comprehensive research and management plan for Alaska marine mammals.

Review of Information Concerning Beluga Whales in Alaska
(K. W. Hazard, Juneau, Alaska)

The contractor is compiling, synthesizing, and evaluating available data concerning the biology, demography, exploitation, and management of beluga whales in Alaska coastal waters. A draft report was sent to the Commission and members of the beluga whale working group in October 1985 for review. The draft report indicates that abundance in some areas is far below historical levels, due probably to poorly documented subsistence harvests, and that salmon and other fisheries in areas such as Bristol Bay affect and are affected by beluga whales. The final report, to be completed in mid-1986, will incorporate recommendations on research and management needs and will be a part of the comprehensive research and management plan for Alaska marine mammals.

Update of 1978 Report on World Catches of Marine Mammals
1966-1975

(R. R. Reeves, Okapi Wildlife Associates, Como, Quebec, Canada)

In 1976 and 1977, the Commission funded a project to compile and summarize information on worldwide catches of marine mammals. The project report, published by the National Technical Information Service in January 1978, included information on worldwide catches of cetaceans, pinnipeds, and other marine mammals for the years 1966 through 1975. Under the present contract, the contractor is beginning to compile information on world catches of marine mammals since 1975 in order to update the 1978 report. The balance of funding necessary to finish the project is expected from the United Nations Environment Programme. The updated report itself should be finished in 1987. As with the past report, it should prove useful in evaluating the effectiveness of marine mammal conservation programs in other countries and for identifying additional conservation needs.

Atlas of Baleen Whale Catch Distribution in the Southern
Ocean

(National Marine Mammal Laboratory, Seattle, Washington)

From 1931 to 1980, a combined total of more than one million blue, fin, sei, minke, and humpback whales were taken from the Southern Ocean, the seas surrounding Antarctica. During 1985, the Commission and the National Marine Fisheries Service jointly supported this effort to produce a series of computer-generated maps depicting the locations of catches by species, month, and year. The resulting maps, which have been incorporated into a "Preliminary Atlas of Baleenopterid Whale Distribution in the Southern Ocean," indicate striking differences in the latitudinal distribution of catches of the

different species, suggesting species-specific differences in distribution patterns and/or periodic shifts in the geographic focus of whaling operations. Further analysis of the maps and related data sets currently being carried out by National Marine Mammal Laboratory scientists may indicate likely feeding areas, breeding areas, or other areas of similar biological importance that may merit special protection. If so, the Commission will work with the Department of State and the National Marine Fisheries Service to see that appropriate conservation measures are adopted internationally under the International Convention for the Regulation of Whaling and the Convention on the Conservation of Antarctic Marine Living Resources.

Special International Whaling Commission Publication on Right Whales
(International Whaling Commission)

Although commercial harvesting of right whales has been prohibited for approximately 50 years, right whale populations remain at extremely low levels and there is uncertainty as to whether they are increasing, decreasing, or remaining stable. At its 1982 meeting, the Scientific Committee of the International Whaling Commission recommended that a workshop be held to assess available data on the status of various right whale populations, particularly those in the Okhotsk Sea and Sea of Japan, the northwest Atlantic, the southwest Atlantic, and the South Pacific. The workshop, sponsored by the Marine Mammal Commission, the International Whaling Commission, and several other organizations, was held at the New England Aquarium in June 1983. Money was not available to publish the workshop report or the more than 25 scientific background papers prepared for this meeting. Under this contract, partial funding was provided to publish the papers in a special IWC Volume on Right Whales to be available in the summer of 1986. This will ensure that those data, models, and analyses considered by the workshop participants are readily accessible to scientists, administrators, and the interested public throughout the world. Such information also can assist U.S. efforts in management of the closely related bowhead whale (see Chapter VIII of this Report).

Southeast Atlantic Right Whale Workshop
(The Georgia Conservancy, Savannah, Georgia)

Available data indicate that at least part of the small, remnant population of right whales in the western North Atlantic inhabits the coastal waters of Georgia and northeastern Florida during the winter months. They also indicate that these waters may be the population's principal calving ground. At this workshop, to be held 18-20 February 1986,

participants will review steps that have been and are being taken to protect right whales and possibly critical right whale habitats in the coastal waters of the southeastern United States. They will identify additional research, monitoring, and protective measures that may be required to protect and encourage recovery of the population. The workshop report will be used by the Marine Mammal Commission, in consultation with its Committee of Scientific Advisors, as a key background document in recommending measures that responsible regulatory agencies should take to better protect right whales and their habitat in U.S. waters.

Reproductive Parameters and Status of the Western Arctic Bowhead Whale Population
(SOHIO Petroleum Company)

The small remnant population of bowhead whales in the Western Arctic, important to the subsistence and cultural heritage of Alaska Eskimos, could be adversely affected by oil and gas exploration and development in Arctic coastal waters. The purpose of this project, supported cooperatively by the Marine Mammal Commission, the National Marine Fisheries Service, and several U.S. oil companies, is to obtain more reliable information on the distribution, size, age structure, and annual calf production of the western Arctic bowhead population. Photographs of bowhead whales taken during aerial surveys conducted in the fall of 1985 are now being analyzed with the survey data to estimate abundance and to identify and determine the relative lengths (ages) of individual whales. Preliminary study results, which should be available in the spring of 1986, will help in assessing the adequacy of and continuing need for existing monitoring programs and regulatory measures.

Survey of Humpback Whales Wintering in Hawaiian Coastal Waters
(P. H. Forestell, University of Hawaii, Honolulu, Hawaii)

A substantial proportion of the North Pacific humpback whale population inhabits Hawaiian coastal waters during the winter months (December-March). Although the number, distribution, and movements of these whales are not well documented, there is increasing concern that recreational boating and other activities in certain areas are having a significant adverse effect on the whales. Since the National Marine Fisheries Service had been unable to either conduct or support needed research and monitoring programs, the Marine Mammal Commission, as an interim measure, provided funds for the contractor to carry out biweekly aerial surveys from January through April 1985. The purposes were (1) to determine the distribution and numbers of humpback whales in the nearshore waters of the Hawaiian Islands of Molokai, Lanai,

Kahoolawe, and Maui, and (2) to note the frequency of occurrence of boats within one-quarter mile of individual humpback whales or groups of whales. The results of this survey and the study described below, will be examined by the Commission, in consultation with its Committee of Scientific Advisors, to determine what, if any, additional measures may be necessary to protect humpback whales and their habitat in Hawaiian coastal waters.

Review of Existing Information and Programs Bearing on the Protection of Humpback Whales and their Habitat in Hawaii
(R. T. Tinney, Washington, D.C.)

As noted above, it is not clear how recreational boating and other activities may be affecting humpback whales and their habitat in Hawaii. Nor is it clear what measures could or should be taken to prevent or mitigate adverse impacts. Under this contract, existing regulatory authorities, monitoring and enforcement programs, and data concerning possible interactions between whales and humans in Hawaiian coastal waters are being reviewed and evaluated. The report should be finished by May 1986. The Commission, in consultation with its Committee of Scientific Advisors, will review the report to help in determining what additional actions may be needed to adequately protect the whales and their habitat without unduly restricting economic development.

Survey of Gray Whales in San Ignacio Lagoon, Baja California, Mexico
(S. L. Swartz, Cetacean Research Associates, San Diego, California)

Census and other data collected in conjunction with gray whale acoustic studies conducted by National Marine Fisheries Service scientists in San Ignacio Lagoon in 1983 and 1984 indicated that fewer whales, particularly females with calves, appeared to be wintering in the lagoon than in the previous five years. They also indicated that winter vessel traffic within the lagoon had increased significantly between 1982 and 1983. Because the National Marine Fisheries Service was unable to support follow-up studies in 1985, the Marine Mammal Commission provided funds for the contractor to conduct periodic surveys in February, March, and April 1985 in an effort to determine the distribution and numbers of gray whales in the lagoon and whether the distribution and abundance were being affected by vessel traffic associated with fishing, research, or other activities. Preliminary analysis of the results indicates that fewer females with calves were present in 1985 than during the 1978-82 period and that the decline was greatest in the upper lagoon where development of a scallop fishery caused a significant increase in vessel traffic in 1982 and 1983. The final report and the report of

the workshop described below are both expected early in 1986. They will be reviewed by the Marine Mammal Commission, in consultation with its Committee of Scientific Advisors, to determine if additional research, educational, or regulatory measures may be needed to effectively conserve gray whales and their essential habitats in the eastern Pacific.

Workshop on Gray Whale Research Needs and Opportunities
(S. L. Swartz, Cetacean Research Associates, San Diego, California)

Gray whales annually migrate along the west coast of the United States between the summer feeding grounds in the Bering and Chukchi Seas and the winter breeding and calving grounds in the lagoons of Baja California. More than 150 gray whales are being taken each year by a directed Soviet hunt in the Chukchi Sea, and, in a number of areas, fishery development, whale watching, offshore oil and gas exploration and development, and other activities may be affecting both the whales and the habitats essential to their survival. The purposes of this workshop, held in Monterey, California, on 16-18 October 1985, were: (1) to review and evaluate data, models, and procedures being used to assess the status of the eastern Pacific gray whale population and (2) to describe research that should be carried out over the next five years to better monitor population trends and detect unforeseen or cumulative effects of human activities throughout the population's range. The workshop report will be reviewed by the Commission, in consultation with its Committee of Scientific Advisors, early in 1986. As appropriate, the Commission will use it in advising the National Marine Fisheries Service and the Minerals Management Service on measures needed to better monitor and conserve the eastern Pacific gray whale population.

Field Tests of Cetacean Radio Tags

(J. A. Guerrero, Moss Landing Marine Laboratories, Moss Landing, California)

If functioning properly and attached safely and securely, radio tags can help to obtain needed information on the behavior, activity patterns, and movements of cetaceans and other marine mammals. The purpose of this study, conducted in May and June 1985, was to field-test radio tags and different attachment techniques to determine whether radio tags could serve to enhance studies of the movements, activity patterns, and feeding behavior of gray whales in the southeastern Bering Sea. Preliminary findings are that attachments using probes that penetrate the whale's skin are more effective than suction cup attachments, and that radio tags attached with either technique provide useful data. The report, expected to be available early in 1986, will help in

describing the next steps needed to develop a safe and effective system for radio tagging and tracking gray whales.

Monitoring Gill and Trammel Net Fisheries in Central California

(California Marine Mammal Center, Fort Cronkhite, California)

Since June 1982, there has been a substantial increase in gill and trammel net fisheries off San Mateo, San Francisco, Marin, and Sonoma Counties in California. The concurrent increase in numbers of dead harbor porpoise, harbor seals, and sea birds washing up on the beaches of the four-county area suggests that a variety of marine mammals and sea birds are being caught incidentally during fishing operations. In 1983, the California Department of Fish and Game started a fishery observer program to better assess the fisheries and the incidental take of marine mammals and sea birds. Unfortunately, program development was constrained by funding limitations, hiring freezes, and State policies concerning employment of temporary personnel. Therefore, the Marine Mammal Commission provided money to hire suitably qualified observers for the 1985 and, to the extent possible, the 1986 fishing seasons to augment the State's program. Information obtained by the observers will be used to help determine whether changes in fishing gear, fishing practices, fishing regulations, or some combination of these may be necessary to prevent or reduce incidental take of non-target species.

Recovery and Necropsy of Marine Mammal Carcasses In and Near the Point Reyes National Seashore

(R. L. Deiter, D.V.M., Mobile Veterinary Service, Bolinas, California)

The contractor is examining and, when possible, doing thorough necropsies of marine mammal carcasses found washed up on the beaches of the Point Reyes National Seashore. From 1 January 1985 to 17 October 1985, thirteen California sea lions, eleven harbor seals, three harbor porpoise, and one Steller sea lion were found dead between Bodega Bay and Fort Funston, San Francisco. Of those for which the cause of death could be determined, seven apparently died from shooting, three from entanglement in gill nets, and one from being struck by a boat propeller. The final report, due in February 1986, will be used in assessing the effectiveness of existing measures and the possible need for other steps to prevent the incidental take and malicious shooting of marine mammals.

Shore-based Observations of Gill and Trammel Net Fisheries in the California Sea Otter Range
(M. E. Henry, Los Osos, California)

Observations made by California Department of Fish and Game personnel and others since 1982 indicate that significant numbers of sea otters have been caught and killed in California set net fisheries and that this incidental take may be responsible for the failure of the California sea otter population to grow measurably since the early 1970s. Although the California Department of Fish and Game and the Fish and Wildlife Service have supported observer programs in recent years, the level of effort has been insufficient to obtain reliable estimates of the numbers of sea otters and other marine mammals being killed in these fisheries. This contractor made shore-based observations of set net fisheries at times and in places not adequately covered by other observers. From June through September 1985, the contractor observed 203 nets being pulled and documented the incidental catch of four, possibly, five sea otters, sixty-four harbor seals, nine California sea lions, one elephant seal, one harbor porpoise, and three pinnipeds that could not be identified. These observations indicate that new State regulations prohibiting set net fishing in waters less than 15 fathoms within the sea otter range have not eliminated incidental take problems.

Photographic Survey of Kelp Canopies in the California Sea Otter Range
(R. F. VanWagenen, Freedom, California)

The distribution and behavior of sea otters are related to the distribution, density, species composition, and seasonal changes in kelp canopies. In 1983, Fish and Wildlife Service scientists began periodic surveys of kelp canopies in the California sea otter range to document seasonal and annual changes in the kelp canopy and to better determine the relationship between seasonal changes in kelp canopies and seasonal changes in the distribution and behavior of sea otters in California. In 1985, there was an unexpected funding shortfall, and the Marine Mammal Commission supported a late-summer photographic survey of nearshore kelp canopies from Pigeon Point to Pismo Beach, California, to maintain continuity of observations. The photographs and flight report, provided to Fish and Wildlife Service scientists in October 1985, are now being analyzed. The information gained will be useful in designing future sea otter censuses and in better determining the effects of sea otters, storms, and other environmental factors on kelp distribution and dynamics.

Manatee Mortality and Movements Subsequent to Record
Breaking Cold Weather in Florida

(Sirenia Project, Denver Wildlife Research Center, Denver,
Colorado)

During January and February 1985, record breaking cold weather caused significant increases in mortality of the endangered manatee as well as shifts in manatee distribution in several parts of Florida. To accurately document the effects of the cold weather, the Marine Mammal Commission helped pay for unusual expenses incurred in recovering and doing necropsies on 32 dead manatees -- more than double the number usually recovered during this period in an average year. Commission funding also made it possible to document the movements of manatees relative to water temperature in the Fort Myers area. Knowledge gained will be useful in assessing how manatee population dynamics may be affected by severe weather conditions and in determining steps that might be taken to mitigate the effects of unusually cold temperatures.

Investigation of Possible Sightings of Caribbean Monk Seals
(C. A. Woods, Ph.D., Florida State Museum, Gainesville,
Florida)

Although there have been no verified sightings of Caribbean monk seals for nearly 30 years and many consider the species extinct, there has been at least one unconfirmed sighting off the north coast of Haiti in the past four years. The investigator is interviewing fishermen and other residents of that area to assess the reliability of this sighting as well as the nature, frequency, locations, and reliability of any other recent sightings in the area. If the interviews indicate that monk seals may still be extant, the Commission will work with the National Marine Fisheries Service and the Department of State to see that appropriate steps are taken to protect the seals and the habitats in which they survive.

Examination of Carcasses of the Endangered Gulf of
California Harbor Porpoise

(L. T. Findley, Ph.D., Instituto Tecnológica y de Estudios,
Guaymas, Sonora, Mexico)

The vaquita or Gulf of California harbor porpoise is a rare and endangered species whose range appears to be limited to the northern Gulf of California. In the spring of 1985, seven animals were caught and killed incidental to fishing operations in the northern Gulf. The Marine Mammal Commission paid for postmortem examinations of these animals. There are only about 40 confirmed records of the species, and the examinations contributed substantially to knowledge of

the species' morphology and probable life history. In addition, Commission support of this study made it possible to train several students in methods of small cetacean identification, collection, and museum preparation.

Compilation of Information on the Sources, Fates, and Effects of Marine Debris
(B. Heneman, Bolinas, California)

As described in Chapter VI, substantial numbers of marine mammals and other marine organisms are dying as a result of either becoming entangled in or ingesting various sorts of plastics and other marine debris. The problem was first recognized and has been investigated primarily in the North Pacific Ocean. One objective of this project, supported cooperatively by the Marine Mammal Commission and the National Marine Pollution Program Office of the National Oceanic and Atmospheric Administration, is to obtain available information concerning the sources, fates, and effects of potentially hazardous marine debris in the northwest Atlantic, the North Sea, the Gulf of Mexico and Caribbean Sea, and the west coast of Baja California. Another objective is to determine what measures, if any, are being taken by nations in these areas to document and prevent or mitigate problems being caused by marine debris. The project report, to be done by January 1987, will be of use in determining what actions should be taken domestically or internationally to address marine debris problems more effectively.

Public Awareness and Beach Clean-Up
(Oregon Wildlife Heritage Foundation, Portland, Oregon)

Participants in the Workshop on the Fate and Impact of Marine Debris (Hawaii, 27-29 November 1984) concluded that effective resolution of problems caused by marine debris would require, among other things, removal of potentially hazardous materials accumulating on beaches and education of those responsible for discarding potentially hazardous materials at sea and on beaches. Towards this end, the Oregon Wildlife Heritage Foundation organized volunteer programs to clean up beaches in Oregon, Washington, California, and the New England states as well as to make the general public more aware of problems being caused by plastic bags, plastic "six pack" holders, and other non-degradable debris. The Marine Mammal Commission made the initial commitment of funds in 1985 to start the project. The report, expected in the spring of 1986, will be reviewed by the Commission, in consultation with its Committee of Scientific Advisors, to assess the worth of such programs as instruments of public information, as sources of information on the types, quantities, and distribution of beach-cast plastics,

and as a determinant in selection of methods to address the problem.

Training of Animal and Plant Health Inspection Service Inspectors

(J. R. Geraci, D.V.M., Ph.D., Ontario Veterinary College, University of Guelph, Ontario, Canada)

As noted in Chapter X, a three-day seminar was held in Florida on 9-12 April 1985 to train veterinarians of the Animal and Plant Health Inspection Service, Department of Agriculture, in the art and science of inspecting marine mammal holding facilities. The training was given to assist veterinarian inspectors in interpreting and enforcing the Service's standards and regulations as well as in assessing the health of captive marine mammals. The contractor provided instruction and answered questions about the general anatomy, physiology, feeding, nutrition, diseases, and general care of marine mammals held captive for public display and scientific research. The specialized training enables inspectors to better detect and suggest measures to correct problems in maintenance and husbandry that may jeopardize the welfare of captive marine mammals.

Assessment of Marine Research Needs in the Arctic and Sub-Arctic Seas

(Polar Research Board, National Academy of Sciences)

The Polar Research Board of the National Academy of Sciences was asked by the National Science Foundation (lead agency for implementing the Arctic Research and Policy Act of 1984) to help develop a comprehensive five-year plan for Federal research in the Arctic. The plan is to include an assessment of national needs and problems regarding the Arctic. In partial response, the Polar Research Board constituted an ad hoc committee to review past and ongoing marine research programs in the Arctic and the sub-Arctic, identify major information gaps and priority research needs, and describe the research areas that could be fruitfully addressed using new technological advances and a dedicated polar research ship. Funding for travel, support services, report preparation, and related activities is being provided by a variety of Federal agencies and private groups including the Marine Mammal Commission, the National Science Foundation, and the Mellon Foundation. The report will be used to help develop a coordinated, national plan for Arctic research.

Bibliography of Documents Relating to Marine and Coastal
Habitat Protection
(Environmental Defense Fund, Washington, D.C.)

Effective, long-term conservation of marine mammals will depend to a great extent on identification and protection of feeding areas, breeding areas, and other habitat of similar importance. The contractor is to prepare a comprehensive bibliography of domestic authorities, international authorities, and other published material that bear on the protection of marine and coastal areas. In the process, a determination will be made as to whether any published material satisfactorily summarizes all available means of protecting habitat as well as the relative strengths and weaknesses of each approach. The Commission, in consultation with its Committee of Scientific Advisors, will use the report as the starting point for such a review if one is needed as well as in refining its strategy for identifying and protecting important marine mammal habitats.

Science and Marine Mammal Conservation
(Society for Marine Mammalogy)

A symposium on "Science and Marine Mammal Conservation" was held at the Society for Marine Mammalogy's Sixth Biennial Conference on the Biology of Marine Mammals, 22-26 November 1985, in Vancouver, Canada. Papers covered a variety of subjects including: implications of physiological research on captive marine mammals, detecting and assessing the effects of environmental pollutants, determining the nature and effects of competition between seals and commercial fisheries in the North Atlantic and the Antarctic, scientific requirements for the long-term conservation of whales, and the use of captive marine mammals in behavioral studies. The papers address important subject areas, and the Commission provided funds to help ensure their prompt publication and dissemination.

Estimating Recovery Times for Depleted Marine Mammal
Populations
(D. Goodman, Ph.D., Montana State University, Bozeman,
Montana)

An objective of the Marine Mammal Protection Act is to prevent depletion of marine mammal populations while facilitating the recovery of those populations that have been depleted as a result of human activities. The contractor is developing a stochastic population model that uses information on population growth rates, level of take, and current and desired population levels to estimate the likelihood that a depleted population will survive and recover, given various levels of take. The model should help scientists and

managers better assess the possible consequences of different management strategies with regard to the time needed for exploited populations to recover to desired levels. It should be particularly relevant for managing bowhead whales, monk seals, manatees, and other endangered marine mammals.

Analysis of Cloned Dolphin Mitochondrial DNA

(S. O. Lucas, Ph.D., Scripps Institution of Oceanography, La Jolla, California)

Variation in mitochondrial DNA may be useful for determining whether local concentrations of dolphins, pinnipeds, and other marine mammals constitute independent breeding populations or are part of larger breeding populations -- an important consideration in providing adequate protection. The objectives of this project, completed in June 1985, were to: characterize mitochondrial DNA from two dolphin species using restriction mapping; map the mitochondrial DNA from the two dolphin species using characterized human mitochondrial genes as genetic probes; and, as possible, test and use cloned dolphin mitochondrial DNA as a radio labeled hybridization probe to determine divergence between different populations and species of dolphins and other cetacea. The project results were promising, and the investigator has provided cloned dolphin mitochondrial DNA to other investigators to facilitate research directed at determining the discreteness of apparently local and regional populations of bottlenose dolphins and other marine mammals.

Electrophoretic Evaluation of Tissue Samples from Spinner and Spotted Dolphins

(A. W. Erickson, Ph.D., Fisheries Research Institute, University of Washington, Seattle, Washington)

Electrophoresis can be used to detect certain types of protein polymorphisms and, like the analysis of mitochondrial DNA, may be useful for determining the relative discreteness of local concentrations of dolphins and other marine mammals. The investigator is electrophoretically evaluating tissue samples from spinner and spotted dolphins killed incidentally in the eastern tropical Pacific. If one or more protein polymorphisms are detected, they may be useful for determining the relative discreteness of spinner and spotted dolphin stocks in different geographic areas.

Special Research Concerns for FY 1986

As noted in other parts of this Report and in previous Annual Reports, substantial additional research is needed to more effectively assess and determine how best to deal with a number of problems affecting the conservation and protection

of marine mammals worldwide. Among other points, additional research is needed to:

- determine the cause of the continuing decline of certain fur seal, harbor seal, and Steller sea lion populations in the North Pacific and the Bering Sea;
- better determine the nature, scope, and possible solutions to problems being caused by lost and discarded fishing gear and by other potentially hazardous and persistent debris;
- test and evaluate possible non-lethal means for avoiding or reducing marine mammal/fisheries conflicts; and
- develop better methods for assessing and monitoring marine mammal populations and habitats.

As noted at the beginning of this chapter, agencies such as the National Marine Fisheries Service, the Fish and Wildlife Service, and the Minerals Management Service have primary responsibility for assuring that needed research is done. In FY 1986, the Commission will continue, within its funding constraints, to convene workshops, to hold planning meetings, and to contract for studies to help define and develop solutions to these and other problems. In particular, the Commission hopes to: (1) support such additional efforts as may be necessary to complete development of a comprehensive research and management plan for species of marine mammals in Alaska; (2) organize and convene workshops, program reviews, and/or planning meetings to describe and agree upon actions necessary to (a) resolve marine mammal/fisheries conflicts in California, (b) identify and determine how best to eliminate or mitigate the cause of the continuing decline of the Pribilof Islands fur seal population, (c) facilitate the successful propagation of bottlenose dolphins and other marine mammals in captivity; (3) invest in efforts to better determine the nature and scope of conservation problems being caused by lost and discarded fishing gear and other persistent marine debris; (4) support innovative studies, such as further evaluation of the potential use of mitochondrial DNA for determining the relative discreteness of local concentrations of bottlenose dolphins and other marine mammals; and (5) begin a radio-tagging and tracking study to assess the effects of interactions between harbor porpoise and set net fisheries off central California.

CHAPTER III

INTERNATIONAL ASPECTS OF MARINE MAMMAL PROTECTION AND CONSERVATION

Section 108 of the Marine Mammal Protection Act directs that the Departments of Commerce, the Interior, and State, in consultation with the Commission, seek to further the protection and conservation of marine mammals under existing international agreements and take such initiatives as may be necessary to negotiate additional agreements required to achieve the purposes of the Act. In addition, Section 202 of the Marine Mammal Protection Act directs that the Marine Mammal Commission recommend to the Secretary of State and other Federal officials appropriate policies regarding existing international arrangements for the protection and conservation of marine mammals.

The Commission's activities in 1985 with respect to conservation and protection of marine mammals in the Southern Ocean, the International Whaling Commission, the Interim Convention on Conservation of North Pacific Fur Seals, and the Convention on International Trade in Endangered Species of Wild Fauna and Flora are discussed below.

Conservation and Protection of Marine Mammals in the Southern Ocean

At least thirteen species of seals and whales inhabit or are present seasonally in the Southern Ocean, the seas surrounding Antarctica. Although several of these species have been brought to near-extinction by unregulated or poorly regulated sealing and whaling, direct threats from commercial exploitation have been eliminated, at least for the immediate future. No commercial sealing has occurred in the Antarctic for more than twenty years. However, were it to resume, it would be regulated under the Convention for the Conservation of Antarctic Seals, which entered into force in March 1978. With respect to whales, a moratorium on commercial whaling is scheduled to begin in 1986. This is discussed in the next section. Serious threats could be posed, however, by developing fisheries, particularly the fishery for Antarctic krill (Euphausia superba), and growing interest in possible offshore oil and gas resources. These activities could in fact constitute more serious long-term threats to marine mammals

and other components of the Southern Ocean ecosystem than the direct harvests of the past.

As noted in previous Commission reports, Antarctic krill occupies a central role in the Southern Ocean food web. It is one of the dominant herbivores and the principal component in the diets of numerous species including: fin, blue, humpback, and minke whales; crabeater and Antarctic fur seals; Adelie, chinstrap, macaroni, and rockhopper penguins; several other sea birds; and several species of fish and squid. Some of these species are eaten in turn by sperm whales, killer whales, leopard seals, and other higher order predators.

Because of the possible direct and indirect effects of fisheries and offshore oil and gas development on marine mammals, the Marine Mammal Commission has, since 1974, undertaken a continuing review of matters that might affect krill or other important components of the Southern Ocean ecosystem. It has made numerous recommendations on the need for basic and directed research and monitoring programs, and for international agreements to effectively regulate fisheries and offshore oil and gas exploration and development in the Southern Ocean. Activities before 1984 have been reported in previous Annual Reports. A brief summary of these earlier activities as well as a description of 1985 activities are provided below.

Activities Related to Living Resources

Parties to the Antarctic Treaty recognized the potential adverse effects of the developing krill fishery and other fisheries on the Antarctic marine ecosystem and, at the IXth Antarctic Treaty Consultative Meeting held in London in 1977, agreed that a Special Consultative Meeting should be held to elaborate a regime which would provide for the effective conservation of all living resources in the Antarctic marine ecosystem. Negotiation of the regime was initiated at a Special Consultative Meeting in Canberra, Australia, in February and March 1978 and was continued at formal and informal sessions held in Buenos Aires, Argentina (July 1978); Washington, D.C. (September 1978); Bern, Switzerland (March 1979); and Washington, D.C. (September-October 1979). The resulting regime -- the Convention on the Conservation of Antarctic Marine Living Resources -- was concluded at a Diplomatic Conference held in Canberra in May 1980 and came into force on 7 April 1982. To carry out its objectives, the Convention establishes the Commission and the Scientific Committee for the Conservation of Antarctic Marine Living Resources and a Secretariat to support both, all headquartered in Hobart, Tasmania, Australia.

The Marine Mammal Commission's activities regarding the negotiations and the first three meetings of the Commission

and the Scientific Committee established by the Convention are described in previous Annual Reports, particularly those for 1980, 1982, 1983, and 1984.

Meeting of the Ad Hoc Working Group on Ecosystem Monitoring -- At its third annual meeting, which was held in Australia in September 1984, the Scientific Committee for the Conservation of Antarctic Marine Living Resources established an ad hoc working group to formulate and recommend actions for planning, implementing, and coordinating multi-national research programs necessary to effectively assess and monitor key components of the Antarctic marine ecosystem. This group met at the Northwest and Alaska Fisheries Center, Seattle, Washington, on 6-11 May 1985. Commission representatives participated in the meeting and the Commission's Scientific Program Director chaired a subgroup on pinnipeds, seabirds, and cetaceans. The meeting report¹, which was accepted and endorsed by the full Scientific Committee at its fourth meeting (see below), identified six species (crabeater and Antarctic fur seals; Adelie, chinstrap, and macaroni penguins; and minke whale) most likely to be useful indicators of the indirect or second order effects of krill harvesting. The report recommended that high priority be placed on the initiation of integrated ecosystem monitoring programs in three areas -- Prydz Bay, the Bransfield Strait, and the area around South Georgia Island.

The Fourth Meetings of the Commission and Scientific Committee Established under the Convention on the Conservation of Antarctic Marine Living Resources -- The fourth annual meetings of the Commission and the Scientific Committee for the Conservation of Antarctic Marine Living Resources were held in Australia, 2-13 September 1985. To help prepare for these meetings and facilitate development of the research plan required by the legislation implementing the Antarctic Marine Living Resources Convention (see below), the National Marine Fisheries Service, in consultation with the Marine Mammal Commission, the Department of State, and the National Science Foundation convened an ad hoc group of U.S. scientists in Rhode Island on 24-25 June 1985. At the meeting, information and views were sought and exchanged on scientific and technical issues on the agenda for the 2-13 September Convention meetings and on research which the U.S. should carry out to facilitate implementation of the Convention. Marine Mammal Commission representatives helped to prepare for and participated in the June preparatory meeting, as well as the September meetings of the Antarctic Living Resources Commission and Scientific Committee.

¹ This and other reports of the Commission and the Scientific Committee for the Conservation of Antarctic Marine Living Resources can be obtained from: The Executive Secretary, Commission for the Conservation of Antarctic Marine Living Resources, 25 Old Wharf, Hobart, Tasmania, 7000, Australia.

During their September 1985 meetings, the Antarctic Living Resources Commission and Scientific Committee considered a wide range of issues including: measures needed to better assess and conserve exploited fish stocks; data requirements and possible methods for assessing and monitoring the status of krill stocks; the status and role of squid in the Antarctic marine ecosystem; development of a coordinated, multi-national plan for ecosystem monitoring; and measures needed to detect and avoid accidental or incidental take of non-target species. Although absence of detailed catch and effort data limited the types of analyses that could be done, it was determined that several fish stocks, particularly the Notothenia rossii stock in the South Georgia area, had been severely overfished and that additional conservation measures were needed to protect and permit recovery of the stocks. Accordingly, the Commission adopted measures prohibiting directed fishing for Notothenia rossii around South Georgia and limiting the by-catch of Notothenia rossii in directed fisheries for other species around South Georgia. The Commission also recommended, as a precautionary measure, that all parties refrain from directed fisheries for Notothenia rossii in the vicinity of the Antarctic peninsula and around the South Orkney Islands and that the by-catch of Notothenia rossii in directed fisheries for other species in these areas be reduced to the lowest level possible.

Catches of Antarctic krill have declined from an estimated high of about 528,000 tons in the 1981/82 fishing season to about 128,000 tons in the 1983/84 fishing season, apparently due to technical problems related to processing and marketing of krill. These problems no doubt can be solved and, when this happens, the Antarctic krill fishery very likely will expand. To be better prepared if this happens, the Scientific Committee has initiated a study, expected to be completed in April 1987, to determine whether and how krill catch and effort data may be combined with independent survey data in order to obtain reliable indices of krill abundance.

Data considered during the September meetings indicate that there currently are commercial squid fisheries in several areas immediately north of the Convention Area but none in the Convention Area itself. The Soviet delegation indicated that there are significant differences in the species composition and the distribution of squid north and south of the Antarctic Convergence, and, because of this difference, they thought it unlikely that a significant squid fishery would develop in the Convention Area in the foreseeable future. However, squid is a key component in the diets of several seal, whale, and seabird species, and, for this reason, the Scientific Committee urged that research on squid biology and ecology be strongly encouraged.

The Scientific Committee considered and endorsed the report from the meeting of the Ad hoc Working Group on Ecosystem Monitoring, which, as noted earlier, had met in the United States on 6-11 May 1985. The Committee recognized the need to assess and monitor selected non-target species, such as seals, seabirds, and whales, as well as the need to assess and monitor harvested species such as krill, fish, and squid. It recommended that a permanent working group be established to design, recommend, coordinate, and ensure the continuity of an effective, multi-national ecosystem monitoring program.

An intersessional meeting of the Working Group on Ecosystem Monitoring will be held in La Jolla, California, in late June or early July 1986. Since Working Group actions will profoundly affect efforts to implement the Convention, the Marine Mammal Commission is consulting with the National Marine Fisheries Service to facilitate preparation of working papers on: (1) possible use of satellites for monitoring oceanographic and ice features; (2) management of integrated, multi-disciplinary data bases for large ecosystems; (3) use of models for developing and evaluating research and management strategies; and (4) methods for sampling key ecosystem components including phytoplankton, seals, whales, and birds. The Commission also will be working with the National Marine Fisheries Service, the Department of State, and other appropriate agencies to develop positions and working papers on issues to be considered during the fifth meetings of the Antarctic Living Resources Commission and Scientific Committee in Australia, 8-19 September 1986.

Development of a Directed U.S. Antarctic Marine Living Resources Research Program -- In late 1984, the Congress passed and the President signed into law the Antarctic Marine Living Resources Convention Act of 1984. This Act establishes the domestic authority necessary to allow the United States to fully participate in and comply with the terms and provisions of the Convention on the Conservation of Antarctic Marine Living Resources. The Act, among other things, directs that the Secretary of Commerce, in consultation with the Secretary of State, the Director of the National Science Foundation, and appropriate officials of other Federal agencies, such as the Marine Mammal Commission, prepare and annually update a plan for conducting directed research necessary to effectively implement the Convention.

In response to this directive, the National Marine Fisheries Service prepared and, in June 1985, distributed a draft Antarctic Marine Living Resources Program Development Plan for review and comment. The draft Plan was reviewed during the previously mentioned meeting of the Ad hoc U.S. Scientific Working Group, held in Rhode Island on 24-25 June 1985. The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors, subsequently reviewed the draft and provided detailed comments in a 17 July 1985 letter

to the Service. The Commission also commented on the draft Program Development Plan in letters of 22 July 1985 to the Deputy Administrator of the National Oceanic and Atmospheric Administration and to the Director of the National Science Foundation's Division of Polar Programs. These letters noted the importance of maintaining a strong, well-balanced basic research program and of developing and implementing a directed research program. The Commission offered to provide whatever assistance might be helpful to facilitate development and coordination of the marine research programs being planned and conducted or supported by the two agencies.

The National Marine Fisheries Service addressed comments by the Marine Mammal Commission and other reviewers in a revised draft of the Program Development Plan, which was distributed and briefly summarized at a 13 November 1985 meeting of the Working Group of the interagency Antarctic Policy Group. The Commission, in consultation with its Committee of Scientific Advisors, reviewed the revised draft and, by letter of 10 December 1985, advised the Department of State of its concurrence that the Plan should be endorsed by the Antarctic Policy Group. The Marine Mammal Commission also suggested a number of ways to improve the Plan and pointed out that the proposed program's success would depend, to a great extent, on the adequacy of ship support and close coordination with the National Science Foundation's basic research program. The Commission further noted that it would not be possible to fully implement the program in FY 1987 as proposed unless steps are taken immediately to secure the necessary ship support.

In 1986, the Marine Mammal Commission will continue to work with the Department of State, the National Oceanic and Atmospheric Administration, and the National Science Foundation to help develop both basic and directed research programs that address whales, seals, and other components of the Antarctic marine ecosystem.

Activities Related to Non-Living Resources

As noted earlier, there is growing interest in potential non-living resources in Antarctica, particularly offshore oil and gas. Activities associated with exploration for and exploitation of offshore oil and gas and possibly other non-living resources could have direct and indirect effects on whales, seals, krill, and other living organisms in the Antarctic marine ecosystem. The Antarctic Treaty Consultative Parties have recognized this possibility, as they recognized the possible adverse effects of fishing and related activities. At the XIth Antarctic Treaty Consultative Meeting held in Argentina in July 1982, they agreed that a regime on Antarctic mineral resources should be elaborated and that the regime should provide means for:

(1) assessing the possible impact of mineral resource activities on the Antarctic environment in order to provide for informed decision-making; (2) determining the acceptability of possible mineral resource activities; and (3) governing those activities determined to be acceptable. Negotiation of the regime began at a Special Antarctic Treaty Consultative Meeting in New Zealand in June 1982, and it has continued at formal and informal sessions in New Zealand (January 1983); Federal Republic of Germany (July 1983); Washington, D.C. (January 1984); Japan (May 1984); Brazil (February 1985); and France (September 1985).

The negotiations initially involved only the Antarctic Treaty Consultative Parties, which presently include Argentina, Australia, Belgium, Brazil, Chile, China, the Federal Republic of Germany, India, Japan, New Zealand, Norway, Poland, South Africa, the Soviet Union, the United Kingdom, Uruguay, and the United States. Beginning with the meeting in Rio de Janeiro in February 1985, the negotiations have been open to observers from acceding states to the Antarctic Treaty. These presently include Bulgaria, Cuba, Denmark, Finland, Hungary, Italy, the Netherlands, Papua-New Guinea, Peru, Romania, Spain, and Sweden.

Negotiations will continue in April 1986 in Australia. The Marine Mammal Commission has provided and will continue to provide advice and assistance to ensure, insofar as is possible, that the regime is ecologically sound and not to the disadvantage of marine mammals and other living organisms of the Southern Ocean.

Proposed Ocean Drilling Program

The National Science Foundation plans to initiate a ten year or longer ocean drilling research program to succeed the recently completed Deep Sea Drilling Project. The new program would use a more modern research vessel (the Joides Resolution) for drilling into deep sedimentary sequences on continental margins. Drilling would take place throughout the world's oceans, including one or more sites in Antarctica. It would provide core samples and data necessary to improve current understanding of seafloor spreading, plate tectonics, the structure of the earth's interior, and related geologic conditions and phenomena.

To facilitate consideration of the potential impacts of the proposed action, the National Science Foundation has prepared and sought comments on a Draft Environmental Impact Statement that evaluates the possible consequences of drilling in four representative areas -- Georges Bank, the East Pacific Rise, the Mid-American Trench, and the Weddell Sea. The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors, reviewed the draft statement, paying particular attention to the sections dealing

with the possible impacts of the proposed action on marine mammals in the Weddell Sea and on Georges Bank.

In its letter of 29 August 1985 to the National Science Foundation, the Commission noted that while the Draft Environmental Impact Statement provided a generally thorough assessment of the possible effects of the proposed action on marine mammals, it did not recognize that the occurrence of marine mammals in many areas is seasonal and that the nature and extent of possible impacts on marine mammals would depend upon the timing as well as the location of activities. The Commission also noted that the section of the draft statement identifying applicable laws and regulations should be expanded to identify relevant provisions of the Convention for the Conservation of Antarctic Seals, the Endangered Species Act, and the Marine Mammal Protection Act. Further, the Commission pointed out that it would be inappropriate, as proposed in the draft statement, to use the same standards used to judge the possible effects of fisheries -- i.e., those set forth in Article II of the Convention on the Conservation of Antarctic Marine Living Resources -- to judge the significance of the possible effects of the drilling program on Antarctic marine living resources.

The XIIIth Antarctic Treaty Consultative Meeting

The Thirteenth Antarctic Treaty Consultative Meeting took place in Brussels, Belgium, from 7-18 October 1985. Two new Consultative Parties, the People's Republic of China and the Oriental Republic of Uruguay, attended for the first time, bringing the total number of Consultative Parties to 18.

Marine Mammal Commission representatives helped develop U.S. positions relative to items on the meeting agenda and participated in the meeting. Agenda items included operation of the Antarctic Treaty System and protection of the Antarctic environment. With regard to the latter, a joint U.S./Australian recommendation was approved which requests the Scientific Committee on Antarctic Research (SCAR) to consider and provide advice on the need for a new category of protected area and steps that might usefully be taken to develop a system for more effectively compiling, storing, and accessing information on the Antarctic. Recommendations also were approved designating three new Specially Protected Areas and thirteen new Sites of Special Scientific Interest, including one site of long-term Weddell seal studies being conducted by U.S. investigators.

There was much discussion of the need to establish formal procedures for assessing the possible adverse effects of research and related support activities in Antarctica. However, because of the financial implications and practical problems faced by parties that presently do not have well

defined environmental impact assessment procedures, it was not possible to reach agreement on a recommendation. It was agreed that the Consultative Parties would further evaluate and, as possible, implement environmental impact assessment procedures using the guidelines set forth in the SCAR document entitled "Man's impact on the Antarctic environment: A procedure for evaluating impacts from scientific and logistic activities." It also was agreed that environmental impact assessment procedures would be included on the agenda for further consideration at the XIVth Consultative Meeting to be held in Brazil in 1987.

These actions complement the ongoing efforts to implement the Living Resources Convention and to develop a regime to govern possible mineral activities. Collectively, they contribute to the development of a system for assuring the conservation of the Antarctic ecosystem and its component elements.

New International Interest in Antarctica

The basic purpose of the Antarctic Treaty, which entered into force in 1961, is to assure that the Antarctic is reserved exclusively for peaceful purposes. To this end, military activities, nuclear explosions, and the disposal of radioactive waste in Antarctica are prohibited. The Treaty also guarantees freedom of scientific research in Antarctica and establishes the basis for international cooperation therein. To accomplish these objectives, the Treaty incorporates juridical provisions which permit its parties to agree or disagree over the legal and political status of Antarctica. (Of its original twelve parties, seven claim territorial sovereignty over parts of Antarctica; the remaining parties, including the U.S., neither assert nor recognize such claims.) The Treaty also makes provision for regular consultative meetings, which have evolved into a mechanism for dealing with new issues as and when they arise.

In recent years, there has been growing international interest in Antarctica. Since the Treaty entered into force, twenty additional nations have acceded to it, bringing the total to thirty-two parties. As noted earlier, eighteen of these are Consultative Parties, which participate in the regular meetings held under the Treaty. The remaining fourteen non-consultative parties attend such meetings as observers. This growth and increasing interest reflects, in part, recognition of the importance of scientific research in Antarctica, which remains the primary focus of human activity there.

The growing interest also derives from speculation about the resource potential of Antarctica. This latter perception appears to have been a factor in the initiative taken by Malaysia in 1983 to stimulate United Nations' consideration

of Antarctica. Acting on Malaysia's proposal, the United Nations General Assembly inscribed an item on Antarctica on the agenda of its 38th Session in 1983. As a result, the General Assembly adopted a resolution that called upon the Secretary-General to "prepare a comprehensive, factual and objective study of all aspects of Antarctica."

The Secretary-General's study was completed in November 1984 and, following further consideration of the matter, the United Nations General Assembly adopted a resolution that: (1) affirmed the conviction that, "in the interest of all mankind, Antarctica should continue forever to be used exclusively for peaceful purposes and that it should not become the scene or object of international discord" and (2) agreed to inscribe an item entitled "Question of Antarctica" in the provisional agenda for the 40th Session of the General Assembly in 1985.

Although the question of Antarctica had been previously treated on a consensus basis in the United Nations, this pattern was broken during the 40th Session of the General Assembly. Malaysia and its supporters chose to push through three resolutions by vote. In the view of the U.S. and the other Antarctic Treaty Consultative Parties, the resolutions incorporate elements which seek unjustifiably to call into question the Antarctic Treaty system and to create an artificial dichotomy between that system and the United Nations' system. For these reasons, they took the general position of non-participation in the votes on the three resolutions.

The first resolution, sponsored by Bangladesh, Brunei Darussalam, Indonesia, Malaysia, Mali, Nigeria, Oman, Pakistan, Rwanda, and Sri Lanka, requests that the Secretary-General "update and expand the study on the question of Antarctica by addressing questions concerning the availability of information from the Antarctic Treaty Consultative Parties to the United Nations on their respective activities in, and their deliberations regarding Antarctica, the involvement of the relevant specialized agencies and inter-governmental organizations in the Antarctic Treaty System and the significance of the United Nations Convention on the Law of the Sea in the Southern Ocean."

The second resolution, sponsored by Bangladesh, Brunei Darussalam, Malaysia, Mali, Nigeria, Oman, Pakistan, Rwanda, and Sri Lanka, calls attention to the ongoing negotiation of the minerals regime, affirms that any exploitation of resources in Antarctica should ensure the international management and equitable sharing of the benefits of such exploitation, and invites the Antarctic Treaty Consultative Parties to "inform the Secretary-General of their negotiations to establish a regime regarding Antarctic Minerals."

The third resolution, sponsored by Mauritius, notes the apartheid regime of South Africa and urges the Antarctic Treaty Consultative Parties to exclude South Africa from participation in meetings of the Consultative Parties.

In explaining their position, Australia, speaking before the General Assembly on behalf of the Consultative Parties, expressed regret that the consensus tradition had been abandoned and indicated that the nature of the resolutions and the way in which they had been adopted would call into question future consultative party participation in the Antarctic agenda item until consensus was restored.

The Marine Mammal Commission believes that the Antarctic Treaty and the related agreements that form the Antarctic Treaty System provide an essential basis for effectively protecting and conserving marine mammals, the Continent proper, and the surrounding seas. In 1986, the Commission will continue its efforts to strengthen and facilitate effective implementation of the Antarctic Treaty, the Convention on the Conservation of Antarctic Marine Living Resources, and other elements of the Antarctic Treaty System.

The International Whaling Commission

Representatives of the Marine Mammal Commission consulted with the U.S. Commissioner to the International Whaling Commission (IWC) and others to help plan for U.S. participation in the Thirty-seventh Annual Meeting of the IWC in Bournemouth, United Kingdom, and they attended the meetings of the IWC and its Scientific Committee during 1985. A summary of the Marine Mammal Commission's activities during 1985, as well as a summary of the IWC meetings and related U.S. activities, follows.

The July 1985 Meeting

Membership and Participation -- Between the 1984 and 1985 meetings, two more nations, Ireland and the Solomon Islands, joined the IWC thereby increasing its total membership to forty-one nations. Representatives of thirty-eight of those nations participated in the 1985 meeting.

Moratorium on Commercial Whaling -- As discussed in the Marine Mammal Commission's previous Annual Reports, the IWC adopted a new provision to its Schedule of regulations in 1982 which provides that catch limits for all commercial whaling will be set at zero for the 1985/86 pelagic and 1986 coastal whaling seasons and thereafter. The new provision, Schedule paragraph 10 (e), also provides that, by 1990 at the latest, the IWC will undertake a comprehensive assessment of the effect of this decision on whale stocks and consider modification of this provision and the establishment of other

catch limits. No action was taken during the 1985 meeting to amend or modify Schedule paragraph 10 (e) and therefore, pursuant to its provisions, catch limits for the coming year for all stocks of whales were automatically set at zero for purposes of commercial whaling. Catch limits for commercial whaling will remain at zero unless and until a three-quarters majority of the IWC members votes to modify Schedule paragraph 10 (e).

Three nations (Japan, Norway, and the Soviet Union) maintain objections to Schedule paragraph 10 (e). Under the International Convention for the Regulation of Whaling, this action removes the obligation of their respective governments to comply with the requirements of this provision. Notwithstanding the objection maintained by the Soviet Union, however, its representative stated at the 1985 meeting that, for technical reasons, the U.S.S.R. would temporarily stop commercial whaling, beginning with the 1987/88 Antarctic whaling season.

Catch Limits -- As noted above, all catch limits for purposes of commercial whaling were set at zero for next year's whaling seasons. The Scientific Committee did, however, review stock assessments in order to provide management advice with respect to priority stocks where there is a likelihood of continued exploitation. Based on that assessment, the Scientific Committee recommended, and the IWC adopted, proposals to reclassify the following stocks as Protected Stocks in the IWC Schedule of regulations: the northeastern Atlantic minke whale stock, the Sea of Japan/Yellow Sea/East China Sea minke whale stock, and the East China Sea Bryde's whale stock. The IWC also reclassified the Western Division North Pacific sperm whale stock as a Protected Stock effective from the beginning of the 1988 whaling season.

Aboriginal/Subsistence Whaling -- In 1983, the IWC implemented a new scheme for establishing catch limits for aboriginal/subsistence whaling. At the 1985 meeting, aboriginal catch limits were set for the Bering Sea stock of bowhead whales, the eastern North Pacific stock of gray whales, and West Greenland stocks of minke, fin, and humpback whales. With respect to bowhead whales, the Scientific Committee of the IWC reported that improved population estimates suggest its size is larger than had previously been suspected and that the best estimate of abundance was 4,417 animals (range 2,613 - 6,221 animals). No new information was available concerning natural mortality rates or annual net recruitment, and the Committee recommended that any catch limits be set with caution. The IWC adopted a three-year block quota for bowhead whales of 26 strikes per year for the years 1985 to 1987. Strikes not used in any one year, however, may be used in the following year provided that no more than 32 whales are struck in any one year. Aboriginal catch

limits set for other whale stocks for 1985 were as follows: 179 eastern North Pacific gray whales; 10 West Greenland fin whales; zero West Greenland humpback whales; and 130 West Greenland minke whales. Further, with respect to West Greenland minke whales, the adopted IWC quota also provided that up to 220 whales could be taken in the years 1986 and 1987.

Future Activities of the IWC -- During the 1984 meeting, the U.S. proposed that a working group be constituted to consider possible operational adjustments that the IWC should consider in view of the implications of the impending moratorium on commercial operations and financial constraints. That working group met twice prior to the 1985 IWC meeting and prepared a report, which was adopted by the IWC, outlining priority tasks for the coming years. Among the list of priority actions identified were the following: (a) monitoring any commercial catch taken under objections to Schedule paragraph 10 (e) and compliance with applicable regulations other than catch limits; (b) conducting the comprehensive assessment; (c) establishing aboriginal/subsistence catch limits; (d) considering revisions of the present management procedures; and (e) reviewing special permits proposed by party governments for purposes of scientific research.

The IWC also adopted a resolution proposed by Brazil and the Philippines establishing an ad hoc working group to draft terms of reference for use in evaluating the socio-economic implications of zero catch limits for those countries that have adhered to and been affected by them. The working group will meet prior to the next IWC meeting and the draft terms of reference will be considered during the 38th Annual Meeting.

Special Permits for Scientific Research -- Article VIII of the Whaling Convention provides that any member nation may grant a special permit to its citizens to take whales for purposes of scientific research and that the whales taken may be processed and sold in accordance with that party government's directions. Party governments, however, must provide the IWC and its Scientific Committee an opportunity to review proposed special permits, which are to include certain information concerning proposed activities, before they are issued. The Governments of Iceland and Korea put forward proposed permits involving the taking of whales and, to help ensure that these and any other research proposals are well conceived and effectively meet data needs, the Scientific Committee formulated a series of guidelines with which to review proposed permits. With respect to Iceland's research proposal, which provides for an annual take of 80 fin whales, 40 sei whales, and 80 minke whales during the years 1986 to 1989, the Scientific Committee provided detailed comments but was unable to reach agreement on the extent to which the

proposal satisfied its new guidelines. The Korean research proposal did not meet IWC information requirements.

During the 1985 meeting, the IWC adopted a resolution establishing a working group that will meet prior to the next IWC meeting to further define the parameters for research conducted under special permits and to develop recommended guidelines for the international trade of products derived from whales taken during the research activities. The resolution also calls upon party governments to take account of the serious concerns expressed by the IWC and the advice and guidelines developed by the Scientific Committee and to avoid research activities during the period of the moratorium that assume characteristics of commercial whaling.

Related Activities

Certification and Sanctions under the Pelly and Packwood-Magnuson Amendments -- As discussed in previous Annual Reports, whaling carried out under objections to provisions of the IWC Schedule may trigger certain actions under two U.S. laws -- the Pelly Amendment to the Fishermen's Protective Act and the Packwood-Magnuson Amendment to the Magnuson Fishery Conservation and Management Act. Under the former, the U.S. may embargo imports of fish products from countries whose nationals are certified by the Secretary of Commerce as conducting fishing operations (including whaling) in a manner or under circumstances which diminish the effectiveness of international conservation programs such as the IWC. The Packwood-Magnuson Amendment mandates a reduction by at least 50 percent in the allocation of fish that may be caught within the U.S. Fishery Conservation Zone by any nation so certified.

In 1984, the IWC established a quota of 4,224 whales for the commercial harvest of minke whales in the Southern Hemisphere. Brazil, Japan, and the Soviet Union harvest minke whales in the Antarctic and, applying past practices used to divide the Southern Hemisphere minke whale quotas among the three countries, the 1984/85 IWC quota would have allowed Japan and the Soviet Union each to take 1,941 whales and Brazil to take 342 whales. All three nations objected to the IWC quota and, recognizing that these countries might take whales in excess of the established IWC quota, the U.S. advised each of the three countries that it might consider the take of whales above the aforementioned levels to diminish the effectiveness of IWC conservation standards and thereby require the U.S. to consider possible sanctions under applicable U.S. laws.

During the 1984/85 Antarctic whaling season, the Soviet Union took more than 1,941 minke whales, causing the overall IWC Southern Hemisphere minke whale quota to be exceeded.

Therefore, on 1 April 1985, the Secretary of Commerce certified to the President that nationals of the Soviet Union were conducting whaling operations that diminish the effectiveness of the IWC's conservation program. As required by the Packwood-Magnuson Amendment, the Secretary of State, in consultation with the Secretary of Commerce, immediately took steps to reduce by half the allocation of fish that would have otherwise been provided to Soviet fishermen fishing in the U.S. Fishery Conservation Zone. If, after one year, the Soviet Union continues to take whales in excess of adopted IWC quotas, no fishery allocation may be provided to the Soviet Union. No trade sanctions were authorized under the Pelly Amendment, however, as it was determined that an embargo of fish products from the Soviet Union would have a negligible effect on the Soviet Union, which could easily market such products elsewhere, and such action could result in unemployment of U.S. workers who depend on the U.S.-U.S.S.R. joint venture company. No action was taken to certify Japan or Brazil, as whalers from those countries did not exceed their share of the 1984/85 IWC Antarctic minke whale quota. The certification of the Soviet Union was the first time any nation has been certified under the Packwood-Magnuson Amendment for the whaling practices of its nationals.

The U.S.-Japanese Agreement -- As noted in the Marine Mammal Commission's previous Annual Report, the U.S. and Japan reached an understanding in November 1984 under which Japan would file prospective withdrawals of its objections to an IWC sperm whale quota and the moratorium provision and thereby end all of its commercial whaling activities on or before April 1988. The U.S. would, in turn, refrain from certifying Japan for certain limited whaling activities that would be contrary to established IWC quotas. Among other things, the agreement called for filing a prospective withdrawal of Japan's objection to the sperm whale quota by 13 December 1984 and a prospective withdrawal of its objection to the moratorium provision by 1 April 1985.

The Ambassador of Japan advised the Secretary of Commerce by letter of 11 December 1984 that the prospective withdrawal of its objection to the sperm whale quota had been filed. By means of an exchange of letters on 5 April 1985 between Japan's Minister of Foreign Affairs and the Secretary of Commerce, it was agreed that Japan would file a prospective withdrawal of its objection to Schedule paragraph 10 (e) within five days of a final unappealable decision in favor of the U.S. Government in the court case American Cetacean Society et al. v. Baldrige (see below). In the interim, the Minister indicated that Japanese whaling activities would be guided by the understanding reached with the U.S. in November 1984.

Litigation -- As noted in the Annual Report for Calendar Year 1984, a number of environmental organizations brought suit against the Secretaries of Commerce and State seeking to prevent the Secretaries from entering into an agreement with the Government of Japan whereby Japan would not be certified under the Pelly and Packwood-Magnuson Amendments for non-compliance by Japanese whalers with established IWC quotas. The suit sought, among other things, a declaratory judgment that the Secretary of Commerce is required to certify Japan if Japanese whalers exceed such established quotas. On 5 March 1985, the U.S. District Court for the District of Columbia ruled in favor of the plaintiffs and ordered the Secretary of Commerce to certify Japan for taking sperm whales in numbers that were in excess of the applicable IWC quotas to which Japan had objected but which were contemplated under the U.S.-Japanese agreement negotiated in November 1984 (see above).

The U.S. immediately obtained a stay of the ruling pending an appeal before the U.S. Court of Appeals for the District of Columbia Circuit. The Appeal was heard by a three-judge panel and, on 16 May 1985, a decision was rendered upholding the District Court's ruling. Another stay was obtained, and the Justice Department requested a rehearing en banc before the Court of Appeals (i.e., before all 11 members of the District of Columbia Circuit). This request was denied on 11 October 1985.

In a final attempt to overturn the lower court ruling, the Justice Department obtained another stay and filed a petition for certiorari with the U.S. Supreme Court. This petition was filed on 4 December 1985 and, as of the end of 1985, a decision on whether the Supreme Court would hear the case had not been made. If the Supreme Court denies the request to hear the case or if it fails to overturn the Court of Appeals' decision, the Secretary of Commerce will be required to certify Japan under the Pelly Amendment for having taken whales in excess of established IWC quotas and the Secretary of State will be required to reduce Japan's U.S. fishery allocation by at least 50 percent.

Other Matters -- In the fall of 1985, Dr. John V. Byrne submitted his resignation as U.S. Commissioner to the IWC, a post which he had filled since the 1982 IWC meeting. His tenure as U.S. Commissioner paralleled the critical transition period between the adoption and onset of the moratorium on commercial whaling. By the end of 1985, an announcement as to his replacement had not been made.

Recognizing the transitions within both the IWC as it looked forward to the initiation of a moratorium on commercial whaling and within the U.S. IWC leadership, the Marine Mammal Commission began a review of IWC issues in 1985 in

order to assist U.S. efforts to evaluate future policy directions and activities. A preliminary analysis of IWC issues was completed late in 1985, and the results of that review should be sent to the National Oceanic and Atmospheric Administration and the State Department early in 1986. Based on its preliminary analysis, the Commission expects to recommend that:

- as a guiding principle, the U.S. take all feasible steps to insure the long-term future of the Whaling Convention and improve the effectiveness of the IWC;
- the U.S. continue its support of the moratorium provision at least until such time as the comprehensive assessment is completed and the provisions governing commercial take are re-examined;
- the U.S. make certain that post-comprehensive assessment management decisions do not neglect uncertainties in available data and/or population models which might, if disregarded, allow whale stocks to be reduced to or maintained at unacceptable levels, and that catch limits other than zero for commercial whaling be supported only if whale stocks are determined with certainty to be at a level which could sustain such exploitation;
- three or four U.S. scientists be immediately designated to represent the U.S. at IWC meetings bearing on the comprehensive assessment and that this group meet with other appropriate U.S. scientists by mid-March to consult on positions and develop scientific background papers on: (a) procedures and timetables affecting the comprehensive assessment, and (b) potential revision of the IWC's present management procedures;
- the U.S. participate in IWC meetings, including those scheduled for 7-11 April in England and 6 June in Sweden, bearing on the comprehensive assessment, as well as meetings such as the one scheduled for 2 June in Sweden on socio-economic aspects of IWC whaling decisions;
- the U.S. continue to consider and, as appropriate, invoke sanctions available under the Pelly and Packwood-Magnuson Amendments against nations whose citizens (a) engage in commercial whaling contrary to the moratorium provision or (b) take whales under special permits for scientific research which are issued without required notification to the IWC or which clearly disregard such advice as may be provided by the IWC;
- the U.S. participate in the 2 June 1986 working group meeting and any other IWC meetings to consider matters

relating to the issuance of special permits for scientific research;

- the U.S. continue to support IWC actions which reflect legitimate subsistence needs of Alaska Eskimos;
- the U.S. maintain appropriate arrangements with the Alaska Eskimo Whaling Commission to ensure that the Alaska Eskimo bowhead whale hunt is conducted in a manner consistent with adopted IWC quotas and related provisions;
- the National Marine Mammal Laboratory continue its past practice of convening annual meetings to review and coordinate bowhead whale research supported by Federal agencies, State agencies, Native organizations, and industry groups by convening such a meeting as early as possible in 1986;
- money be provided to the National Marine Mammal Laboratory to sustain efforts to better determine the net recruitment rate for the Bering Sea bowhead whale population as recommended by the IWC's Scientific Committee; and
- the U.S. continue its support for development and use of the most humane killing techniques available, including efforts to improve techniques for the taking of bowhead whales for subsistence purposes.

As noted above, the Government of Iceland advised the IWC during the 1985 meeting that it intended to issue a special permit to take a certain number of fin, sei, and minke whales in the North Atlantic during the years 1986 to 1988 for purposes of scientific research. The IWC Schedule requires that scientists from other countries be afforded an opportunity to participate in any such proposed research program and, following the 1985 IWC meeting, the Marine Research Institute of Reykjavik, Iceland, (i.e., the recipient of the proposed special permit) distributed an outline of its research program to various marine institutes and organizations interested in marine mammal research. The proposed research outline was transmitted by letter of 20 September 1985, and both the Marine Mammal Commission and the National Oceanic and Atmospheric Administration received copies. By letter of 6 December 1985, the Administrator of NOAA requested comments from the Commission on the research proposal in order to assist with its evaluation of related policy considerations. At the end of 1985, the Commission was completing its review and anticipated returning detailed comments early in 1986.

The Commission will continue to consult and cooperate with other agencies and interested groups and individuals

during 1986 concerning these and other issues related to the IWC.

Interim Convention on Conservation of North Pacific Fur Seals

The Interim Convention on Conservation of North Pacific Fur Seals calls for cooperative research and management efforts by Japan, Canada, the U.S.S.R. and the United States to achieve the maximum sustainable productivity of the fur seal populations of the North Pacific Ocean. Among other things, the Convention prohibits pelagic sealing and provides for the sharing of pelts from commercial land-based harvests carried out by the United States on the Pribilof Islands and by the U.S.S.R. on the Commander and Robben Islands. The Convention entered into force in 1957 and has been extended by a succession of Protocols, the most recent of which was signed by the four parties on 12 October 1984 and would extend the Convention through October 1988. During 1985, the Protocol was submitted to the United States Senate for its advice and consent. However, as of the end of 1985, the Senate had not taken final action on the matter.

During recent years, the Pribilof Islands fur seal population has been declining at a rate of about 6.5 percent per year. The current population, estimated to be about 819,000 animals, is less than half of its estimated population size of two million animals in the early 1950s. While the cause or causes of this decline are uncertain, mortality resulting from entanglement in lost or discarded fishing gear and other debris appears to be at least a contributing factor if not the major contributing factor. The entanglement issue as it relates to fur seals and other marine mammals is discussed in greater detail in Chapter VI of this Report.

The ongoing population decline and issues related to the harvest of fur seals on the Pribilof Islands raised difficult research and management questions during 1985 and make the future of the Convention uncertain. The following provides a review of actions taken in 1985 by the Marine Mammal Commission and others concerning the Interim Convention and the conservation of the fur seal population.

The 1984 Protocol to Extend the Convention

As noted in the Commission's previous Annual Report, a Protocol to extend the Interim Convention through October 1988 was signed by the four Party Governments on 12 October 1984 and is subject to ratification or other forms of acceptance by the Governments involved. In a joint statement accompanying the signed Protocol, the parties made particular note of their concern about the decline of the fur seal population, current economic conditions, and other problems

of fur seal conservation and utilization. In the statement, the parties indicated that: (1) additional research is needed on the problem of entanglement of fur seals in lost or discarded fishing nets, fishing gear, and other debris; (2) in accordance with the London Dumping Convention and in conformity with their respective national laws, the Party Governments will take appropriate measures to prohibit the disposal at sea in the Convention area of synthetic materials, such as fishing nets and gear, ropes, packing bands, and other debris that might lead to the entanglement of fur seals; (3) in the event of unforeseen circumstances, the countries of fur seal origin may take measures as necessary for the conservation and management of fur seals, after consultation with other parties; and (4) within two years, all parties will review the Convention in light of issues raised in the statement to determine if either modifications or renegotiation of the Convention are desirable.

The 1985 Meeting of the North Pacific Fur Seal Commission

Although the 1984 Protocol to extend the Convention had not been ratified by April 1985, the involved parties agreed to meet in anticipation of the possibility that the Protocol would be approved prior to the 1985 harvest. The Fur Seal Commission meeting was held on 15-18 April in Tokyo, Japan. That meeting was preceded by a meeting of its Committee of Scientists on 4-11 April, also in Tokyo.

Prior to the Fur Seal Commission's meeting, the National Marine Fisheries Service consulted with the Marine Mammal Commission on development of U.S. positions with respect to the subsistence harvest of fur seals on St. George Island, the possible resumption of pelagic sealing, the entanglement of fur seals in marine debris, and future commercial harvesting. By letters of 22 March and 5 April 1985 to the Service, the Commission recommended that the draft U.S. positions concerning these issues be revised to provide more definitive statements and instructions for the U.S. delegation to follow during the meeting.

For example, with respect to the entanglement issue, the Commission recommended, among other things, that the proposed position be revised to direct that the U.S. delegation:

- advise other parties of the specific actions and commitments which the U.S. is undertaking to assess and resolve the entanglement problem;
- ensure that other parties are aware of relevant findings and conclusions resulting from the November 1984 Workshop on the Fate and Impact of Marine Debris and that they are provided copies of the Executive Summary of the report from the Workshop;

- advise other parties that the U.S. will include explicit "no discard" provisions in permits for foreign vessels allowed to fish in U.S. waters;
- request that, prior to the next meeting of the Fur Seal Commission, the parties exchange: (a) information about their domestic laws, regulations, and penalties pertaining to discarding fishing gear and other debris at sea, and (b) descriptions of research that has been or is being conducted to improve understanding of the entanglement problem;
- request that other parties reassess and, as possible, strengthen their domestic programs for educating fishermen and other vessel operators in the North Pacific Ocean as to effects and legal sanctions associated with disposal of debris at sea; and
- propose that a workshop be held in advance of the next Fur Seal Commission meeting to review actions that have been taken and to determine additional cooperative measures that might be taken to expedite identification and elimination or mitigation of the cause or causes of the continuing decline of the Pribilof Islands fur seal population.

As indicated below, some of these points were raised by U.S. participants to the meeting of the Fur Seal Commission's Committee of Scientists. However, most of these points were not raised during the meeting of the Fur Seal Commissioners, and it was not clear what further research and management steps, if any, other parties to the Convention would take.

Representatives from all four contracting nations to the Convention attended the 1985 meetings of the Committee of Scientists and the Fur Seal Commission. With respect to the harvest of subadult male fur seals on St. Paul Island, the report of the Committee of Scientists predicted that, if a commercial harvest were to be conducted in 1985, 23,499 seals would be taken. During the Fur Seal Commission meeting, the U.S. Commissioner proposed, and the Commission agreed, that an upper limit of 22,000 subadult male fur seals be established for the 1985 harvest. The U.S. Commissioner also proposed to shorten the harvest season by one week and requested authority to take as few as 15,000 animals if economic circumstances warranted a reduced harvest. While the Commission agreed to shortening the harvest season, it did not agree to authorize a reduced harvest. The U.S.S.R. indicated its intent to harvest 5,100 seals on the Commander Islands and 2,000 seals on Robben Island.

In order to meet the subsistence needs of residents on St. George Island not met by carcasses provided from the commercial harvest on neighboring St. Paul Island, the U.S.

Commissioner noted that a subsistence take of up to 329 seals would be permitted. Noting, however, that this still might not be sufficient to meet the food requirements of the St. George Island residents, he also requested and was granted authority to authorize a harvest of up to 500 animals on St. George Island for that purpose.

With respect to the entanglement issue, the parties exchanged relevant data and information on ongoing research during the course of the meeting of the Committee of Scientists. U.S. representatives distributed copies of the Executive Summary of the November Workshop on the Fate and Impact of Marine Debris and there was discussion of the results and recommendations resulting therefrom. During the Commission meeting, the U.S. Commissioner noted the significance of entanglement as a cause of the fur seal population decline and urged all participating nations to continue to support cooperative international efforts to study and solve the problem of marine debris. There was no reported discussion and no agreement on specific actions that should and would be taken to establish and eliminate or mitigate the cause or causes of the continuing population decline.

U.S. Deliberations on Extension of the Convention

As noted in the Commission's previous Annual Reports, the National Marine Fisheries Service prepared a Draft Environmental Impact Statement on extension of the Interim Convention in 1983. The Commission provided the Service detailed comments on the draft Statement by letter of 11 January 1984. Among other things, the Commission's letter noted its belief that the proposed action to extend the Interim Convention would be the preferred action if, in fact, it were to lead to the establishment of research, education, and enforcement programs which would assure prompt resolution of uncertainties concerning the rate and possible causes of the ongoing decline in the Pribilof Islands fur seal population and if it were to assure that appropriate and necessary steps would be promptly taken to effectively stop and reverse the decline.

On 2 April 1985, the National Marine Fisheries Service issued a Final Environmental Impact Statement on extending the Interim Convention. The final Statement indicated that the Departments of Commerce and State would recommend to the Senate that it give its advice and consent to ratification of the 1984 Protocol. The Protocol was transmitted to the Senate for advice and consent on 20 March 1985, where it was referred to the Committee on Foreign Relations.

A hearing on ratification of the Protocol was conducted by the Committee on 13 June 1985. During the hearing, the Commission provided testimony indicating its concern about the population decline and the lack of information on the

cause of that decline. Among other things, the Commission noted that if the Interim Convention were not extended, there would be considerable risk that it would not be possible to develop international agreements that would be effective in implementing needed research and conservation measures, including a prohibition on pelagic taking. In light of this concern, the Commission expressed its support for extension of the Convention but recommended that the United States propose a suspension of further commercial harvests of fur seals pending an evaluation of the effectiveness of those steps being taken to address the population decline. In its testimony, the Commission also referenced and reiterated the view expressed in its 17 August 1984 letter to the National Marine Fisheries Service that steps should be taken to prepare and implement a conservation plan for North Pacific fur seals that is similar in form and content to recovery plans required by the Endangered Species Act.

Testimony also was presented by representatives of other Federal agencies, environmental organizations, the State of Alaska, the Aleut community, and the U.S. Senate. With respect to testimony by Federal agencies, representatives of the Commerce Department and the State Department supported ratification of the Protocol and extension of the Convention. In doing so, they pointed out the value of the Convention for promoting and coordinating international cooperation on necessary research, management, and conservation tasks, and they indicated that the commercial harvest of fur seals continues to meet important economic and subsistence needs of Aleuts who reside on the Pribilof Islands. The representative of the National Advisory Committee on Oceans and Atmosphere, summarizing the results of its 1985 study on the Interim Convention, expressed, among other things, the view that: the U.S. Government should immediately and permanently cease entrepreneurial participation in the commercial fur seal harvest; the Senate should ratify the Convention; the Secretaries of Commerce and State should direct the U.S. Commissioner to urgently consider the desirability of suspending the commercial harvest in light of the best scientific information available; and a portion of the funds saved by terminating U.S. Government involvement in the commercial harvest should be reallocated to augment the U.S. fur seal research program.

Environmental organizations offered divergent views on the Convention. Groups such as the Animal Protection Institute, Friends of Animals, Greenpeace, and the Humane Society of the United States objected to ratification, arguing that the Convention was no longer needed to protect fur seals from pelagic sealing and that the commercial harvest cannot be justified on economic, ethical, or scientific grounds. Support for ratification was provided by the International Association of Fish and Wildlife Agencies, the National Audubon Society, the Wildlife Management Institute,

and the World Wildlife Fund. These groups acknowledged the need to maintain an international agreement that prohibits pelagic sealing and provides a resource management and scientific research mechanism, however, they offered differing reasons for their support. For example, the National Audubon Society supported ratification contingent upon the adoption of scientific management principles that would ensure that problems confronting the fur seal population would be resolved in a timely fashion.

Support for ratification also was voiced by residents of the Pribilof Islands and their representatives. They emphasized the cultural, economic, social, and subsistence significance of the annual harvest as an integral part of their way of life and set forth their views that the commercial harvest of subadult male fur seals is not a contributing factor in the fur seal population decline. With respect to the latter point, they noted that the decline may instead be due to fundamental changes that appear to be taking place in the Bering Sea ecosystem.

Following the hearing, representatives of the Aleuts and various environmental organizations met on several occasions to resolve their differences concerning extension of the Convention. These meeting did not result in agreement although a possible compromise was proposed and considered in July. Under that compromise, Senate advice and consent was to be provided on the Protocol, subject to the following conditions: (1) the U.S. Commissioner to the Fur Seal Commission would oppose any recommendation to take fur seals for commercial purposes within the jurisdiction of the United States; (2) during the period of the Protocol, North Pacific fur seals within the jurisdiction of the United States would be conserved, managed, and protected pursuant to U.S. domestic laws to the extent that they are more restrictive than the Convention; (3) the Secretary of Commerce would implement a cooperative Bering Sea ecosystem research program to help determine the cause or causes of the ongoing fur seal population decline and to increase the health and viability of the Bering Sea ecosystem, giving special emphasis to the problems of entanglement of fur seals in lost and discarded fishing gear and other debris and the reproductive failure of other species within that ecosystem; and (4) the subsistence take of fur seals would be at no cost to the U.S. Government and all pelts held by the U.S. as a result of the 1984 harvest would be transferred to the village corporation on St. Paul.

As of the end of 1985, the Senate Committee on Foreign Relations had not reported the matter to the full Senate for its consideration and, as a result, the 1984 Protocol did not receive Senate advice and consent in 1985. Canada, Japan and the Soviet Union did, however, ratify the Protocol during 1985.

The 1985 Harvest

As noted above, the U.S. did not ratify the Protocol to extend the Fur Seal Convention prior to the 1985 July-August harvest season for fur seals. Thus, in the absence of an international agreement binding upon the U.S., management authority for fur seals on the Pribilof Islands reverted to domestic legal authorities including the Marine Mammal Protection Act and the Fur Seal Act. Pursuant to these laws, the taking of fur seals for commercial purposes is prohibited. A take by Alaska Natives for subsistence purposes is, however, permitted with certain restrictions. Under the authority of these two laws, the National Marine Fisheries Service published emergency interim regulations in the Federal Register on 8 July 1985 for the purpose of governing the 1985 subsistence take of fur seals by the Aleut residents of the Pribilof Islands.

The regulations specified that the 1985 fur seal harvest on the Pribilof Islands was to be conducted for subsistence purposes only. They further specified that it was to end either on 5 August 1985 or when the Assistant Administrator for the National Oceanic and Atmospheric Administration determined that the harvest was being conducted in a wasteful manner, whichever occurred first. With respect to the harvest on St. Paul Island, the regulations established requirements concerning the method of harvest, the locations where harvesting could occur, the disposal of fur seal parts, and cooperation with Federal officials monitoring the harvest. With respect to St. George Island, a harvest limit of 329 fur seals was set. The regulations provided for air transportation of seal meat from St. Paul Island to St. George Island and specified that no part of a fur seal taken for subsistence uses could be sold or transferred to a non-Native unless it was: (1) a non-edible by-product that had been transformed into an article of handicraft, (2) being sent by a Pribilovian to a registered tannery, or (3) a skin to be transferred to the U.S. for holding pending a determination of its "final disposition."

A one-day emergency extension of the harvest season was authorized on 6 August 1985 and published in the Federal Register on 9 August. During the authorized harvest season, 3,385 fur seals were taken.

By letter of 24 July 1985, the Commission provided the Service with comments on the emergency interim regulations. In its letter, the Commission supported the regulations, noting that without them there would be no restrictions on taking fur seals by Alaska Natives and that an unregulated harvest could have a severe, adverse effect on the declining Pribilof Islands fur seal population. Among other things, the Commission's letter recommended that the Service monitor how fur seal parts taken for subsistence purposes are

actually used. It also recommended that the number of skins to be preserved by the U.S. to satisfy any rejuvenated obligations under the Convention should be limited to 6,600 skins. That is, if and when the U.S. decides to ratify the Convention, these skins would be used to meet U.S. obligations for transferring the 3,300 skins that would be owed to each of Canada and Japan if the 1985 harvest had been conducted under the Convention.

Recognizing that the Convention might not be ratified by the U.S. and that management of fur seals therefore might remain subject to domestic authorities, the Service's 8 July rulemaking also requested comments on the procedures that should be used to (a) promulgate permanent regulations for the subsistence harvest and (b) designate North Pacific fur seals as "depleted" under the Marine Mammal Protection Act. The Commission responded to this request by letter of 7 August 1985 to the Service. In its letter, the Commission recommended that, to reconcile requirements of the Fur Seal Act and the Marine Mammal Protection Act, the more stringent rulemaking requirements of the Marine Mammal Protection Act should be followed. Under the Marine Mammal Protection Act, permanent regulations restricting Native take would have to be promulgated on the record after opportunity for an agency hearing. Although the Service stated in its 8 July rulemaking that it would indicate which approach it would use for developing permanent regulations in September 1985, a decision on this matter had not been announced as of the end of 1985. The Service's failure to initiate rulemaking procedures to address this point creates a risk that permanent regulations will not be in place in time for the 1986 subsistence harvest. The Commission's concerns on this point were conveyed to the Service by letter of 29 November 1985, in which it recommended that procedures for promulgating permanent regulations be initiated in December 1985.

With respect to the question of designating the Pribilof Islands fur seal population as "depleted" under the Marine Mammal Protection Act, the Commission's 7 August 1985 letter recommended that the Service do so immediately. The letter also noted that the Commission had notified the Service on three previous occasions that this action was appropriate. Although the Service acknowledged in its 8 July rulemaking that the Pribilof Islands fur seal population qualifies for depleted status, no action had been taken by the end of 1985 to implement a formal designation as such and no response to the Commission's recommendation had been received.

The Petition to List North Pacific Fur Seals as Threatened

As noted in the Commission's previous Annual Report, a petition was submitted to the National Marine Fisheries Service in early 1984 on behalf of several environmental organizations requesting that the North Pacific fur seal

(Callorhinus ursinus) be listed as a threatened species under the Endangered Species Act. By Federal Register notice of 11 April 1984, the Service announced its determination that the requested action may be warranted and requested data to assist in its evaluation of the most appropriate course of action.

The Commission provided the Service comments by letter of 17 August 1984. Among other things, the Commission noted that: the Pribilof Islands fur seal population is below its optimum sustainable population level; if it continues to decline at its present rate, the population would be half its 1984 population size in seven to ten years; although the precise cause or causes of the population decline are not known, entanglement in lost and discarded fishing gear and other debris appears to be at least a contributing factor; and new threats to Pribilof Islands fur seals may develop from onshore and offshore oil and gas development and tanker traffic in the vicinity of the Islands and elsewhere in the population's range. The Commission concluded that, if steps currently being taken by the U.S. and other parties to the Convention are insufficient to identify and mitigate the cause of the population decline soon, the population could decline to a point where it would be in danger of extinction in the foreseeable future. Therefore, the Commission also concluded that designation as threatened would be appropriate and that development of a recovery plan, which would be required by such designation, would be beneficial.

On 6 March 1985, the National Marine Fisheries Service published a notice in the Federal Register determining that listing North Pacific fur seals as a threatened species was not warranted at that time. In support of its determination, the Service noted that: (1) although the Pribilof Islands fur seal population is declining at a rate of about 6.5 percent annually, the herd is not at or near a critical population level at which it would be in danger of extinction; (2) the Fur Seal Commission's Committee of Scientists, as well as other fur seal biologists, believes that the harvest of fur seals probably is not a factor contributing to the population decline; (3) since the cause of the decline has not been conclusively determined, the underlying need is to intensify efforts to identify causal factors; and (4) continuation of the current management regime under the Convention provides the greatest protection available since the species also occurs outside of U.S. jurisdiction.

By letter of 11 March 1985, the Service responded to the Commission's letter of 17 August 1984 commenting on the proposed listing. The Service indicated the seriousness with which it viewed the ongoing population decline and recounted the reasons set forth in the Federal Register notice as to why it had determined that listing is not warranted. It also stated that the most appropriate action at this time is to

continue investigations to determine the cause of the decline.

Fur Seal Research and Management Needs

During the early part of 1985, the Commission became concerned that the Service might not be doing everything possible to address the problem of the continuing fur seal population decline. This concern was intensified by the Service's response to the Commission's comments on the petition to list fur seals as endangered, and the Commission therefore advised the Service of these concerns by letter of 24 April 1985. Referring to the position set forth in its 17 August 1984 letter on the listing question, the Commission noted that it assumed that the Service's decision not to list the North Pacific fur seal as threatened was based on a determination that the steps currently being taken by the Service and other parties to the Convention would be sufficient to identify and eliminate or mitigate the cause or causes of the population decline in the near future. The basis for such a determination was not clear and, since the Commission was uncertain as to the precise steps that were being taken by the Service and other parties to the Convention to address this point, the Commission requested that the Service provide: (1) a list of hypotheses concerning possible causes of the decline; (2) a list of hypotheses concerning the likely effectiveness of measures that could be taken to reverse the decline; and (3) a description of the studies required to test those hypotheses, the funds that would be required, the relative importance or priority which the Service attaches to those studies, and an indication of which studies would or would not be undertaken within the next three years.

By letter of 12 July 1985, the Service responded to the Commission's 24 April letter. The Service reiterated the reasons for denying the petition and enclosed a nine page research planning memorandum prepared by the Service's Northwest and Alaska Fisheries Center. The material enclosed with the Service's letter outlined the broad range of studies that would be required to evaluate virtually all possible causes of the population decline and the general categories of studies planned for the next several years. However, the material did not indicate either the measures that the Service thought might be taken to stop and reverse the fur seal population decline or precisely what studies the Service considered necessary and which it was prepared to undertake during the next three years.

The Commission, therefore, invited representatives of the Service to participate in the meeting of the Commission and its Committee of Scientific Advisors on Marine Mammals on 24-26 October 1985 in San Diego, California to discuss fur

seal related issues. Based on an evaluation of those discussions as well as recent correspondence between the Service and the Commission and other related materials, the Commission wrote to the Service on 29 November 1985 recommending additional steps that should be taken to identify and either eliminate or diminish the impact of the cause or causes of the continuing population decline. In its letter, the Commission recommended that:

- the Service promptly convene a North Pacific fur seal research program review and schedule subsequent reviews annually, at least until the ongoing decline has been reversed;
- the Service and the Commission enter into a cooperative agreement to constitute and convene a working group of scientific and resource management experts on North Pacific fur seals to write and help implement a long-term fur seal conservation plan similar in scope and format to the recovery plans prepared for a species listed under the Endangered Species Act;
- the U.S. seek the cooperation of other countries in efforts to implement the long-term fur seal conservation plan;
- the Service immediately designate the Pribilof Islands population of fur seals as "depleted" under the Marine Mammal Protection Act; and
- the Service promulgate permanent regulations governing the taking of North Pacific fur seals for subsistence purposes.

With respect to its recommendation that a working group be constituted to develop a long-term fur seal conservation plan, the Commission noted that a well-conceived conservation plan, which sets forth logical steps and the supporting rationale for identifying and attacking the cause or causes of the population decline, would provide a substantially improved basis for identifying, scheduling, and evaluating essential fur seal related research and management activities. Furthermore, such a plan would help facilitate agreement on ways to strengthen and expand cooperative international support of critical research and management tasks. In addition to representatives of the Service and the Commission, the Commission's letter noted that appropriate participants on the working group would include representatives from the Aleut community, the State of Alaska, the environmental community, the academic community, and the fishing industry.

In order to help clarify the scope and intent of its recommendation concerning the preparation of a fur seal

conservation plan, the Commission followed up its 29 November letter by forwarding a preliminary discussion draft of an outline for a Pribilof Islands fur seal conservation plan to the Service on 6 December 1985. The draft outline identifies, as the ultimate objective, restoration and maintenance of the Pribilof Islands fur seal population at its optimum sustainable population level. Intermediate goals would be to: (1) identify and eliminate or mitigate the population decline; (2) assess and avoid or mitigate the possible adverse effects of offshore oil and gas development and other future activities on the Pribilof Islands population and its habitat; and (3) continue and, as necessary, expand programs to detect changes and monitor trends in the Pribilof Islands population and its habitat.

As of the end of 1985, the Commission looked forward to a response from the Service to its 29 November 1985 letter and to working closely with the Service, the Aleut community, the environmental community, and others on efforts to convene a working group, to prepare a long-term fur seal conservation plan, and to otherwise assist in efforts to identify and reverse the ongoing decline in the Pribilof Islands fur seal population.

Convention On International Trade
in Endangered Species of Wild Fauna and Flora (CITES)

The United States is party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora, a Convention designed to control trade in animal and plant species that are or may become threatened with extinction. The extent of trade control depends upon the extent to which the species is endangered, as reflected by inclusion on one of three appendices to the Convention. Changes in the species listed in the appendices can be made by agreement of the Parties and, in the case of Appendix III, by individual Parties.

Appendix I includes species threatened with extinction that are or may be affected by trade. Appendix II includes species that, although not necessarily currently threatened with extinction, may become so unless trade in them is strictly controlled. Appendix II also includes non-endangered species that must be regulated so that trade in "look-alike" species that are threatened with extinction may be brought under effective control. Appendix III includes species that any Party identifies as being subject to regulation within its jurisdiction for the purpose of preventing or restricting exportation and for which the party needs the cooperation of others Parties in controlling trade.

Overall responsibility for coordinating the development of U.S. positions and implementation of the provisions of the

Convention is vested in the Fish and Wildlife Service. During 1985, the Service consulted with the Commission and with others in preparation for the Fifth Biennial Meeting of the Parties to the Convention.

The Fifth Biennial Meeting was held from 22 April to 3 May 1985 in Buenos Aires, Argentina. At the meeting, the Parties considered three proposals concerning marine mammal species. The Federal Republic of Germany proposed that the narwhal, Monodon monoceros, should be transferred from Appendix II to Appendix I. Sweden proposed that the hooded seal, Cystphora cristata, should be added to Appendix II, and the United States proposed that the northern elephant seal, Mirounga angustirostris, should be deleted from Appendix II.

On 7 February 1985, the Fish and Wildlife Service published a Federal Register notice and request for comments on these and other proposed amendments to the Convention. In the notice, the Service announced that it was the tentative U.S. position that narwhal and hooded seals proposals should be supported. Tentative adoption of these positions was based on information submitted by the proponents of each proposal.

By letter of 15 March 1985, the Commission, in consultation with its Committee of Scientific Advisors, supported the tentative U.S. positions on the narwhal and hooded seal proposals and the U.S. proposal to delete the northern elephant seal from Appendix II. Final U.S. negotiating positions for the meeting were published in the Federal Register on 12 April 1985. In that notice, the tentative U.S. positions for all three marine mammal species were affirmed.

At the Fifth Biennial Meeting, the United States delegation altered its negotiating position on the hooded seal proposal. Based upon information provided by Canada, the U.S. delegation concluded that the hooded seal did not qualify for inclusion on Appendix II. The proposal was rejected by the Parties. Canada also presented information supporting its position that the narwhal should not be included on Appendix I, and the Federal Republic of Germany's motion to add the species to Appendix I was defeated by secret ballot. Finally, the U.S. withdrew its proposal to delete the northern elephant seal from Appendix II.

The decisions of the Parties to the Convention on these and other issues were announced by the Fish and Wildlife Service in the Federal Register on 14 June 1985, with a request for comments. The resulting amendments, none of which concerned marine mammals, entered into force on 1 August 1985.

CHAPTER IV

MARINE MAMMAL MANAGEMENT IN ALASKA

Marine Mammal Working Groups

Since the enactment of the Marine Mammal Protection Act in 1972, issues concerning marine mammals in Alaska have assumed greater significance and have been the focus of more attention than those of any other state. A number of states are confronted with important conservation problems that involve one or more species of marine mammals. Alaska, however, by virtue of the large number of marine mammal species found there, its extensive coastline, the use of marine mammals for subsistence purposes by Alaska Natives, and the many other management issues concerning marine mammals, presents extraordinary conservation challenges.

In recognition of this fact, the Commission has made marine mammal issues in Alaska a matter of high priority. In 1984 and 1985, for example, the Commission devoted 16 percent and 28 percent of its research budgets, respectively, to marine mammal issues in Alaska. Central to the Commission's efforts in this regard was the establishment of the Alaska Marine Mammal Working Groups (discussed below) at the July 1984 meetings of the Commission and its Committee of Scientific Advisors in Fairbanks, Alaska.

These Groups were created for several reasons. As recounted elsewhere in this Report and in previous Annual Reports, the Federal Government has never fully met its obligations as the steward of marine mammals in Alaska. In some measure, this lack of commitment resulted from the belief that the State of Alaska would request and receive the authority to re-assume management responsibility for many of the species in question. Such has not been the case although the State did at one time briefly have authority over walrus. Another such request may be made by the State in 1986, depending upon the resolution of subsistence and other issues in the Alaska Legislature.

From the Commission's point of view, the issue of who has management authority, while important, could not be allowed to further thwart the development of sound research and management programs. It was the Commission's belief that no matter who has the responsibility, certain basic facts were clear: (a) the development of research and management

plans will always be heavily dependent upon the existence of carefully developed and generally agreed-upon species accounts and problem descriptions as base documents; (b) research upon which to base conservation and management of marine mammals can and must be carefully described; (c) the same holds true for needed management actions; and (d) to be useful, these species accounts, research recommendations, and management recommendations should be developed in cooperation with representatives of all interested groups. The Commission has given attention to the development of these important research and management plans because they will provide the rational basis for addressing many of the urgent resource-related issues in Alaska, such as marine mammal harvests and marine mammal interactions with fisheries.

To bring together the species accounts and essential research and management information, the Commission, in cooperation with representatives of the Eskimo community, the State, the Fish and Wildlife Service, the National Marine Fisheries Service, the academic community, and private groups, established seven Working Groups composed of biologists, biometricians, Native and non-Native coastal residents, representatives of the conservation community, and representatives of State and Federal agencies. The Groups are charged with preparing: (1) comprehensive species accounts that summarize available information on population status and threats; (2) summaries of research activities that are either underway or planned; (3) summaries of existing and proposed management programs; (4) descriptions of recommended research activities; and (5) descriptions of recommended management programs. The final reports, which address the ten species for which the State had at one time planned to seek management authority, should be of equal value to either State or Federal agencies.

For purposes of facilitating and coordinating the efforts of these working groups, the Commission entered into a contract in 1984 with a marine mammal and resource management specialist in Juneau, Alaska. Under the contract, which was extended in 1985, the contractor has lead responsibility for overseeing the development of the Working Groups' comprehensive reports. To further the effort, the Commission entered into additional contracts in 1985 with persons to act as lead writers for the reports on harbor seals, ringed and ribbon seals, bearded and spotted seals, sea lions, and beluga whales. (See Chapter II for a more complete discussion of relevant contracts.) Draft reports containing species accounts, research recommendations, and management recommendations for polar bears and sea otters are being prepared by agency representatives and therefore do not require the support of additional contracts.

When completed, the comprehensive reports on all ten species are expected to serve as the action plans for future marine mammal conservation, management, and research efforts in Alaska whether management authority resides with the Federal government, the State of Alaska, or is a responsibility shared according to species.

Background Information on Transfer of Management

To make clear the context within which the Marine Mammal Commission's actions to constitute and support working groups have taken place, the following background information and discussion of the transfer of management requirements of the Marine Mammal Protection Act may be useful.

The Marine Mammal Protection Act sets forth certain procedures whereby the Secretaries of Commerce and the Interior may, in response to a properly submitted request, take actions that would lead to the transfer of management authority from the Federal Government to a state for marine mammals found in that state. In order to transfer Federal management authority, the Secretary with jurisdiction over the species in question must determine, after notice and opportunity for public comment, that the state has developed and will implement a program for the conservation and management of the affected species that satisfies the requirements of Section 109 of the Act. In making this determination, the Secretary must issue a finding that the state has, among other things, established a process to determine the optimum sustainable population of each affected species and the maximum number of animals that may be taken without reducing the species below that level.

Certain additional points are germane to requests for transfer of management to the State of Alaska. For example, the State of Alaska's conservation and management program must include mechanisms whereby: determinations of optimum sustainable population levels are made; allowable take levels for species above the minimum levels are established; and, for each species that is below its optimum sustainable population level, a determination must be made as to the maximum numbers of animals that can be taken for subsistence while still allowing that species to increase towards its optimum sustainable population. Furthermore, Alaska's program must include a State statute and regulations requiring that subsistence takings shall not be wasteful and that priority shall be given to subsistence rather than other consumptive uses of the species. Federal regulations implementing the transfer of management requirements were promulgated by both the Fish and Wildlife Service and the National Marine Fisheries Service in 1983.

During 1982 and 1983, the State of Alaska took preliminary steps to request a transfer of management for ten species of marine mammals. Early in 1984, however, the State determined that it would be appropriate to conduct a public education and comment process prior to making a final decision on whether to proceed with such a request. As a part of the process, the Alaska Department of Fish and Game conducted forty-nine formally announced public meetings to provide information on the transfer process requirements, to explain the likely consequences of a State management program, and to solicit comments from coastal residents and other affected parties. These meetings were completed early in 1985.

At the 24 October 1985 meeting of the Commission and its Committee of Scientific Advisors in San Diego, the Alaska Department of Fish and Game indicated that an analysis of the issues raised during the public review process would be completed and presented to the Governor by the end of 1985. It was further indicated that a final decision on whether to proceed with a request for a transfer of management would be made by the Governor early in 1986.

The State's review of the transfer of management issue was made more complex on 22 February 1985 when the Alaska Supreme Court, in its decision in Madison v. Alaska Department of Fish and Game, invalidated a Board of Fisheries regulation designed to identify eligibility for subsistence fishing in the Cook Inlet region. The decision called into question the sufficiency of the State's subsistence statute and regulations under the transfer of management requirements of the Marine Mammal Protection Act.

The inconsistency between State law and Federal subsistence requirements is noted in a 23 September 1985 letter from the Department of the Interior's Assistant Secretary for Fish and Wildlife and Parks to the Governor of Alaska. In the letter, it is stated that, as a result of the Madison decision, the State is no longer in compliance with the subsistence standards of the Alaska National Interest Lands Conservation Act. Those requirements are virtually identical to the provisions of Section 109(f)(1) of the Marine Mammal Protection Act that must be satisfied before a transfer of management can be accomplished. Questions generated by the Madison decision must, therefore, be resolved before the State can proceed with a request for a transfer of management.

During the 1985 session of the Alaska State Legislature, the Governor of Alaska introduced a bill intended to bring the State statute into compliance with Federal requirements. Although passed by the House, no action was taken by the State Senate, and hearings on the subsistence issue were held by the Senate State Affairs Committee during the summer of

1985. A Senate bill amending the State subsistence statute is expected to be introduced in 1986.

Federal Marking and Tagging Regulations

In 1981, the Marine Mammal Protection Act was amended to provide the Fish and Wildlife Service with authority to promulgate regulations requiring the marking, tagging, and reporting of animals taken by Alaska Natives. Through these regulations, useful information on the numbers of marine mammals taken for subsistence and handicraft purposes should be obtained. On 3 December 1985, the Fish and Wildlife Service published proposed marking and tagging regulations in the Federal Register. Hearings on the proposed regulations will be held in affected areas of Alaska during 1986.

Native Taking of Sea Otters

Concerned about the inadequacy of information available to Alaska Natives on the restrictions that apply to the taking of sea otters, the Commission wrote to the Eyak Village Corporation, in Cordova, Alaska, on 23 December 1985. The purpose of the letter was to provide information on the Native take requirements of the Marine Mammal Protection Act and its implementing regulations. The letter was necessitated by the incomplete nature of the information that had been given to Alaska Natives with respect to taking sea otters and by the interest in taking a significant number of sea otters for handicraft purposes.

In the letter, the Commission explained the limitations that apply to the taking of sea otters and other marine mammals for subsistence and handicraft purposes. The letter also encouraged Natives planning to take sea otters to consult with the Fish and Wildlife Service to determine if the take is authorized and to identify the steps that should be taken to ensure that sea otter populations would not be adversely affected.

On 23 December, the Commission also wrote to the Fish and Wildlife Service, transmitting a copy of its letter to the Eyak Village Corporation and informing the Service of its concerns. Specifically, the Commission pointed out that the Fish and Wildlife Service Fact Sheet on the taking of sea otters by Alaska Natives that had been issued in 1985 did not provide all relevant information on the requirements of the Marine Mammal Protection Act and the regulations governing Native take. The Commission recommended that steps be taken to: (a) assess the level of sea otters taken by Alaska Natives and determine if those takes are lawful; (b) better inform Natives of limitations on taking for subsistence and

handicraft purposes; (c) pursue enforcement action in appropriate cases; (d) determine what effect such takings are having on sea otter populations; and (e) take appropriate measures to protect the affected populations.

Litigation

Killer Whales

In 1985, significant developments occurred in two lawsuits concerning marine mammals in Alaska. On 16 January 1985, the U.S. District Court for the District of Alaska issued a decision on Jones v. Gordon. In the lawsuit, several environmental groups, tour boat operators, and the State of Alaska challenged a 1983 permit issued to Sea World, Inc. to collect killer whales in Alaska for public display and scientific research purposes. The plaintiffs alleged that the permit had been unlawfully issued as a result of the National Marine Fisheries Service's failure to prepare an environmental impact statement on the permit application.

Ruling for the plaintiffs, the District Court determined that the action requested in the permit application raised questions concerning the unknown effects of the takings on killer whale pod structure, reproductive capacity, and overall population levels. The Court concluded that these uncertainties and the substantial public controversy associated with the permit required the preparation of an environmental impact statement. The Court therefore invalidated the permit and enjoined Sea World, Inc. from proceeding with the collection.

On 25 September 1985, the United States appealed this decision to the U.S. Court of Appeals for the Ninth Circuit. An appeal also was filed by the intervenor, Sea World, Inc. In the appeal brief, the Federal appellants argued that the lawsuit should have been dismissed for plaintiffs' failure to file a complaint within 60 days of the issuance of the permit, as required by Section 104(d)(6) of the Marine Mammal Protection Act. They also argued that the review of the Sea World permit application was a categorically exempt action for which an environmental impact statement is not required. At the end of 1985, all pleadings for the appeal had been filed, and oral argument before the Ninth Circuit is expected early in 1986.

Sea Otters

In a second lawsuit, Katelnikoff v. U.S. Department of the Interior, an Alaska Native challenged the validity of the Fish and Wildlife Service's regulatory definition of "authentic Native articles of handicraft and clothing." That definition requires that, in order to qualify for the Marine

Mammal Protection Act's Native take exemption, handicraft articles fashioned from marine mammal parts and products must have been "commonly produced on or before December 21, 1972." In the plaintiff's complaint, it is alleged that the cut-off date has no basis in the Marine Mammal Protection Act.

The litigation arose as a result of the seizure by Fish and Wildlife Service and National Marine Fisheries Service enforcement agents of several handicraft articles manufactured by the plaintiff out of sea otter skins. The items involved -- teddy bears, hats and mittens, fur flowers, and pillows -- were confiscated from gift shops in Kodiak, Alaska, because there is no record indicating that such articles were commonly produced by Alaska Natives before the regulatory cut-off date. The plaintiff claimed that, by seizing these items, the Federal Government deprived her of her right to take marine mammals for handicraft purposes.

The plaintiff's amended complaint was filed on 26 August 1985 and the Department of Justice filed an answer to that complaint on 30 September 1985. Dispositive motions are to be filed early in 1986 at which time the Federal defendants are expected to call upon legislative history in order to argue that Congress intended to limit takings for handicraft purposes to those Alaska Native cottage industries that existed before enactment of the Marine Mammal Protection Act in 1972.

CHAPTER V

MARINE MAMMAL/FISHERIES INTERACTIONS

Interactions among marine mammals, fisheries and fish, squid, shellfish, and other marine biota present complex problems for those responsible for conserving and managing marine mammals, fisheries, fishery resources, and the ecosystems of which they are a part. One of the most widely known examples of these problems -- the interactions between porpoises and the yellowfin tuna purse seine fishery in the eastern tropical Pacific Ocean (discussed in Chapter VII) -- was among the things that led Congress to pass the Marine Mammal Protection Act.

The Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has devoted considerable attention and funding to efforts to identify, assess, and resolve problems caused by marine mammal/fisheries interactions. Activities before 1985 have been reported in previous Annual Reports. A brief summary of these earlier efforts and a description of 1985 activities are provided below.

Background

Interactions between marine mammals and fisheries can take various forms -- sometimes to the detriment of the involved marine mammal population and other times with more impact on the involved fishery. In the former case, marine mammals can be killed or injured, accidentally or deliberately, during fishing operations or by becoming entangled in lost and discarded fishing gear. In the latter case, fishermen can be affected when marine mammals damage or take fish from hooks, traps, and nets and when they damage or destroy fishing gear. Further, marine mammals and fishermen may compete in some areas for the same fish and shellfish resources. This can cause or contribute to depletion of the fish and shellfish resources and result in fundamental changes in the marine food web as well as affect the competing marine mammals and fisheries.

Prior to enactment of the Marine Mammal Protection Act in 1972, regulated and unregulated hunting, bounty programs, and various forms of harassment were used in a number of areas to control the distribution, abundance, and behavior of

marine mammals and thus eliminate or reduce damage and loss of gear and catch caused by marine mammals. The Act imposed a moratorium on such activities and, in the ensuing years, marine mammals have become more numerous in certain areas and/or less likely to avoid fishing boats and gear.

Many of the reports of increasing interactions between marine mammals and fisheries came from the Pacific Northwest and, in December 1977, the Commission convened a workshop to gather and review available information on the nature and extent of marine mammal/fisheries interactions in Oregon, Washington, California, Alaska, and Hawaii. (For details, refer to the workshop report [Mate 1980, Appendix B]). Workshop participants concluded that the most acute problems seemed to involve seals, sea lions, and the salmon gill net fisheries in the Copper River Delta of Alaska and the Columbia River in Washington and Oregon. Following the workshop, the Commission, among other things, provided funds to initiate investigation of the interactions problem in the Copper River Delta and to begin development of a plan to investigate and, as necessary, resolve the interactions problem in the Columbia River and adjacent areas. The details and results of these and related studies are described in the Annual Reports for Calendar Years 1978, 1979, 1980, 1981, and 1982.

In 1978-1981, additional studies were initiated by the National Marine Fisheries Service, the North Pacific Fishery Management Council, and the States of Alaska, Washington, Oregon, and California to better determine the nature and extent of certain marine mammal/fisheries interactions in the Bering Sea, along the U.S. coast from Washington to California, and off the New England coast. The Commission, concerned that these studies might not be providing either comparable data or the types and quality of data needed to define and resolve problems, convened a follow-up workshop in October 1981 to review and determine what steps should be taken to improve and coordinate ongoing and planned studies.

The report of that workshop (Contos 1982, Appendix B) published in April 1982, notes that: (1) broad generalizations about marine mammal/fisheries interactions in different areas are not possible and each situation must be considered individually; (2) because of the potentially complex nature of indirect (trophic) interactions among marine mammals, fisheries, and fish and shellfish stocks, there is a substantial risk of making bad management decisions; (3) to minimize the risk of making bad management decisions, marine mammals and fisheries should be managed cooperatively in areas where they may be competing for or otherwise affecting the same fish or shellfish stocks; (4) because funding is limited, and because direct interactions are less complex and easier to document, higher priority initially should be afforded to research on direct rather than indirect interactions; (5) ongoing efforts to

determine and document the nature and extent of impacts on both the involved fisheries and marine mammal populations should be expanded to identify and evaluate possible mitigation measures; and (6) when remedial measures are determined to be necessary, first consideration should be given to possible non-lethal measures.

The workshop findings have guided subsequent Commission activities, as described below.

Interactions off California

Efforts to determine the nature and extent of marine mammal/fisheries interactions in California coastal waters have been under way since 1979 as a cooperative project of the National Marine Fisheries Service and the California Department of Fish and Game. These investigations, reviewed during the previously mentioned workshop in October 1981, indicate that marine mammals are affecting a number of California fisheries including the commercial salmon troll fishery, the commercial passenger fishing vessel ("party boat") fishery, the Pacific herring seine fishery, the market squid dip net fishery, the drift net fishery for sharks, and the set net fisheries for halibut, croaker, and rockfish. They also indicate that substantial numbers of sea otters, harbor porpoise, sea lions, harbor seals, and other non-target species are being caught and killed, particularly in gill net fisheries.

As noted in the previous Annual Report, gill netting is a relatively cheap, non-labor-intensive way of fishing that has attracted many immigrant as well as established fishermen. The amount of fishing effort with gill and trammel net gear and the number of fishermen using entangling nets has increased dramatically in northern and central California since 1979 and there has been a corresponding increase in the catch of marine mammals, sea birds, and other non-target species.

Because of the large number of sea birds being caught and killed in nets set in Monterey Bay, the California Department of Fish and Game prohibited set net fishing in the Bay for a limited time in 1982. This apparently caused a number of gill net boats to shift fishing efforts north to Marin, San Francisco, and San Mateo Counties and resulted in a substantial increase in the number of harbor porpoise being caught and killed (see Chapter VIII of this Report, Species of Special Concern, for more information). At the same time, observations conducted by State biologists and others indicated that substantial numbers of sea otters and other marine mammals were being caught and killed in set net fisheries along the coast from Morro to Monterey Bays.

Neither the State, the National Marine Fisheries Service, nor the Fish and Wildlife Service was able to implement the comprehensive observer program necessary to accurately determine when, where, how, and how many sea otters, harbor porpoise, and other marine mammals were being caught and killed in coastal set net fisheries. Therefore, as noted in previous Annual Reports, the Commission provided funds to the California Department of Fish and Game in 1982 and, in 1983 and 1984, contracted with independent investigators to augment the limited observation programs being conducted by the responsible management agencies.

In July 1984, the State of California enacted legislation restricting the use of gill nets in certain areas from Point Reyes to Monterey Bay. Subsequent fishery observations and marine mammal stranding data indicated that the restrictions did not eliminate and may not have reduced the incidental take of harbor porpoise and other marine mammals in the affected areas. In addition, the restrictions did not apply to most of the California sea otter range, which is south of Monterey Bay.

It was determined early in 1985 that incidental take could be having a significant adverse effect on the California sea otter population and, as discussed in Chapter VIII of this Report, the California Department of Fish and Game promulgated emergency regulations on 25 January 1985 prohibiting the use of gill and trammel nets in waters less than 15 fathoms deep from Waddell Creek, Santa Cruz County, to Point Sal, Santa Barbara County. On 24 May 1985, the California Legislature passed a law establishing a permanent 15-fathom closure along this section of coast. In July and August 1985, at least seven and possibly three more sea otters were observed caught in nets set in waters 15 fathoms or greater in depth. In response, the California Department of Fish and Game promulgated new emergency regulations prohibiting use of gill nets in waters less than 20 fathoms along 17 miles of coast between Cape San Martin and Piedras Blancas. This emergency closure expired on 20 December 1985. The need for further emergency closures and/or a permanent 20 fathom closure will be considered in the first half of 1986.

In an effort to address some of the problems that have resulted from interactions between commercial passenger fishing vessels, or party boats, and marine mammals, the National Marine Fisheries Service published regulations on 4 December 1985 that allow the owners and operators of such vessels to apply for a general permit and certificates of inclusion to incidentally take marine mammals by specified non-lethal means. This result was achieved through a modification of the definition of the term "commercial fishing operation" in the Service's Regulations Governing the Taking and Importing of Marine Mammals in 50 C.F.R., Part 216, to include this category of fishing vessel, the establishment of

a corresponding gear category, and the creation of a new General Permit Category with regulatory restrictions and certification requirements.

These regulations were in response to a petition submitted on 2 November 1983 by the Sportfishing Association of California. The Association contended in its petition that California sea lions were depredating the catch of customers on party boats, damaging fishing gear, and causing substantial economic losses to the party boat fleet. Notice of the petition was published in the Federal Register on 15 December 1983, and, on 30 January 1985, the Service proposed regulations to authorize the incidental take of California sea lions by commercial passenger fishing vessels.

In its letter of 18 March 1985, the Commission commented on the proposed regulations. In that letter, the Commission emphasized the need to restrict the take to non-lethal, non-injurious methods, requested that authorized methods of take be specified more clearly, recommended that detailed reporting requirements be established, and asked for either the establishment of a quota or a more accurate estimation of the number of animals that are expected to be taken.

In the final regulations, to become effective on 3 January 1986, the Service limited the authorized methods of take to seal bombs, cracker shells, and acoustic harassment devices. These methods are to be used only for harassment purposes. The Service declined to establish a quota, noting that "the number of California sea lions that may be harassed cannot be accurately determined in advance." Reporting requirements were established, and the Service indicated that the need to establish a quota would be determined after "the NMFS has had the opportunity to review the certificate holders' take reports."

Because of the apparent effects on both fishermen and marine mammals, the Commission and its Committee of Scientific Advisors devoted considerable time during their 24-26 October 1985 meeting in San Diego to consideration of problems and issues related to marine mammal/fisheries interactions in California. Representatives of the affected fishermen, the California Department of Fish and Game, the National Marine Fisheries Service, the Fish and Wildlife Service, and several environmental groups were invited to attend the meeting and participate in the discussions. In addition, on 25 October 1985, a Commission representative attended a symposium on California gill net fisheries sponsored by the Southern California District of the American Institute of Fishery Research Biologists.

Information presented during the Commission's meeting and the Fishery Research Biologists' Symposium indicated that the nature and general effects of the interactions between

various marine mammals and fisheries in California coastal waters have been reasonably well documented. It also indicated that relatively little has been and is being done to identify and evaluate possible measures for avoiding or reducing impacts on both fishermen and marine mammals, and that present fishery and marine mammal survey programs in California may not be adequate to determine and monitor the effectiveness of existing and future management programs.

Because of the uncertainties, the Commission initiated discussions with the California Department of Fish and Game on the need to seek new ways to address the issues. Both agencies agreed to cooperate on sponsoring a workshop in 1986 to determine and describe such additional measures as may be necessary to assess, avoid, and reduce impacts on both the involved fisheries and marine mammals. At the end of 1985, the Commission was finishing the draft terms of reference, the provisional agenda, a tentative list of participants, and the gathering of background information for discussion in January.

Interactions in the Southeastern Bering Sea and Other Areas off Alaska

The southeastern Bering Sea and other areas off Alaska include some of the world's richest fishing grounds and support a diverse assemblage of marine mammals. The continued expansion of both domestic and foreign fisheries in these areas since the mid-1960s has increased the potential for marine mammal/fisheries interactions and has focused attention on possible competition between marine mammals and fishermen for some of the same fish and shellfish resources.

Because of the potential interactions, the Commission and the North Pacific Fishery Management Council initiated cooperative efforts in 1980 to develop and implement an ecosystem approach to the management of marine mammals and fisheries resources in areas under Council jurisdiction. As part of this effort, the Commission and the Council jointly supported a workshop in October 1983 to review available information concerning biological interactions among marine mammals and commercial fisheries in the southeastern Bering Sea, and to determine whether existing data, theory, models, management techniques, and research/monitoring programs were sufficient to develop and implement ecosystem-oriented research and management programs for both marine mammals and fisheries in the area. The Commission also provided funds to the North Pacific Fishery Management Council in 1983 to help support a survey of Steller sea lion colonies being impacted by the winter joint venture fishery for pollock in Shelikof Strait, Alaska (for more information, see previous Annual Reports for Calendar Years 1983 and 1984).

A number of marine mammals, in addition to Steller sea lions, affect and are affected by fisheries in the southeastern Bering Sea and other areas offshore Alaska. Beluga whales, for example, affect and are affected by salmon gill net fisheries in areas such as Bristol Bay. Likewise, expanding sea otter populations in areas near Kodiak Island and Prince William Sound appear to be affecting certain crab fisheries. Also, there are reports that killer whales are taking sable fish caught on long lines in Prince William Sound and that fishermen are shooting and sometimes killing the whales in an effort to protect their gear and catch.

The Alaska Marine Mammal Species Working Groups, described in Chapter IV of this Report, are reviewing available information and will recommend steps that should be taken to better define and/or resolve problems being caused by marine mammal/fisheries interactions in Alaskan coastal waters. The reports of the working groups, expected to be completed by mid-1986, will describe actions necessary to assess and resolve the broad range of problems and issues affecting the conservation and protection of marine mammals in Alaska, including but not limited to those related to marine mammal/fisheries interactions.

Interactions off Hawaii

Information reviewed during the Commission-sponsored workshop on marine mammal/fisheries interactions held in December 1977 indicated that several species of porpoise occasionally take bait and damage or take caught fish. In these or other ways, they may interfere with long line, hand line, and troll fisheries for tuna and other fish in waters around the main Hawaiian Islands. More recently, it has also become apparent that efforts to develop spiny lobster and bottomfish fisheries in the northwestern Hawaiian Islands may have an adverse effect on the endangered Hawaiian monk seal and/or habitat critical to its survival.

Commission efforts to evaluate and determine possible means for preventing or reducing the adverse effects of marine mammals on fisheries around the main Hawaiian Islands are described in previous Annual Reports. Ongoing Commission efforts to assure that fishery development does not jeopardize the survival or recovery of the endangered Hawaiian monk seal are described in Chapter VIII of this report.

Interactions off the U.S. East Coast

It is known that humpback, right, fin, and other endangered large cetaceans are occasionally caught and injured or killed in fish weirs, gill nets, trawl nets, and other gear used to catch fish, squid, and lobster off the

east coast of the United States and Canada. It also is known that pilot whales, harbor porpoise, gray seals, harbor seals, and other marine mammals are being caught and killed incidentally in several fisheries off the New England coast. Further, as noted in the Commission's previous Annual Report, there have been a number of unsubstantiated reports, in recent years, that bottlenose dolphins and other marine mammals are affecting and are being affected by fisheries in the coastal waters of the southeastern and Gulf states.

Neither the nature nor the extent of the marine mammal/fisheries interactions off the U.S. east coast has been well documented. The Northeast Fisheries Center of the National Marine Fisheries Service has initiated studies to gather and assess information concerning the nature and effects of interactions on the involved fisheries and marine mammal populations in New England waters. The Commission, as noted in its previous Annual Report, provided funds in 1984 to carry out a survey to determine the nature, location, and scope of possible problems being caused by interactions between bottlenose dolphins and fisheries in the coastal waters of the southeastern and Gulf states.

The report from the Commission-sponsored study, submitted in September 1985, indicates that bottlenose dolphins are caught incidentally in sturgeon and shad gill net fisheries off the Carolinas, in the menhaden purse seine fishery throughout the southeastern United States, in the tuna purse seine fishery offshore Florida and Georgia, and in the shrimp trawl fishery in the western Gulf of Mexico. The report also indicates that bottlenose dolphins may adversely affect a number of fisheries by damaging gear, stealing fish, causing fish to scatter, and causing loss of work time while damaged gear is repaired or replaced. The available data were insufficient, however, to accurately estimate the number of bottlenose dolphins being killed or injured, or to accurately estimate the economic impacts on the involved fisheries.

In 1986, the Commission, in consultation with its Committee of Scientific Advisors, will review the information provided by the aforementioned studies and, as appropriate, will advise the National Marine Fisheries Service of any follow-up studies or mitigation measures that appear necessary.

CHAPTER VI

ENTANGLEMENT IN MARINE DEBRIS

The tendency of marine mammals and other marine species to become entangled in net fragments, packing bands, and other debris lost and discarded at sea has been recognized for many years. Although entanglement is a worldwide problem affecting a number of species, it appears to be particularly acute in the North Pacific Ocean where at least two marine mammal species, the North Pacific fur seal and the Hawaiian monk seal, are being affected as are other species of marine organisms.

Since the significance of the problem was first documented at the beginning of this decade, the Marine Mammal Commission has played a major role in efforts to assess the extent and impact of entanglement on marine mammals and to identify ways to reduce or eliminate the problem. A brief summary of the Commission's past efforts, which have been discussed in detail in previous Annual Reports, is provided here. This is followed by a discussion of the Commission's 1985 activities.

Background

Beginning in the early 1970s, the Standing Scientific Committee of the North Pacific Fur Seal Commission repeatedly noted its concern about the increasing incidence of entanglement of fur seals in materials lost and discarded by fishermen. Although the nations party to the Fur Seal Convention -- Canada, Japan, the United States, and the Soviet Union -- were somewhat responsive to this concern, efforts to address the problem were limited primarily to attempts to encourage fishermen not to discard fishing gear into the ocean and enjoyed little, if any, success.

By 1982, it was apparent that the rate of fur seal entanglement had not diminished and that the impact of such entanglement was much more serious than had been realized. A data analysis carried out at that time indicated that entanglement of fur seals was possibly the primary cause of the ongoing decline in the North Pacific fur seal population and could represent an annual mortality rate of more than five percent of the population as a whole.

The Marine Mammal Commission, the National Marine Fisheries Service, the Department of State, and others, gravely concerned by these estimates, encouraged the North Pacific Fur Seal Commission to address the problem more vigorously than it had in the past. At about the same time, it became apparent that Hawaiian monk seals were also becoming entangled in lost and discarded fishing gear and other debris and that this could be contributing significantly to monk seal mortality. Elsewhere, data were being collected that indicated that lost and discarded fishing gear and other marine debris were global problems affecting many marine species.

In August 1982, participants in a National Marine Fisheries Service program review, which the Commission had requested, discussed the problem and agreed it would be valuable, as recommended by the Commission, to promptly convene a workshop to address the issue. Although the Service offered to proceed with planning such a workshop and despite the Commission's repeated offers of support and concrete recommendations with respect to the form, content, and objectives of such a workshop, the workshop was not held until late in 1984. The Workshop on the Fate and Impact of Marine Debris was held 27-29 November 1984 in Honolulu, Hawaii. Consistent with the Marine Mammal Commission's recommendation, responsibility for the Workshop was transferred to the Honolulu Laboratory of the National Marine Fisheries Service. The Laboratory deserved praise for the quality of this useful Workshop, which it organized and convened. (See previous Annual Reports.)

Purposes of the Workshop, as noted in the previous Annual Report, were to: (1) review the state of knowledge on the fate and impact of marine debris to determine the extent of the problem; (2) identify and make recommendations on possible mitigating actions; and (3) identify and make recommendations on future research needs. Workshop participants divided into four working groups to consider: the origin of marine debris, its impact on marine species, its fate in the marine environment, and tools for addressing and managing the problem. The conclusions and recommendations of the four working groups were discussed in detail in the Annual Report for Calendar Year 1984.

In July 1985, the National Marine Fisheries Service published the complete Proceedings of the November 1984 Workshop on the Fate and Impact of Marine Debris. As noted in the Executive Summary, a number of common conclusions and similar recommendations emerged from the individual working groups. The groups agreed, for example, on the need for extensive efforts to educate the public on the marine debris problem; the need for quantitative data to assess the impact of debris on marine resources; and the

need for increased information to determine the sources and distribution of debris. The working groups also agreed on the need to improve and facilitate the exchange of relevant ideas, data, and techniques for assessing and addressing the problems. It was also recommended by one of the groups that the National Marine Fisheries Service designate a program manager for marine debris activities.

Workshop participants further agreed that: despite insufficient data, available evidence shows that marine debris now threatens a number of marine species, including marine mammals, sea birds, marine turtles, and fish, and that it presents a hazard to vessel operations. The participants also pointed out the potential positive benefits from marine debris, such as a tendency to concentrate finfish, and recommended that these benefits be investigated.

The report of the Service's Workshop on the Fate and Impact of Marine Debris was made available to the Commission and others in draft form early in 1985. Its conclusions and recommendations provided an excellent basis from which to proceed with planning during 1985.

Implementation of the Fiscal Year 1985 Entanglement Program

Recognizing the need for prompt constructive action to better determine and mitigate the problem of entanglement of marine mammals and other marine animals in lost and discarded fishing gear and other marine debris, Congress directed that \$1,000,000 be appropriated to the National Marine Fisheries Service in Fiscal Year 1985 to develop a comprehensive research and management program addressing the issue. Congress also directed that the Service develop this program in consultation with and with the concurrence of the Marine Mammal Commission.

On 8 February 1985, the Service convened a meeting of representatives of the Commission, Congress, and the environmental community to discuss allocation of the special appropriation among needed research and management tasks. During the meeting, representatives of the Service advised the other participants that the Service would only invest \$750,000 of the \$1,000,000 mandated by Congress. The purpose of the reduction was to make \$250,000 available to cover Service expenditures unrelated to the entanglement issue. The Service used \$50,000 of the remaining \$750,000 to cover costs of the November 1984 Workshop on the Fate and Impact of Marine Debris. These actions were taken without consulting with or receiving the concurrence of either Congress or the Commission. On 25 February 1985, the Commission wrote to the Service referencing the Congressional directive and noting that the Commission did not

concur with the \$250,000 reduction and allocation of the funds to other purposes. In its letter, the Commission also urged that a high level scientist/administrator be appointed to run the entanglement program and that a research advisory group be appointed promptly to help develop a plan for allocating the special appropriation.

In response to the Commission's recommendation on the need for a single person to oversee the entanglement program, the Service designated, in April 1985, a member of the Northwest and Alaska Fisheries Center staff to manage the program. Although the Service also agreed with the Commission on the need to convene a meeting of experts to help organize and guide the entanglement program, it was the Commission that assumed the initiative for holding such a meeting in La Jolla, California, on 18-19 March 1985. Participants, including representatives from the Commission, the Service, the North Pacific Fishery Management Council, and the environmental community, reviewed the results of the November 1984 Workshop on the Fate and Impact of Marine Debris and identified priority project needs for addressing the entanglement problem.

Based on the results of this meeting, the Commission prepared an annotated program outline which included a description of identified priority projects. By letter of 3 April 1985, the Commission transmitted the recommended program outline to the Service. On 19 April, the Commission completed its work by providing the Service with detailed scopes of work and estimated costs for each of the projects identified in the annotated program outline. The recommended program and scopes of work considered allocations of \$950,000 assuming that \$50,000 of the special appropriation had already been spent on the November 1984 Workshop.

The program outline included provisions for the following: (1) development and implementation of an information and education program; (2) a West Coast/New England Coast September 1985 beach clean-up; (3) research on entanglement of North Pacific fur seals; (4) research on entanglement of northern sea lions; (5) establishment of a reference collection and development of expertise to identify sources of marine debris; (6) a study to determine accumulation and disappearance rates of marine litter on Alaska beaches; (7) a compilation and analysis of data concerning marine debris reported by U.S. fishery observers during groundfish fishing operations in the Bering Sea; (8) a survey of the high seas squid gill net fishery; (9) identification of sources of fishing debris affecting endangered marine animals in the northwestern Hawaiian Islands; (10) a study of the dynamics of derelict gill net gear in the North Pacific; (11) studies of the impact of ingested debris on sea turtles and sea birds; (12) development of

methods for surveying the distribution and abundance of marine debris at sea; (13) expanding efforts to collect relevant data from marine animals which strand on beaches; (14) development of new means to reduce the disposal of refuse into the marine environment; (15) research on the use of biodegradable materials; and (16) development of regulatory approaches to the problem of marine debris.

On 3 May 1985, the Service wrote to the Commission requesting comments on its plans to proceed with a proposed \$750,000 spending plan for the entanglement program. Although the Service's plan was based on the program outline provided it by the Commission in April, it called for eliminating support for research on the use of biodegradable materials and on development of regulatory approaches and for reducing support for certain other identified projects. In its letter of 8 May to the Service, the Commission recommended that: (1) the full \$1,000,000 mandated and appropriated by Congress be invested so that a coherent research program as originally developed would be supported; (2) if full funding could not be restored, the Service reprogram funds from its Dall's porpoise research program (which the Marine Mammal Commission believes the Japanese government is obligated to pay for under an existing agreement), from the St. George Island fur seal studies, and, if necessary, from part of the northern sea lion research envisioned under the Bering Sea ecosystem study; and (3) in the future, the Service better integrate related research programs concerning North Pacific fur seals and northern sea lions so as to address the most critical issues first.

On 21 May 1985, the Service advised the Commission that it would not be able to restore full funding to the entanglement program and that it was too late in the Fiscal Year to reprogram funds to make up the shortfall, as recommended in the Commission's letter. The Service indicated, however, that it would immediately start looking for ways to redirect funds in Fiscal Year 1986 into entanglement studies related to fur seals and sea lions. The Service proceeded with efforts to implement the program described above at the reduced level of \$750,000. On 22 August 1985, the Acting Administrator of the National Oceanic and Atmospheric Administration restored \$150,000. This increase to \$900,000 was distributed in accordance with the recommended plan developed in cooperation with the Marine Mammal Commission. At the end of 1985, results from most of the projects supported during the year were not yet available.

Planning for the Fiscal Year 1986 Entanglement Program

Recognizing the seriousness of the problem and the fact that only a modest start had been made to address the

issues, Congress directed the National Marine Fisheries Service to continue its entanglement program. For this purpose, Congress appropriated \$750,000 to the Service for Fiscal Year 1986. In addition, Congress directed that the Service develop its 1986 entanglement program under the guidance of and with concurrence of the Marine Mammal Commission.

On 25 June 1985, the Commission recommended to the National Marine Fisheries Service that the working group which had developed the program plan for Fiscal Year 1985 be reconvened by the Service in July or August to do the same thing for Fiscal Year 1986. In response to this recommendation, the National Marine Fisheries Service convened a second meeting of the ad hoc advisory committee on the entanglement program on 20-21 August 1985 in Seattle, Washington. During the meeting, participants reviewed the status of projects being funded by the Fiscal Year 1985 appropriation, ranked proposed scopes of work that had been developed by the Service for funding in Fiscal Year 1986, and identified additional priority tasks for which scopes of work had not yet been developed.

Based on the meeting, subsequent deliberations, and the Commission's recommendation that draft plans of differing costs be developed, the Service prepared entanglement program plans ranging in value from \$500,000 to \$1,000,000 in the hope that the Fiscal Year 1986 appropriation would thus be covered. In fact, \$750,000 was appropriated and, on 31 December 1985, the Service transmitted the recommended program plan to the Commission for its review and concurrence. The recommended plan, the product of some care and effort, would continue a number of studies initiated in 1985 and also support a number of new projects. At the end of 1985, the Commission looked forward to reviewing the proposed Fiscal Year 1986 program and providing the Service with comments and recommendations in early 1986.

Related Commission Activities

As noted in its previous Annual Report, the Commission contracted for a study of domestic and international authorities that might be useful in efforts to resolve the entanglement problem. The report of that study (see Bean, 1985, Appendix B), given the Commission in October 1984, was made available to participants at the November 1984 Workshop in Hawaii. Among other points, the report recommended that (a) the entanglement problem be factored into the development of the next edition of the five-year "Federal Plan for Ocean Pollution Research, Development, and Monitoring," a plan mandated under the National Ocean Pollution Planning Act, and (b) the President seek the advice and consent of the Senate to ratify Annex V of the

Convention for the Prevention of Pollution from Ships in that such action would provide an international authority prohibiting the disposal of all plastics including, but not limited to, synthetic ropes, fishing nets, and plastic garbage.

Another significant element in this issue is the efforts being undertaken by the National Marine Pollution Program Office of the National Oceanic and Atmospheric Administration. On 22-24 May 1984, the Office convened a workshop in Easton, Maryland, to assist it in identifying priority marine pollution issues to be addressed in the next edition of the Federal marine pollution plan. Representatives of the Marine Mammal Commission were invited and participated in the workshop at which they identified the issues of entanglement of marine mammals, sea birds, and turtles in ghost nets, traps, and other debris as one which the five-year plan should address. Other workshop participants, representing a broad spectrum of Federal, State, local, and private ocean interests, were unfamiliar with the issue and rated the entanglement issue low on its list of 50 ocean pollution issues.

Following the workshop, the National Marine Pollution Program Office distributed the preliminary workshop report to all participants for review and comment. The report reflected the low ranking assigned to the entanglement issue by participants. By letter of 25 March 1985, the Commission commented on the report noting that the participants developed a useful list of significant national pollution issues and that the report provided an accurate reflection of workshop results. With respect to the entanglement issue, however, the Commission commented that the low ranking vastly underestimated the issue's true importance. It also noted that the low ranking was not surprising since most workshop participants, unfamiliar with recently available information on the subject, could not be expected to fairly evaluate their significance. The Commission recommended that the National Marine Pollution Program Office reassess the low ranking assigned to the entanglement issue in light of recent information, and, to assist in this process, the Commission provided the Office with additional material describing the nature and magnitude of the problem.

By letter of 1 April 1985, the National Marine Pollution Program Office responded to the Commission's comments indicating that it agreed that the importance of the issue had been underestimated and that it would address the issue in the forthcoming edition of the Federal ocean pollution program plan. The Commission looks forward to receiving a draft of the plan for review and comment in 1986.

In its 1 April letter, the National Marine Pollution Program Office also indicated that it would welcome recommendations from the Commission on activities which it might support in furtherance of developing and disseminating information on the entanglement issue. After several discussions, the Commission wrote to the Office on 28 August 1985 proposing a transfer of funds from the Office to the Commission in support of a study to expand the information base on problems of entanglement and ingestion of non-degradable marine debris in the Gulf of Mexico, the Caribbean, the northwest Atlantic, the North Sea, and Australasia. Subsequently, the transfer of funds was executed and a description of activities supported under the project is provided in Chapter II of this report.

On 21 November 1985, Commission representatives participated in a meeting convened by the U.S. Coast Guard to prepare for U.S. participation in the 22nd session of the International Maritime Organization's Marine Environment Protection Committee to be held in London on 2-6 December 1985. Among other things, the Committee was scheduled to consider matters pertaining to Annex V of the Protocol Relating to the International Convention for the Prevention of Pollution from Ships (MARPOL). As indicated above, this Annex, which is not yet in force, would provide an international authority for prohibiting the discard of plastics, net materials and other debris which are the source of the entanglement problem.

Since the U.S. had not acted to ratify Annex V of MARPOL, Commission representatives, as well as participants from the National Oceanic and Atmospheric Administration and the environmental community, urged during the meeting that the U.S. actively consider ratification of the Annex. As a result of these discussions on 21 November, it was agreed that representatives of concerned Federal agencies would meet following the 2-6 December Committee meeting to consider appropriate U.S. action. The Commission looks forward to this meeting in early 1986, at which time it expects to continue to work for agreement on ratifying Annex V of the Convention and putting it before the Senate for its consideration.

CHAPTER VII

INCIDENTAL TAKE OF MARINE MAMMALS IN THE COURSE OF COMMERCIAL FISHING OPERATIONS

The Marine Mammal Protection Act directs the Secretaries of Commerce and the Interior, in consultation with the Commission, to develop regulations governing the incidental taking of marine mammals by persons subject to the jurisdiction of the United States and to develop effective international arrangements, through the Secretary of State, for the purpose of reducing the incidental taking of marine mammals to insignificant levels approaching a zero mortality and serious injury rate.

Although the incidental taking of marine mammals occurs in the course of several fisheries and involves several different species of marine mammals, the "tuna-porpoise" issue involving the incidental mortality and serious injury of porpoises entrapped in purse seine nets used by commercial yellowfin tuna fishermen has, over the past years, been the subject of the most intense concern, attention, and controversy. Of more recent concern has been the incidental taking of Dall's porpoises in the course of the Japanese salmon gill net fishery in the North Pacific Ocean, a portion of which occurs within the United States' 200-mile Fishery Conservation Zone, and the incidental take of southern sea otters in gill and trammel nets. The Commission's activities during 1985 related to the tuna-porpoise and Dall's porpoise issues are discussed below. A discussion on the incidental take of southern sea otters is included in Chapter VIII of this Report.

The Tuna-Porpoise Issue

Discussions of the Commission's past activities and a historical summary of the efforts to resolve this problem are presented in the Commission's previous Annual Reports. As discussed below, the Commission, the National Marine Fisheries Service, the U.S. tuna industry, and others continued to devote substantial attention to the issue in 1985.

The 1985 Fishing Season

The National Marine Fisheries Service issued final regulations on 31 October 1980 establishing an annual allowable take (quota) of 20,500 animals for each of the five years, 1981-1985. On 7 December 1980, a general permit to take porpoise in compliance with the final regulations and quotas was issued to the American Tunaboat Association. The overall quota and individual stock quotas as well as the regulations and general permit were extended by Congress in the 1984 amendments to the Marine Mammal Protection Act.

Estimates of the annual incidental take of porpoise by the U.S. tuna purse seine fleet since passage of the Marine Mammal Protection Act are listed below.

<u>Year</u>	<u>Estimated Kill and Serious Injury</u>
1972	368,600
1973	206,697
1974	147,437
1975	166,645
1976	108,740
1977	25,452
1978	19,366
1979	17,938
1980	15,305
1981	18,780
1982	22,736
1983	9,589
1984	17,732
1985	(preliminary estimate) 19,173

The estimated mortality and serious injury in 1983 was well below the average of the preceding five years and may have been due to a decline in the total number of U.S. purse seiners fishing in the eastern tropical Pacific Ocean. The estimate for 1984 and the preliminary estimate for 1985 (a final estimate will not be available until May 1986) indicate that the levels of mortality and serious injury in those two years were nearer the levels in the years 1978-1982, but still below the aggregate quota established in 1980.

The increase in the mortality and serious injury of porpoise in 1984 and 1985, compared to 1983, was due at least in part to the return of much of the U.S. tuna purse seine fleet to the eastern Pacific in 1984. At the same time, there has been a continuing increase in the number of foreign flag purse seiners fishing in the eastern tropical Pacific. Although there is no reliable information on the species being set on and the number of porpoise being killed or injured by a large part of the foreign fleet, there are

indications that the mortality and injury of porpoise by foreign flag vessels now exceeds that by U.S. vessels. In this regard, the Inter-American Tropical Tuna Commission estimates that the total (foreign plus U.S.) porpoise kill in 1984 was 43,984.

To help address this problem, the Marine Mammal Protection Act was amended in 1984 (see below) to require that each foreign nation exporting tuna to the United States provide documentary evidence that it has adopted a regulatory program comparable to that of the U.S., and that the rate of incidental marine mammal mortality by its fishing vessels is comparable to that of U.S. vessels.

Research Activities and Research Planning

The Marine Mammal Protection Act prohibits the incidental take as well as the deliberate taking of marine mammals that are below their optimum sustainable population level. Therefore, before issuing a general permit or certificates of inclusion authorizing the incidental take of porpoises by U.S. tuna purse seiners, the National Marine Fisheries Service must assess the status of the affected porpoise stocks to assure that they are at optimum sustainable levels and will not be reduced below optimum levels as a result of the authorized taking.

The National Marine Fisheries Service did assessments in 1976 and 1979 of the status of porpoise populations affected by the yellowfin tuna purse seine fishery. As noted in the Annual Reports for Calendar Years 1983 and 1984, the Service established four scientific panels in 1983 to compile and analyze information in preparation for further stock assessments to be done prior to considering renewal in 1985 of the general permit issued to the American Tunaboat Association.

Because of questions and differing views concerning the reliability of data and the validity of assumptions upon which the stock assessments necessarily would be based, Congress amended the Marine Mammal Protection Act in 1984 to, among other things, legislatively reauthorize the general permit issued to the American Tunaboat Association. Furthermore, because of uncertainty concerning the status of several of the affected porpoise stocks and the possible effects of continued incidental take, the Act was amended to require that the National Marine Fisheries Service undertake a monitoring program to verify expected trends in the size of the affected porpoise populations. The amendment requires that the monitoring program commence by 1 January 1985 and continue for at least five consecutive years. It also requires that the status of the monitoring effort be discussed in the Service's Annual Reports to Congress, beginning with the 1985 Report. Expenditures of up to \$4,000,000 were authorized for the period 1 October 1984 to 30 September 1988 to carry out

the monitoring program. Funding was not requested of Congress for this purpose, and no appropriation was made.

As an initial step towards developing the required monitoring program, the Service's Southwest Fisheries Center held workshops on 19 September and 1-2 November 1984 to consider related policy issues and logistical requirements. On 6-8 February 1985, a third workshop was held at the Southwest Fisheries Center to review preliminary plans for research vessel surveys scheduled to begin in 1985 and to determine the sampling effort and time that likely would be required to detect various levels of change in the size of the affected porpoise populations. Representatives of the Marine Mammal Commission participated in these workshops.

By letter of 25 April 1985, the Director of the Southwest Fisheries Center advised the Commission that, because of funding and logistic constraints, he had decided not to begin the vessel surveys in 1985 as originally planned, but to initiate the program in 1986. Commission representatives met with the Director and staff of the Center in May and June 1985. The Commission was advised that the Service was developing a monitoring program consisting of three elements: (1) surveys of affected porpoise populations using dedicated research ships of the National Oceanic and Atmospheric Administration; (2) analyses of data collected by observers aboard tuna purse seiners; and (3) analyses of biological and behavioral data collected from both research and fishing vessels. The Commission was also advised that the Service planned to begin a two-vessel, 240-day survey in August 1986 and to hold a workshop in March 1986 to consider the use of observer data for detecting and monitoring population trends.

The Commission had a number of questions concerning funding and other aspects of the planned program and wrote to the Director of the Southwest Fisheries Center on 2 August 1985 to request clarification. In his 28 August 1985 response, the Director confirmed that the planned five-year program consisted of three elements as described earlier and noted that actual operational planning was awaiting final Congressional action on the Fiscal Year 1986 funding levels. He also indicated that: (1) the Southwest Fisheries Center had held preliminary discussions with the Inter-American Tropical Tuna Commission on 25 July 1985 to review procedures for collecting observer data and to enlist the Tuna Commission's cooperation in analyzing and evaluating the utility of observer data; (2) another jointly sponsored meeting would be held sometime in the fall to develop an operational plan for assessing and analyzing observer data; (3) biological studies were being continued, as a matter of priority, to better determine the discreteness and vital rates of porpoise populations affected by the fishery; (4) the Center's staff had investigated several options but had not yet made arrangements for necessary helicopter support; (5) the first

research vessel surveys were planned for July-December 1986; (6) the recommended survey plan called for annual surveys using two vessels and one helicopter for 120 days each per vessel for five years; and (7) although current planning is for five years, it could take eight years to obtain adequate resolution of abundance trends, depending on the desired level of precision.

The information provided in the 28 August letter raised a number of additional questions and, by letter of 16 October 1985, the Commission conveyed these questions to the Service. A general review of the tuna-porpoise problem was held during the 24-26 October 1985 meeting of the Marine Mammal Commission and its Committee of Scientific Advisors and, during this review, the Director of the Southwest Fisheries Center addressed these and other questions asked by the Commission and the Committee.

On 13 November 1985, the Service convened a workshop at the Southwest Fisheries Center to determine if and how observer data can be used to detect and monitor trends in affected porpoise populations. During the meeting, Commission representatives noted that the Inter-American Tropical Tuna Commission had designated staff to work on the problem, but that the National Marine Fisheries Service had not yet done so. They also noted the importance of proceeding as quickly as possible to determine if and how observer data can be used and expressed the view that the Service's Southwest Fisheries Center should designate appropriate personnel to begin work on this problem as soon as possible.

Commission representatives commented on the draft workshop report sent to participants in December 1985. The final report, expected to be completed early in 1986, will be reviewed by the Commission, in consultation with its Committee of Scientific Advisors, to determine what additional measures may be needed to derive the maximum possible benefit from observer data.

Proposed Regulatory Amendments

As noted earlier, Congress reauthorized and amended the Marine Mammal Protection Act in 1984. One aspect of the 1984 amendments concerned the general permit issued to the American Tunaboat Association in 1980 to incidentally take marine mammals in the course of purse seine fishing for tuna. Through the amendments, Congress extended that general permit indefinitely, subject to conditions concerning the use of safety techniques and equipment and to quotas on the level of take. The amendments also authorized the Secretary of Commerce to make appropriate adjustments to the permit terms and conditions that are set forth in the tuna-porpoise regulations and pertain to fishing gear, fishing practice requirements, and permit administration. In authorizing

those adjustments, Congress explained through legislative history that it would be consistent with the amendments for the Secretary to change a number of regulations and permit requirements to guidelines provided that those changes would further the goals of the Act.

On 2 May 1985, the National Marine Fisheries Service published in the Federal Register proposed amendments to the marine mammal regulations pertaining to U.S. vessels using purse seine gear to fish for tuna associated with porpoise in the eastern tropical Pacific Ocean. The purpose of the proposed amendments is to provide greater flexibility in the application of porpoise saving gear and techniques by either amending or deleting gear and procedural requirements that have been found to be unnecessary or unworkable.

Specific proposals include: a waiver system to be applied to the two speedboat limit for boats in transit through the general permit area; deletion of the daily log requirement; technical modifications to the requirements for safety panels; allowance for the optional use of either a "super apron" or fine mesh net to minimize porpoise mortality; deletion of requirements concerning the placement of bunchlines; allowance for the use of non-rubber rafts and viewboxes instead of rubber rafts and facemasks and snorkels; deletion of the currently suspended prohibition on sundown sets; deletion of certain requirements on the use of speedboats and hand rescue techniques; addition of a prohibition on bringing live porpoise on board the vessel during retrieval of the bow ortza; and technical amendments to requirements pertaining to certificates of inclusion, departure notification, inspections, trial sets, and the use of lights.

By letter of 1 July 1985, the Commission, in consultation with its Committee of Scientific Advisors, submitted comments on the proposed amendments. The Commission endorsed the effort to enhance the flexibility and effectiveness of the regulations. It pointed out, however, that the relevant goal of the Marine Mammal Protection Act is not merely compliance with the taking quotas but the reduction of the incidental kill or incidental serious injury of marine mammals to insignificant levels approaching a zero mortality and serious injury rate. It recommended that the final regulations emphasize this objective.

The Commission also recommended a more complete discussion of the data, analyses and assumptions that were used to support the conclusion set forth in the Federal Register publication that certain stocks of eastern tropical Pacific porpoise are increasing. The Commission noted that the proposed regulations may have set forth an overly optimistic assessment of the trends of the affected population stocks.

Finally, several specific recommendations were made with respect to the proposed amendments, including the recommendation that rather than deleting the sundown set prohibition the Service should retain it as a suspended provision of the regulations until ongoing research on the effectiveness of new lighting systems has been completed.

At the end of 1985, final amendments had not been published. Concurrent with the publication of those amendments, the National Marine Fisheries Service is expected to issue guidelines on porpoise saving techniques intended for use by owners and operators of U.S. vessels involved in commercial purse seine fishing for tuna. Draft guidelines were submitted to the Commission for review in October and comments were provided by letter of 7 November 1985, in which the Commission recommended, among other things, that the guidelines discuss both the importance of the observer system and the Act's goal of bringing about insignificant mortality and serious injury rates.

A second aspect of the 1984 amendments to the Marine Mammal Protection Act, as noted earlier, concerns the ability of the U.S. to influence the commercial fishing practices of foreign vessels involved in purse seine fishing for tuna. By letter of 21 July 1984, the Commission asked the National Marine Fisheries Service how it intended to implement the comparability requirements of the 1984 amendments. Discussions on this issue between the Commission and the Service were confirmed in the Commission's letter of 23 November 1984, in which it was indicated that the foreign nation comparability and reporting requirements would be implemented by regulation.

At the end of 1985, the Service had not issued proposed regulations for this purpose. Publication in 1986 is anticipated.

The Dall's Porpoise Issue

Dall's porpoise (Phocoenoides dalli) become entangled and die in gill nets used by Japanese salmon fishermen in the North Pacific Ocean. Pursuant to the International Convention for the High Seas Fisheries of the North Pacific, the Japanese are permitted to fish for salmon inside the U.S. 200-mile Fishery Conservation Zone. As noted in previous Annual Reports, the fishery is also subject to provisions of a Memorandum of Understanding between the United States and Japan on coordinated research efforts, the Marine Mammal Protection Act, the North Pacific Fisheries Act, and general permit requirements.

A general permit authorizing the Federation of Japan Salmon Fisheries Cooperative Association to incidentally take

up to 5,500 Dall's porpoise, 450 northern fur seals, and 25 northern sea lions per year was issued for the 1981-1983 fishing seasons. Through the 1982 amendments to the North Pacific Fisheries Act, which implements the Convention in the United States, the general permit was extended until 9 June 1987. The amendments required the Japanese to adopt new fishing gear and techniques to reduce the incidental take of porpoise. In addition, the National Marine Fisheries Service is required annually to prepare a detailed action plan concerning monitoring, research, development, and other necessary actions.

In May 1984, the Service completed and released its "Final Action Plan for the Dall's Porpoise Program, 1984." During an 11-15 November 1984 review of the National Marine Mammal Laboratory's research program, the Commission considered the Action Plan and other recent information related to the Dall's porpoise program. The Commission's comments on that program were provided to the Service by letter of 11 December 1984. In that letter, the Commission requested: (1) a list of critical questions likely to be raised when renewal of the Dall's porpoise permit is considered in 1986; (2) an assessment of the likelihood that the current research program will provide answers to each of those questions; (3) a description of additional research requirements, if any, that cannot be answered by the current research program within the required time frame; and (4) a budget breakdown indicating funding, logistic support, and services being provided by Japan and by the United States.

On 13 March 1985, the National Marine Fisheries Service responded to the Commission's 11 December 1984 letter. In its response, the Service provided a Dall's porpoise population estimate of 1.0 to 1.5 million animals for the U.S. population, and reported on the status of efforts to determine historical abundance, net recruitment, optimum sustainable population level, and the level of incidental take. The Service identified these issues to be among the principal questions to be addressed in the context of a renewal of the Dall's porpoise incidental take permit. In addition, the Service indicated that for 1985, Japan would contribute \$242,000 toward the U.S. portion of research on Dall's porpoise.

Under Section 14(a)(2) of the North Pacific Fisheries Act, Japan is required to have introduced new gear or fishing techniques into at least 50 percent of its drift gill net fleet by the 1985 fishing season. The National Marine Fisheries Service has authority under the Act to determine what types of fishing gear or techniques offer the most practical and effective opportunity for reducing porpoise mortality and to specify which of those must be adopted by the Japanese fleet. Although it concluded that more research on gear modifications is required, the Service determined in 1984

that three-strand, air-tube thread should be used in the gill nets employed by 50 percent of the Japanese catcherboats in 1985 and by 75 percent in 1986. It is hoped that this gear modification will make it easier for porpoise to detect and avoid gill nets through echolocation. The Japanese complied with the 50 percent requirement in 1985.

The National Marine Fisheries Service's 1985 Action Plan for Dall's porpoise calls for the United States to: (1) monitor the level of incidental take; (2) collect sighting data for estimating abundance; and (3) collect specimen material for biological studies. The Plan also indicates that Japanese efforts to obtain data on gear improvements and to conduct biological research from a dedicated vessel would continue. For purposes of monitoring incidental take, the Service placed 12 U.S. marine mammal observers on the mothership/catcherboat fleet in 1985.

During 1985, the incidental take of Dall's porpoise reported by the salmon mothership fishery was 2,424 animals inside the U.S. Fishery Conservation Zone. The estimated level of take is 2,760 animals. This level is below the annual quota of 5,500 animals. A take rate of 0.43 porpoise per gill net operation inside the U.S. Fishery Conservation Zone was reported in 1985. The estimated take rate for 1985 is 0.49 porpoise per gill net operation.

On 9 October 1985, the Senate Committee on Commerce, Science and Transportation conducted oversight hearings on high seas drift net fisheries, including the Japanese mothership and land-based salmon drift net fisheries in the Bering Sea and northern Pacific Ocean. The hearing focused on the interception of North American-source salmon, the incidental take of marine mammals and sea birds in actively-fished gear, and the entanglement of fish, marine mammals, and birds in derelict gill nets. Testimony was presented by representatives of the State Department, the National Marine Fisheries Service, the Fish and Wildlife Service, Japanese fishery interests, the State of Alaska, the North Pacific Fishery Management Council, and several environmental organizations and fishery associations.

With respect to the impact of the drift net fishery on marine mammals, it was noted by several witnesses that, in addition to the incidental take of Dall's porpoise, considerable numbers of fur seals are entangled and killed each year in lost or discarded fishing gear. It also was indicated that common dolphins and right whale dolphins are taken incidentally in the squid drift net fishery. Witnesses recommended a number of possible solutions related to the drift net fishery, including the implementation of net marking requirements, the establishment of an international convention for the conservation of living resources in the

North Pacific, and the curtailment or phase-out of drift gill nets.

In 1986, the Federation of Japan Salmon Fisheries Cooperative Association is expected to request renewal of its general permit to incidentally take Dall's porpoise. If a request is filed, the National Marine Fisheries Service will issue an environmental impact statement and undertake rule-making procedures as required by Section 103 of the Marine Mammal Protection Act. The Commission will participate in all aspects of the review of a permit renewal request.

CHAPTER VIII

SPECIES OF SPECIAL CONCERN

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, reviews the status of marine mammal populations and makes recommendations on necessary research and management actions as well as on designations with respect to the status of species or populations under the Marine Mammal Protection Act and the Endangered Species Act. During 1985, the Commission continued to concentrate efforts on several species of marine mammals designated as endangered or threatened, including the West Indian manatee, the Hawaiian monk seal, the California sea otter, the Gulf of California harbor porpoise, the bow-head whale, the right whale, the gray whale, and the humpback whale. Attention was also focused on the endangered, and perhaps extinct, Caribbean monk seal, the bottlenose dolphin populations in the southeastern United States, the Guadalupe fur seal, and the harbor porpoise population off the coast of California. A review of the Commission's activities regarding these species and populations follows.

West Indian Manatee (*Trichechus manatus*)

The West Indian manatee is one of the most endangered species of marine mammal found in the coastal waters of the United States. The largest concentration in the United States, and perhaps the world, is found in Florida where the population is estimated to number at least 1,200 animals. Although recent data suggest that the Florida population may be larger than previously estimated, the high level of manatee mortality in recent years raises serious doubts about the long-term survival of the population. Among the most serious threats to the Florida population are increasing levels of boat traffic and associated collisions between manatees and the hulls and propellers of boats, the loss of large numbers of manatees to thermal stress during periods of exceptionally cold winter weather, and the continuing degradation and destruction of essential manatee habitat due to coastal development and other human activities.

The known level of annual manatee mortality in U.S. waters since 1977 is presented in the following table. The figures include the number of manatee carcasses recovered by

year and the number of animals known to have died but which were not recovered.

Year	Manatee Mortality Within Florida	Manatee Mortality Outside Florida	Manatee Mortality U.S. Total
1977	113	1	114
1978	84	0	84
1979	77	1	78
1980	63	4	67
1981	113	3	116
1982	117	6	123
1983	80	0	80
1984	128	3	131
1985	120	9	129

The high mortality level in 1982 was largely related to an occurrence of red tide in the Caloosahatchee River and its estuary in southwest Florida. The high levels of manatee mortality in 1977, 1981, 1984, and 1985 are related to extended periods of intense cold winter weather that occurred in Florida during those years. In addition, 1984 and 1985 were the two years with the highest recorded level of boat kills.

State and Private Activities

During 1985, the State of Florida continued to expand its efforts to protect manatees and their habitat. As noted in the Commission's previous Annual Report, the Florida State Legislature authorized for the first time, a withdrawal of \$250,000 from the State's Motorboat Revolving Trust Fund for Fiscal Year 1984-85 for State manatee-related work. The same amount was authorized for Fiscal Year 1985-86. The funds have enabled the Division of Marine Resources in the Florida Department of Natural Resources to support an expanded manatee program and to increase the staff size to four during 1985.

In addition to continuing its ongoing enforcement, public education, and research efforts, the State initiated a number of new manatee-related activities during 1985. Among its new efforts, the State: assumed responsibility for operating the manatee salvage and necropsy programs, which had previously been carried out by the Fish and Wildlife Service; cooperated with the Gainesville Field Station of the Fish and Wildlife Service in supporting and carrying out radio-tracking studies to improve information on the distribution and movements of manatees; initiated aerial surveys in several areas of Florida to improve information on the distribution and abundance of manatees for use in reviewing dredge and fill permit applications and identifying potential boat speed regulatory zones; and established two new boat

speed regulatory zones to reduce the risk of collisions between manatees and boats. In addition, as discussed below, the State made substantial progress in its efforts to acquire and protect habitats of critical importance to manatees in the Crystal River area of northwest Florida.

Substantial activities were also undertaken on behalf of manatees by the Florida Power and Light Company, a company with a history of sustained efforts to protect and conserve manatees. For economic reasons, Florida Power and Light has been considering suspending or modifying certain power plant operations at stations including those at Riviera Beach and Fort Myers, Florida. Warm-water effluent at these stations create winter refuges upon which manatees have come to depend during cold winter months. Recognizing the potential effect of its operating decisions on manatees, Florida Power and Light took steps to ensure that warm-water refuges continue to be available at these stations for use by manatees during cold winter periods.

At its Riviera station, the operation of one of the stations three electrical generating units was suspended in 1985. In order to maintain the temperature and size of the warm-water area traditionally used by manatees, Florida Power and Light installed a siphon which is successfully diverting warm-water effluent from station units remaining in operation. At its Fort Myers station, three wells are being developed to tap a warm-water aquifer which could be used during cold periods to provide a source of warm water for manatees when this station is not in operation. Although the wells were not fully operational at the end of 1985, the station was operated during cold periods in November and December and was expected to continue to operate during cold periods at least through the first several months of 1986. The Florida Power and Light Company also supported aerial surveys of manatees at certain warm-water refuges for the eighth year in a row and continued to produce and distribute manatee-related information to educate the public. Among other materials, Florida Power and Light has produced and printed a booklet describing the biology and conservation of manatees, a boaters guide to State manatee sanctuaries, and a manatee conservation bumper sticker. Over 100,000 copies of each have been distributed.

Protection of Essential Manatee Habitat

As noted in the previous Annual Report, a report entitled "Habitat Protection Needs for the Subpopulation of Manatees in the Crystal River Area of Northwest Florida" was completed in 1984 by the Manatee Working Group of the Commission's Committee of Scientific Advisors on Marine Mammals. The purpose of the report was to assess habitat protection needs for the subpopulation of manatees that winters in the Crystal and Homosassa Rivers along Florida's west coast.

This particular area was selected for careful analysis because: more manatees depend upon the warm-water springs in Kings Bay at the head of the Crystal River than on any other natural warm-water refuge in Florida; the regional subpopulation of manatees presently numbers more than 150 animals and is one of the only groups known to have been increasing in size in recent years; more is known about habitat use patterns of manatees in this area than any other area of Florida; the coastline is much less developed than most other parts of coastal Florida; and the Federal and State refuges and reserves which now exist in the region provide a good base for developing an integrated network of protected areas that could provide effective long-term protection for the regional ecosystem of which manatees are a part.

To assess habitat protection needs, the report compared information on regional manatee habitat requirements and habitat use patterns with information concerning the existing and planned system of Federal, State, and private habitat protection efforts. Based on that assessment, the report concluded that many of the most essential habitats for this subpopulation of manatees are not included within the regional habitat protection programs (e.g., refuges and reserves) which afford the greatest assurance of long-term habitat protection. Therefore, the report included a number of specific recommendations for expanding and otherwise strengthening the regional network of Federal and State habitat protection efforts.

Following review of the report by the full Committee of Scientific Advisors, the report was considered and accepted by the Commission and forwarded to the Fish and Wildlife Service by letter of 31 October 1984. Among other things, the Commission recommended that, as a first priority, steps be taken by the Fish and Wildlife Service to: (a) survey and, as appropriate, incorporate certain lands along the Crystal and northern Salt Rivers into the National Wildlife Refuge System as part of a new "Crystal River Manatee National Wildlife Refuge," and (b) complete the proposed Lower Suwannee National Wildlife Refuge, which contains essential summer habitat for the Crystal River manatee subpopulation. The Commission also recommended that, in cooperation with appropriate State agencies and private organizations, the Service develop and implement a long-range plan for acquiring and protecting certain essential manatee habitat such that the full range of the subpopulation's habitat requirements (e.g., winter refugia, summer feeding breeding and calving areas, and necessary migratory corridors) receive adequate levels of protection. At the same time the report was sent to the Service, the Commission also sent it to the Florida Department of Natural Resources and the Florida Game and Freshwater Fish Commission.

In response to the Commission's recommendations, representatives of the Jacksonville Endangered Species Field Office of the Fish and Wildlife Service convened a meeting of Federal and State agency representatives on 14 March 1985 in Homosassa Springs, Florida. The purpose of the meeting was to: (a) review recent progress by State and Federal agencies to acquire habitat essential to the subpopulation of manatees in the Crystal River area; (b) assess regional habitat protection needs and recommendations identified in the Commission report; and (c) develop and agree upon a cooperative plan of action to serve as the basis of a long-term Federal-State program to acquire and protect habitat essential for the survival and growth of the regional manatee subpopulation. Meeting participants included representatives of the Service, the Commission, and the Florida Department of Natural Resources.

During the meeting, a representative of the Florida Department of Natural Resources noted that: the State had several land acquisition projects in varying stages of development along the Crystal River and it had recently acquired several large tracts of land along the upper Crystal River and Kings Bay; receipt of the Commission's report coincided with a Department effort to develop an expanded land acquisition program along the Crystal River, and the report helped reinforce the State's interest in pursuing that effort; and the Department's preliminary plan was almost identical to the recommendation in the Commission's report concerning the acquisition of lands along Crystal River.

Representatives of the Fish and Wildlife Service noted that they shared the Commission's concern for protecting manatee habitat along the lower Suwannee River and they reported that several thousand acres had been acquired in recent months, in cooperation with The Nature Conservancy, as an addition to the Lower Suwannee National Wildlife Refuge. They also said that the Service was committed to completing acquisitions for the Refuge as soon as possible. Service representatives further noted that, pursuant to a recommendation in the "Proposed Research/Management Plan for Crystal River Manatees," (a recent review jointly supported by the Commission and the Service), it was anxious to strengthen protection of manatees in Kings Bay by acquiring a site on the Bay which would provide a base for public education and enforcement efforts as well as a headquarters for its regional refuge staff.

Considering these and other recent developments, meeting participants reviewed the analyses and recommendations contained in the Commission's report and developed an agreed-upon outline of cooperative Federal-State actions, ranked in priority order, to protect the most important manatee habitats. Among the identified actions were: the State would proceed with efforts to develop and implement its

expanded land acquisition project along the Crystal and northern Salt Rivers; the Service would pursue efforts to consider the acquisition of a site on Kings Bay to serve as an interpretative center and headquarters for the Service's regional refuge staff; the Service would continue efforts to complete acquisitions for the proposed 56,000 acre Lower Suwannee National Wildlife Refuge; the State would investigate and, as possible, consider acquisition of lands surrounding the warm-water spring and spring run at the headwaters of the Homosassa River, the source of a second major warm-water refuge used by the regional manatee subpopulation; the Service would assess potential acquisitions to expand the northern boundary of the Chassahowitzka National Wildlife Refuge northward to include portions of the middle and lower Homosassa River; and the Service would contact the State's Suwannee River Water Management District to discuss acquisition of riparian lands along the Suwannee River upstream from the Lower Suwannee National Wildlife Refuge. In considering its recommended action plan, participants noted that intense development pressure in this area of coastal Florida made prompt action a matter of special urgency.

Following its review of the meeting report, in consultation with its Committee of Scientific Advisors, the Commission wrote to the Fish and Wildlife Service on 29 August 1985. In its letter, the Commission commended the Service on its progress towards completion of the proposed Lower Suwannee National Wildlife Refuge and on its efforts to coordinate and develop cooperative Federal-State actions to protect habitats essential to the survival of the regional manatee subpopulation. The Commission noted that the actions outlined in the report of the 14 March meeting were both appropriate and necessary and that they offered a blueprint for what could be one of the nation's foremost examples of a constructive, cooperative Federal-State program for protecting and managing habitat essential for an endangered marine mammal population in particular and for regional wildlife resources in general.

The Commission's 29 August letter also noted that the State's efforts to consider land acquisition in the Crystal River area appeared to obviate the need for the Service to act on the Commission's 31 October 1984 recommendation to expand the Crystal River National Wildlife Refuge. The Commission, therefore, recommended that the Service redirect its land acquisition efforts to carry out the actions identified in the meeting report, particularly those related to the northward expansion of the Chassahowitzka National Wildlife Refuge and the acquisition of an interpretative center/headquarters site on Kings Bay. The Commission requested that the Service advise it of steps being taken to ensure that the Service's responsibilities under the cooperative plan of action would be actively pursued and met.

Also following the 14 March meeting, the Commission received a copy of the Annual Report of the State of Florida's Conservation and Recreational Lands Selection Committee. This Committee is responsible for identifying and ranking lands which might be purchased by the State for recreational or conservation purposes. The recommended list of projects is subsequently approved by the State's Governor and Cabinet. The Report noted that the Conservation and Recreational Lands Selection Committee recently had acted to include an expanded Crystal River project and the site at the headwaters of the Homosassa River on its list of recommended State land acquisition projects. The new additions, however, were not ranked high on the revised State list.

After reviewing the State's Report, the Commission wrote to the Florida Department of Natural Resources on 2 October 1985 commending it and the other State agencies represented on the Conservation and Recreational Lands Selection Committee for its accomplishments in adding the new areas to the State's recommended land acquisition list and for its recent acquisition of Crystal River area lands already listed. However, recognizing that listing alone did not guarantee eventual acquisition and that the State list included many other land acquisition projects which were undoubtedly important in their own right, the Commission urged that the State continue to give favorable consideration to the Crystal River area projects as other higher priority projects are completed. In particular, the Commission noted the special benefits and opportunities which would be afforded by complementary Federal-State acquisitions in the region, the importance of the Crystal River land acquisition projects for ensuring the long-term survival and growth of the regional manatee subpopulation, and the importance of prompt action due to the escalating pace of regional development.

The Florida Department of Natural Resources responded to the Commission by letter of 21 October 1985. In its letter, the Department thanked the Commission for its past and continuing support of cooperative efforts to encourage recovery of the manatee population in Florida. Noting its continuing commitment to support manatee protection, the Department also expressed confidence that, through the emerging combination of State and Federal funding sources for the Crystal River area, substantial progress would be made on additional land acquisition in near future.

On 17 December 1985, the Fish and Wildlife Service convened a second meeting in Homosassa Springs, Florida, to review progress on land acquisition efforts concerning the Crystal River manatee subpopulation. Participants included representatives of the Service, the Commission, the State of Florida, the Suwannee River Water Management District, and The Nature Conservancy. During the meeting, Fish and Wildlife Service representatives reported that: the Service had

obtained options to purchase a site on Kings Bay which could be used as an interpretative center/refuge headquarters; with the assistance of The Nature Conservancy, it had purchased additional lands for the Lower Suwannee National Wildlife Refuge expanding Refuge holdings to more than 35,000 acres; and steps were being taken to initiate preparation of an assessment concerning the possible expansion of the Chassahowitzka National Wildlife Refuge northward to include portions of the lower Homosassa River. In addition, a representative of the Florida Department of Natural Resources reported on progress being made to list and acquire projects on the State's recommended Conservation and Recreational Lands acquisition list. The representatives of the State's Suwannee River Water Management District noted that planning efforts were underway for assessing land acquisition priorities along both the lower and upper Suwannee River.

The cooperative and complementary steps now being taken by Federal and State agencies and private organizations to acquire and protect manatee habitat in the Crystal River area may offer the best hope for the long-term protection of manatees as well as many other species of fish and wildlife indigenous to the coastal region of northwest Florida. The ambitious plan of actions as described above reflects an enlightened ecosystem approach to regional habitat protection. During 1986, the Commission looks forward to further cooperation with Federal and State agencies and private organizations on these and other actions pertaining to the protection of manatees in Florida and elsewhere.

Hawaiian Monk Seal (*Monachus schauinslandi*)

The Hawaiian monk seal occurs in a limited area around the Northwestern Hawaiian Islands and is in serious danger of extinction. Harassment and over-exploitation by sealers brought the species to the brink of extinction during the 19th century. Its survival is due in part to the cessation of sealing and in part to the isolation of its habitat in the Northwestern Hawaiian Islands. However, the population has declined since the first systematic counts were made in the 1950s. In 1983, the estimated population size was roughly half the estimated population size in 1958. The total pup production in 1983 was only about 160 animals. Without a sustained and vigorous effort by the responsible Federal and State agencies, the public, and regional industry groups, the Hawaiian monk seal may soon share the fate of the Caribbean monk seal, which is thought to be extinct, and the Mediterranean monk seal, which now occurs only in a small fraction of its historic range.

Protection and conservation of the Hawaiian monk seal is the responsibility of the National Marine Fisheries Service under provisions of the Marine Mammal Protection Act and the

Endangered Species Act. Because the species' range includes the Hawaiian Islands National Wildlife Refuge, the Fish and Wildlife Service shares responsibility for protecting the Hawaiian monk seal and its habitat.

The Commission's efforts during the past several years to promote the protection of the monk seal have been described in past Annual Reports. Congressional concern for survival of the species has been evident from the special funding and attention it has directed to monk seal issues since Fiscal Year (FY) 1981. For that fiscal year, the Commission received a special \$100,000 appropriation to aid in developing and implementing an effective research and management plan. In FY 1982, Congress directed the National Marine Fisheries Service to invest \$400,000 in monk seal work and, in the following year, the Service was directed to budget \$150,000 for that purpose. Congress also provided the Commission \$150,000 for monk seal efforts in FY 1983, and, after identifying and developing a recommended plan for accomplishing priority research and management tasks, the Commission transferred the entire \$150,000 to the Service to carry out its recommended program. In FY 1984 and FY 1985, Congress increased the Service's appropriation for monk seal work to \$300,000 and \$350,000, respectively.

As noted in the previous Annual Report, in 1984, the Fish and Wildlife Service completed a draft master plan for management of the Hawaiian Islands National Wildlife Refuge. The Commission, in consultation with its Committee of Scientific Advisors, reviewed the draft plan and forwarded comments and recommendations to the Service on 9 November 1984. In its comments, the Commission questioned whether continued and expanded support of fishery development in the Northwestern Hawaiian Islands, as proposed in the draft plan, was compatible with other higher priority Refuge objectives, such as protecting endangered and threatened species. The Commission particularly questioned proposed use of Tern Island as a site for recreational activities, gear storage, and aircraft operations in support of a multi-species mothership fishery in the area, as proposed as part of the draft plan's Preferred Alternative. The Commission recommended that, if the Service had not already done so, it undertake consultations with the National Marine Fisheries Service pursuant to Section 7 of the Endangered Species Act to ensure that the proposed action would not jeopardize the Hawaiian monk seal or habitat critical to the species' survival.

On 27 February 1985, the Fish and Wildlife Service wrote to the National Marine Fisheries Service requesting formal Section 7 consultations on the proposed Master Plan for the Hawaiian Islands National Wildlife Refuge. The resulting Biological Opinion, issued by the National Marine Fisheries Service on 14 August 1985, concluded that most of the management strategies under the Preferred Alternative would promote

the conservation of the Hawaiian monk seal and the green sea turtle, another endangered species. The Biological Opinion stated, however, that increased human activity on Tern Island for recreational purposes, gear storage, and aircraft operations would adversely affect reproduction, recruitment, and distribution of Hawaiian monk seals and would likely jeopardize the continued existence of the species. In the Biological Opinion, the National Marine Fisheries Service recommended that Tern Island logistical support for fishing activities be limited to current levels.

As noted in previous Annual Reports, the National Marine Fisheries Service issued a Draft Environmental Impact Statement in 1980 proposing that certain waters and lands in the Northwestern Hawaiian Islands be designated as critical habitat for the Hawaiian monk seal pursuant to the Endangered Species Act. A Final Environmental Impact Statement has not been issued and the Service has not made a final determination with respect to the 1980 proposal. However, in December 1984, the Service issued a Supplemental Environmental Impact Statement proposing that waters and lands within the 10-fathom isobath surrounding the islands and atolls in the Northwestern Hawaiian Islands be designated critical habitat for the Hawaiian monk seal.

The Commission, in consultation with its Committee of Scientific Advisors, reviewed the Supplemental Statement and, by letter of 15 February 1985, provided comments and recommendations to the Service. In its letter, the Commission reiterated the conclusion put forth in its 14 May 1980 comments on the Statement that the preferred and best supported alternative was to designate critical habitat out to the 20-fathom isobath rather than to the 10-fathom isobath, as proposed in the Supplemental Environmental Impact Statement. The Commission also noted that the Hawaiian Monk Seal Recovery Team had concluded in 1980 that critical habitat should include waters out to the 20-fathom isobath around the islands and atolls of the Northwestern Hawaiian Islands, plus the submerged lands shallower than 20 fathoms at Maro Reef.

Therefore, the Commission recommended that Alternative One, which would extend habitat boundaries to the 20-fathom isobath, be modified to include submerged areas around Maro Reef shallower than 20 fathoms and that the Service adopt this alternative as the Preferred Alternative. The Commission further recommended that: (1) if the Service had not already done so, it ask the Hawaiian Monk Seal Recovery Team to review the Supplemental Statement and other relevant information and that the results of this review as well as the Recovery Team's 1980 statement on critical habitat be included in the Service's Final Environmental Impact Statement; and (2) the Supplemental Statement be expanded to include a more complete and accurate analysis of available

information on diving behavior and habitat use patterns of monk seals at sea.

At the end of 1985, the National Marine Fisheries Service had not yet announced its final determination on designation of monk seal critical habitat. Under the provisions of the Endangered Species Act, the Service has one year from the time of its proposed rulemaking in which to announce a final decision. It is expected that such a decision will be announced early in 1986.

On 2 April 1985, the National Marine Fisheries Service forwarded to the Commission a Combined Draft Fishery Management Plan, Environmental Assessment, and Regulatory Impact Review for the Bottomfish and Seamount Groundfish Fisheries of the Western Pacific Ocean, prepared by the Western Pacific Fishery Management Council. The Commission, in consultation with its Committee of Scientific Advisors, reviewed the document and, by letters of 12 April and 7 May 1985, provided comments and recommendations. In its 12 April letter, the Commission noted that, based on a preliminary review of the draft plan, the basis for the plan's determination that the proposed action would not jeopardize Hawaiian monk seals was not apparent. The Commission further noted that it was not clear whether all relevant information had been considered. Therefore, the Commission recommended that, if the Service had not already done so, it enter into immediate consultation with the Hawaiian Monk Seal Recovery Team to determine if the proposed action was likely to adversely affect Hawaiian monk seals. The Commission also recommended that, if the Service or the Western Pacific Fishery Management Council had not already initiated formal Section 7 consultations under the Endangered Species Act, further consideration of the draft plan be suspended until such consultations were completed. By letter of 12 April, the Service advised the Commission that the Service's Southwest Regional Office was in the process of preparing a Biological Opinion as required by Section 7 of the Endangered Species Act.

Following a more extensive review of the draft plan, the Commission, in consultation with its Committee of Scientific Advisors, forwarded additional comments and recommendations to the Service on 7 May. In the letter, the Commission endorsed the proposed permit system and the proposed restriction on use of nets as a means of increasing protection of monk seals. The Commission noted, however, that the bottomfish fishery could affect monk seals in a number of ways not considered in the Environmental Impact Assessment. For example, the Commission pointed out that monk seals that feed in the same areas where fishing occurs might be killed or injured while attempting to take hooked bait or hooked fish. The Commission also pointed out that seals could damage or destroy deployed gear and/or hooked fish. The Commission recommended that the likelihood of such interactions be

considered during the Section 7 consultations and that the management plan be revised to reflect any relevant findings and any reasonable and prudent alternatives identified as a result of the consultation.

The Commission further recommended that the environmental assessment be expanded to: (a) provide additional information on the at-sea movements and habitat use patterns of Hawaiian monk seals and to compare that information with the expected distribution of bottomfish fishing off the Northwestern Hawaiian Islands; (b) provide a more complete analysis of possible impacts from monk seal/bottomfish fishery interactions; (c) identify research and monitoring measures that would be undertaken to ensure that possible adverse effects on monk seals and other endangered species are avoided or detected and mitigated; and (d) identify steps that would be taken to ensure that all fishermen permitted to fish for bottomfish in the Northwestern Hawaiian Islands are aware of potential interactions and relevant regulations necessary to protect Hawaiian monk seals and other endangered and non-endangered species. Finally, since the Service's 12 April letter made no mention of consultations with the Hawaiian Monk Seal Recovery Team, the Commission restated its earlier recommendation that the Service consult with the Recovery Team during the Section 7 review process to ensure that all relevant information on monk seals was identified and appropriately considered.

On 4 October 1985, the National Marine Fisheries Service sent the Commission a revised Combined Draft Fishery Management Plan for the Bottomfish and Seamount Groundfish Fisheries of the Western Pacific Region. The revision differed from the earlier draft in that it: (1) recommended establishing an experimental fishing permit system to authorize fishing in areas or with certain gear that would otherwise be prohibited; and (2) eliminated previously proposed restrictions that limited access to the bottomfish fishery in the Northwestern Hawaiian Islands.

The Commission reviewed the revision and, by letter of 31 October 1985, forwarded its comments to the National Marine Fisheries Service. In its letter, the Commission expressed concern that the proposed changes would seriously compromise efforts to control growing fishing pressure and to protect the endangered Hawaiian monk seal. The Commission recommended a number of additional steps that should be taken to ensure, insofar as possible, that bottomfish fisheries in the western Pacific region do not adversely affect the Hawaiian monk seal population or its habitat. Specifically, the Commission recommended that the management plan: (a) identify the steps to be taken to ensure that bottomfish fishermen are aware of and understand applicable laws, regulations, and reporting requirements concerning interactions with Hawaiian monk seals and other endangered or threatened

species; (b) provide for the establishment of criteria and procedures for issuing experimental fishing permits; (c) ensure that the annual reviews to be conducted by the Bottomfish Monitoring Team address information and problems concerning fishery interactions with endangered or threatened species as well as problems concerning the stocks of target fish species; and (d) identify the research and monitoring programs needed to resolve uncertainties concerning possible direct and indirect effects of bottomfish fishing operations and related activities on monk seals and other endangered species. With respect to the last point, the Commission recommended that the Fishery Management Plan specify the need for controlled experiments to determine whether, where, and how monk seals and other endangered or threatened species might be affected by permitted fishing activities.

During 1986, the Commission will continue to work with the National Marine Fisheries Service, the Fish and Wildlife Service, and the Hawaiian Monk Seal Recovery Team to evaluate the effectiveness of steps that have been and are being taken to protect and encourage recovery of the Hawaiian monk seal and to identify additional measures that may be necessary.

Caribbean Monk Seal (*Monachus tropicalis*)

Historically the Caribbean monk seal occurred primarily in the Caribbean Sea and the Gulf of Mexico; prehistorically it apparently ranged as far north as South Carolina. While the species is thought to have once been abundant, over-exploitation by hunters and loss of habitat resulting from human activities reduced the monk seal to perilously low levels as early as 1851. The last confirmed sighting of the species in the United States was in 1922. The last verified record of the species was a small monk seal colony on Seranilla Bank, between Honduras and Jamaica, in 1952.

Although it was possible that the species might already be extinct, the Caribbean monk seal was listed in 1979 as endangered under the Endangered Species Act. The listing was considered necessary to protect any individual animals that might still survive.

During 1985, the National Marine Fisheries Service reviewed available information on the Caribbean monk seal as part of its five-year status review pursuant to the Endangered Species Act. The Service concluded that, on the basis of the best available evidence, the species is extinct. The Service therefore recommended that the Caribbean monk seal be removed from the Endangered Species List.

Despite a widespread belief that the species is extinct, there have been unconfirmed reports as recently as the early 1980s of sightings of what may be Caribbean monk seals along

the north coast of Haiti. In an attempt to verify these sightings, the Commission contracted in 1985 for a survey of fishermen and other residents of the area to identify, document, and assess the reliability of recent and past sightings. The resulting report is expected to be available early in 1986.

As part of its continuing review of the status of marine mammal populations, the Marine Mammal Commission's Working Group on Endangered Species reviewed available information on the Caribbean monk seal during 1985. The Working Group concluded that, although prospects for the species continued existence are exceedingly small, there remains a faint hope that some animals may still survive. The Working Group recommended that, as long as such hope remains, the Caribbean monk seal should remain listed on the Endangered Species List. In addition, it recommended that efforts should be made to alert residents in the species' historic range of the possible existence of surviving monk seals and that information should be made available to help them recognize and differentiate the species from other species of pinnipeds, such as California sea lions, that may have been released in the area.

During 1986, the Commission will review any new evidence in a continuing effort to determine whether any individuals of this species survive.

The California Sea Otter Population (*Enhydra lutris*)

Because of its small size and limited distribution, the remnant sea otter population in California is vulnerable to oil spills and other catastrophic events. Primarily for this reason, the population was designated as threatened under the Endangered Species Act in January 1977. The most effective way to reduce the threat from such events is to establish one or more sea otter colonies outside the population's present range. While such an action could adversely affect commercial and recreational fisheries for abalone, clams, and other invertebrate species eaten by sea otters, it also could reduce populations of sea urchins and other herbivores that sea otters eat, and thus enhance the growth of kelp, a product of commercial significance that also provides habitat for certain finfish species of recreational and commercial importance.

To facilitate protection and recovery of the California sea otter population, while minimizing possible adverse impacts on commercial and recreational fisheries, the Commission, in December 1980, recommended that the Fish and Wildlife Service adopt and implement a management strategy recognizing the ultimate need for "zonal" management of sea otters and the need to establish one or more sea otter colonies at a

site or sites not likely to be affected by an oil spill in or near the population's present range. The Fish and Wildlife Service concurred with the Commission's recommendation and incorporated the zonal management concept into the Southern Sea Otter Recovery Plan, which it adopted in February 1982.

Past Commission efforts to facilitate development and implementation of an effective Southern Sea Otter Recovery Plan are described in previous Annual Reports. The Commission's activities in this regard in 1985 are summarized below.

Incidental Take

The incidental take of sea otters was either insignificant or unrecognized when the California sea otter population was designated as threatened in 1977. The first documentation of the existence and possible significance of the problem was provided by the California Department of Fish and Game and others in 1982. In that year, the Commission provided funds to the California Department of Fish and Game to augment ongoing studies of the problem and to help coordinate work being supported by various organizations in order to expedite collection of needed data.

In addition, in 1983, the Commission provided funds to continue and expand observations of gill and trammel net fisheries in and near Morro Bay and Monterey Bay. The Commission continued funding for this work during 1984 and the major portion of 1985. By letter of 25 November, however, the Commission advised the Fish and Wildlife Service that the Commission contract for these observations had expired on 31 October 1985 and that the California Department of Fish and Game no longer had funds available for this work. In its letter, the Commission stated that continued use of observers is critical for enforcement as well as for assessing the effectiveness of measures taken to prevent the incidental take of sea otters. The Commission recommended that the Service place high priority on continuation of the observer program. The Commission added that, while it no longer had funds available for this work, it was willing to assist the Service in exploring options for support of this important aspect of the sea otter recovery effort.

As was noted in the previous Annual Report, the report submitted by Commission-funded observers and the studies undertaken by the California Department of Fish and Game, provided the first reasonably good documentation of the magnitude of the incidental take problem in 1984. In a draft report issued in September 1984 by the California Department of Fish and Game, it was estimated that between 1973 and 1983 an average of 105 otters were killed annually through entanglement in gill and trammel nets. Available information indicates that most losses due to incidental take occur in

large mesh nets that are set for halibut within the 15-fathom depth curve. A complete breakdown of incidental take mortality for the period from 1973 through 1983 is shown in the following table prepared by the California Department of Fish and Game:

Estimates of incidental take of sea otters in set nets calculated from estimates of set net effort 1973-1983¹

Year	Number of Landings	Estimated Mortality
1973	457	49
1974	645	69
1975	[no data provided]	69
1976	980	105
1977	663	71
1978	874	93
1979	1449	154
1980	1407	150
1981	1578	168
1982	1057	113
1983	696	74

As the data set forth in the California Department of Fish and Game report indicate, the incidental take problem is a substantial threat to the continued existence and recovery of the California sea otter population. In recognition of the severity of this threat, the Commission has taken an active role in seeking solutions to the problem. Details on Commission efforts in this regard prior to 1985 are described in previous Annual Reports.

Thousands of sea birds also are caught in gill and trammel nets and, to avoid or reduce the incidental take of seabirds, as well as sea otters, the State of California enacted legislation in July 1984 prohibiting fishing with gill and trammel nets inside the 15-fathom depth contour in certain areas including Monterey Bay. Preliminary monitoring surveys indicate that this action has been effective in reducing the number of sea otters entangled in gill and trammel nets in Monterey Bay. It is possible, however, that this closure may have shifted fishing efforts to other areas and increased the level of incidental take of sea otters and other marine mammals in those locations.

At the end of 1984, the California Department of Fish and Game initiated a public review process to determine what action, either regulatory or legislative, would be appropriate to address the incidental take of sea otters in areas

¹ Estimate of effort is based on the number of landings of set net boats within the sea otters' range. Estimated take is based on the rate of take observed in 1983.

beyond Monterey Bay in a manner that would not be unnecessarily restrictive on fishing interests.

In a 2 January 1985 letter to the California Secretary of Resources, the Fish and Wildlife Service identified the very serious nature of the incidental take problem and urged the State to undertake immediate legislative and regulatory action that would eliminate the incidental take of sea otters. By letter of 16 January 1985, the Fish and Wildlife Service informed the California Department of Fish and Game that it supported an emergency closure to prohibit set net fishing activities within the sea otter range. In this letter it was observed that, unless the problem could be dealt with quickly and effectively, there was a substantial likelihood that the population would have to be reclassified as endangered. The Service stressed the importance of law enforcement efforts and indicated its willingness to assist in enforcement and public information activities.

As a result of this review, an emergency regulation was promulgated on 25 January 1985 to prohibit use of gill and trammel nets in waters less than 15 fathoms deep from Waddell Creek, Santa Cruz County, to Point Sal, Santa Barbara County. Prior to the expiration of this regulation, the California General Assembly, on 24 May 1985, passed a law establishing a permanent 15-fathom closure. This closure was co-extensive with the emergency regulation and prohibited set net fisheries within a 220-mile stretch of the California coast.

Notwithstanding this action, sea otter mortalities incidental to gill and trammel net fishing continued to be reported. In July and August 1985, seven confirmed and three probable deaths were observed in waters 15 fathoms or greater in depth. In response, the California Department of Fish and Game promulgated another emergency regulation that established a 20-fathom closure for the 17 miles of coast between Cape San Martin and Piedras Blancas. This closure took effect on 22 August 1985 and expired on 20 December 1985. Subsequent to the closure, one additional net-related mortality was observed in Monterey Bay in waters deeper than 15 fathoms. Taking two January 1985 mortalities into account, ten confirmed and three probable deaths were observed in 1985.

During their meeting in San Diego, California, on 24-26 October 1985, the Marine Mammal Commission and its Committee of Scientific Advisors on Marine Mammals devoted a full day to consideration of issues related to sea otters in Alaska and California. A considerable portion of this discussion focused on fishery interaction problems and incidental take. As a result of the discussions during this and other sessions of the meeting, the Commission and the California Department of Fish and Game agreed to work together to convene a workshop on marine mammal/fisheries interactions in

California during 1986. In late 1985, the Commission was completing the necessary preparatory steps to organize the workshop.

Translocation Decision-Making Process

In a Federal Register notice published on 27 June 1984, the Fish and Wildlife Service announced its intention to prepare an environmental impact statement on a proposal to translocate a portion of the California sea otter population to a site within the species' historic range off the Pacific coast of the United States. This action is called for in the Southern Sea Otter Recovery Plan and has been recommended by the Marine Mammal Commission on several occasions. As described in the Federal Register notice, the proposal would involve the issuance of experimental population regulations under the Endangered Species Act, permits under both the Endangered Species Act and the Marine Mammal Protection Act, and compliance with a number of Federal and State laws. Details of the Fish and Wildlife Service's translocation proposal are set forth in the previous Annual Report.

As part of the environmental impact statement preparation process, the Fish and Wildlife Service initiated a formal scoping process and held public scoping meetings on 23 and 24 July 1984 in Santa Barbara and Monterey, California, respectively. In addition, the Service established an Interagency Project Review Team, as recommended by the Council on Environmental Quality, to participate in the scoping process and otherwise assist the Service in preparation of the environmental impact statement. The Review Team is composed of representatives from the California Department of Fish and Game, the Fish and Wildlife Service, the Marine Mammal Commission, the Minerals Management Service, and other interested Federal and State agencies. Public meetings of the Review Team were held on 4 June, 6 August, and 4 October 1984. Non-governmental participants in these meetings have included representatives of environmental groups, the oil and gas industry, and sport and commercial fishing organizations. The meetings have been used to discuss a variety of issues related to translocation, including the topics to be addressed in the environmental impact statement, alternatives to the proposed action, the time schedule and procedures for drafting the environmental impact statement, U.S. Coast Guard vessel routing procedures, and oil spill risk analysis issues.

Early in 1985, a determination was made by the Fish and Wildlife Service that it would not be possible to complete the decision-making process in time for a translocation in 1985. Anticipating that a translocation would take place in 1986, the Service distributed a preliminary draft environmental impact statement to the Interagency Project Review Team and other interested parties for review and comment.

Comments were received during February and March 1985, and the Service undertook the preparation of a revised preliminary draft environmental impact statement.

The Fish and Wildlife Service's translocation proposal was given Congressional consideration during 1985 hearings on reauthorization of the Endangered Species Act. These hearings took place on 14 March 1985 before the Subcommittee on Fisheries and Wildlife Conservation and the Environment of the House Committee on Merchant Marine and Fisheries and on 18 April before the Subcommittee on Environmental Pollution of the Senate Committee on Environment and Public Works. Testimony was presented by interested parties on the need for one or more translocations and the resource management conflicts that are likely to be associated with translocation.

In an effort to achieve a consensus on how the translocation decision-making process should be carried out and what some of the legal consequences would be if the translocation were successful, the House Committee on Merchant Marine and Fisheries convened several meetings of involved agencies and interested parties. In part as a result of these meetings, the Committee approved H.R. 1027, a bill reauthorizing the Endangered Species Act. On 27 July 1985, the House of Representatives passed the bill, Section 5 of which addresses the translocation of sea otters.

Section 5 is intended to serve as a free-standing provision of the Endangered Species Act. This means that its requirements would continue to apply even if the sea otter were to be delisted under the Act. The purpose of the amendment is to encourage the development and implementation of a plan for the establishment of at least one additional population of sea otters at another location. Within that context, it seeks to resolve resource management conflicts that could arise as a result of a translocation.

If enacted, Section 5 of H.R. 1027 would require the development by regulation of a plan that includes pertinent information on the manner in which the translocation will be carried out. That plan would be required to specify a translocation zone that would meet the habitat needs of the translocated animals and provide a buffer from the possible adverse effects of activities that may occur outside the zone. Animals found within this zone would be subject to all applicable protections of the Endangered Species Act and the Marine Mammal Protection Act. The plan also would be required to specify a management zone. This area is to surround the translocation zone and represents the area from which sea otters are to be excluded. Sea otters found within this zone are to be removed by feasible, non-lethal means and are provided with fewer legal protections than those that are found within the translocation zone. The final significant component of the translocation plan is to be a general

description of the expected relationship between the successful establishment of a translocated population and the status of the species under the Endangered Species Act.

In order to remove constraints under the Marine Mammal Protection Act that sea otters be taken only for research purposes, Section 5 provides that actions necessary to effect the relocation or management of sea otters under the plan shall not be considered violations of either the Endangered Species Act or the Marine Mammal Protection Act. In an effort to provide as much certainty as possible concerning the possible effects of the translocation on fisheries, offshore oil and gas development, and other activities, the proposed amendment provides for an early consultation procedure to be initiated and completed prior to the translocation. Only those activities that had advanced to a stage where, in the judgment of the Secretary, meaningful consultation could take place would be subject to this requirement. Anticipating implementation of a translocation plan in 1986, the House bill set 1 April 1986 as the deadline for requests for early consultation.

On 4 December 1985, the Senate Committee on Environment and Public Works approved a reauthorization bill that did not include the House-passed amendment. At the end of 1985, no action had been taken by the full Senate on Endangered Species Act reauthorization. Resolution of differences between H.R. 1027 and the Senate bill, S. 725, therefore must await further action in 1986.

On 7 August 1985, the Fish and Wildlife Service wrote to the Commission providing information on baseline ecological studies being conducted at San Nicolas Island, California, and observing that, due to events related to Endangered Species Act reauthorization, it might not be possible for the Service to complete the translocation decision-making process in time for implementation in 1986. The Commission responded by letter of 30 August, explaining that translocation could be accomplished in 1986 if final action on Endangered Species Act reauthorization were taken by Congress in 1985.

At the 24-26 October 1985 meeting of the Commission and its Committee of Scientific Advisors, representatives of the Fish and Wildlife Service stated that the Service was committed to bringing about a translocation in 1986, provided that Congress indicates in a timely fashion whether it will amend the Endangered Species Act to address sea otter translocation. By letter of 25 November 1985, the Commission stated its support for this approach and urged the Service to make the necessary funds available.

The lack of final Congressional action on Endangered Species Act reauthorization by the end of 1985 makes it unlikely that the decision-making process can be completed in

time for a translocation in 1986. To plan for translocation in 1987, the Service is expected to call upon the Interagency Project Review Team early in 1986 for further review of draft decision-making documents with publication of a draft environmental impact statement to follow.

General Program Review

On 14 September 1983, the Commission advised the Fish and Wildlife Service of the steps it considered necessary to carry out an adequate program for the protection and recovery of the California sea otter population. The principal recommendations set forth in that letter are as follows:

- (1) expedite assessment of incidental take and proceed with actions to reduce or eliminate the problem;
- (2) determine the optimal design and establish agreed-upon schedules and procedures for conducting periodic population surveys;
- (3) complete the Sea Otter Mapping Project;
- (4) select a translocation site or sites and develop a proposed translocation plan or plans that can be subjected to legal, environmental, and economic evaluation and assessment;
- (5) develop and begin implementing an agreed-upon plan for assessing alternative methods for protecting and containing sea otters in designated zones;
- (6) facilitate the compilation, evaluation, and publication of existing survey, tagging, and mortality data;
- (7) update the Southern Sea Otter Recovery Plan and initiate development of a Comprehensive Work Plan; and
- (8) engage a full-time Sea Otter Activities Coordinator.

Considerable progress has been made in meeting these objectives. During 1984 and 1985, the Fish and Wildlife Service took actions on each of the recommendations set forth in the Commission's 1983 letter. Significant developments include the initiation of the translocation decision-making process, the completion of the Mapping Project, ongoing efforts to resolve incidental take problems, the 1984 containment workshop, and the hiring of a full-time Fish and Wildlife Service Sea Otter Coordinator.

For purposes of obtaining information on the progress that has been made on these general program objectives, one entire day of the 24-26 October 1985 meeting of the Marine Mammal Commission and its Committee was devoted to sea otter issues. Testimony was presented by the Fish and Wildlife Service, the California Department of Fish and Game, the Minerals Management Service, the Friends of the Sea Otter, commercial and sport fishing interests, the oil and gas industry, and others. Through these presentations, up-to-date information was provided on population status, incidental take, translocation, marine mammal/fisheries interactions, oil spill risks, the recovery plan and related issues, and problems and opportunities concerning sea otters in Alaska. The discussion on each of these topics laid the

groundwork for further action in 1986 on the objectives set forth in the Commission's 1983 letter.

Humpback Whale (Megaptera novaeangliae)

Humpback whales, which are found throughout the world's oceans, are among the several species of great whales that have been severely reduced in number as a result of past commercial whaling. Since 1966, commercial exploitation of the species has been prohibited by the International Whaling Commission. In the United States, it is listed as endangered under the Endangered Species Act. However, humpback whales, still taken by subsistence whalers in Greenland, may also be threatened in other areas by human activities such as commercial shipping, recreational boating, offshore oil and gas development, commercial fisheries, and coastal development.

As noted in the Commission's previous Annual Report, the Commission participated in a review of the National Marine Mammal Laboratory's research programs, including its cetacean research program, on 13-15 November 1984. By letter of 11 December 1984, the Commission provided the Service with comments on the review noting, among other things, that it was apparent that funding and logistic support for the cetacean research program was not adequate to effectively meet all relevant data needs and that, because all necessary research needs had apparently not been fully described, available funding might not be being used to the best possible advantage. As an example, the Commission noted that there was no plan for long-term studies to assess and monitor the North Pacific population of humpback whales and its habitat or to identify and evaluate needed conservation measures. The Commission therefore asked to be advised of steps being taken or contemplated by the Service to develop and implement recovery plans for humpback whales, and for right whales, bowhead whales, and other endangered cetaceans as required by the Endangered Species Act.

On 13 March 1985, the Service wrote to the Commission in response to the 11 December letter. With respect to the aforementioned comments, the Service noted, among other things, that: it had not yet developed recovery plans for the eight species of whales listed as endangered; recovery plans for endangered and threatened species may not be required if such a plan is not likely to promote conservation of the species; it is uncertain whether or how a recovery plan would enhance the protection of endangered whales; priority attention for developing recovery plans and establishing recovery teams is being given to species which it considers more likely to benefit from such a plan, including Hawaiian monk seals and various sea turtles; and once it proceeds with developing recovery plans for endangered whales, it would give particular attention to humpback,

right, and bowhead whales. The Commission continues to believe that preparation and implementation of recovery plans for endangered whales, whose range is primarily or substantially within U.S. jurisdiction, would be both useful and appropriate and, as noted in the section on right whales, it formally recommended by letter of 31 December 1985 that the Service develop, adopt, and implement recovery plans for populations of endangered humpback, right, and bowhead whales.

During 1985, the Commission received the final report of a project that it had supported on identification, behavior, reproduction, and distribution of humpback whales in Hawaii. Among other things, the results of that study suggest that the use by mothers and calves of nearshore waters off the west coast of Maui had decreased substantially during the period 1977-79 to 1983. The report also suggested that increasing human activities, including direct interactions between whales and vessels, increased use of specific areas by boaters and concessionaires, increased land runoff, and the occurrence of changing water quality and pollution, could be significant factors contributing to the apparent change in the distribution of mothers and calves.

Concerned about possible long-term implications of increasing levels of human activity on the future availability and use of an important nursery area for the North Pacific population of humpback whales, the Commission contracted for a study to determine the distribution and number of humpback whales and their relationship to boating activity in nearshore Hawaiian waters from January through April 1985. The Commission also contracted for a study in 1985 to review available information bearing on the conservation and protection of humpback whales in Hawaii. These studies are described in Chapter II of this Report. The Commission looks forward to receiving the results of these studies, at which time it will consider further actions that may be necessary and appropriate to assure protection of the humpback whales which winter in Hawaiian waters.

Also during 1985, the National Park Service published final rules and regulations for the protection of humpback whales in Glacier Bay in southeast Alaska. Published on 10 May 1985 in the the Federal Register, the final rules reflect the Commission's 18 May 1984 comments and recommendations on the proposed regulations. These are described in the Commission's previous Annual Report. The regulations establish: a permit system for vessels entering the Bay; vessel operating restrictions; a mechanism for designating whale waters and vessel limits to respond to special whale protection needs which may arise; and protection for species of fish and crustaceans on which humpback whales feed.

During 1986, the Commission will continue to work with the National Marine Fisheries Service, the States of Hawaii and Alaska, the National Park Service, and others on matters concerning the protection of humpback whales and their habitat.

Bowhead Whale (Balaena mysticetus)

It is thought that at least five or six separate bowhead whale populations once existed. Over-exploitation by commercial whalers between 1600 and 1900 reduced these populations to extremely low levels throughout the species' ranges. The largest surviving population is the Bering Sea population, which occurs in the Beaufort, Chukchi, and Bering Seas off Alaska and Canada. This population is of great importance to Alaska Eskimos, who continue to hunt bowhead whales for subsistence and cultural purposes.

Consideration by the International Whaling Commission

As described in the Marine Mammal Commission's previous Annual Reports, the International Whaling Commission (IWC) reviews information on the status of the Bering Sea stock of bowhead whales and establishes quotas on the aboriginal/subsistence take of whales from this as well as other whale stocks. In 1977, the IWC adopted a total ban on the take of bowhead whales by Alaska Eskimos. Later that same year, it modified its ban in recognition of Eskimo subsistence and cultural needs. Since 1977, a series of limited quotas have been adopted by the IWC to meet the needs of Alaska Eskimos while allowing the bowhead whale stock to increase towards its maximum sustainable yield level. In 1983, the IWC adopted a two-year block quota of 43 strikes for the 1984 and 1985 bowhead whaling seasons with a stipulation that no more than 27 strikes be made in either year. As noted in Chapter III of this Report, the IWC again considered aboriginal/subsistence whaling quotas for bowhead whales during its 1985 meeting.

During the 1985 meeting, the IWC was advised by its Scientific Committee that, based on improved information concerning the size of the stock, the best estimate of abundance for the Bering Sea stock of bowhead whales had been revised upward to 4,417 animals (range 2,613 to 6,221). No new information, however, was available on the natural mortality rate or annual net recruitment rate for the population, and the Scientific Committee therefore recommended to the IWC that any new catch limits be set with caution. In view of this and other information on the take of whales by Alaska Eskimos, the IWC adopted a three-year block quota which modified its previous quota covering the 1985 bowhead whaling season and set new quotas for the 1986 and 1987 seasons. The new block quota provides that 26 whales may be

struck in each of the three years and that strikes not used in any one year may be used during the following year. No more than 32 strikes, however, are to be made in any one year.

Eskimo Whaling

In order to provide Alaska Eskimo whalers with substantial opportunity and responsibility for regulation, monitoring, and enforcement of the bowhead whale hunt, the National Oceanic and Atmospheric Administration and the Alaska Eskimo Whaling Commission signed a cooperative agreement in 1981, recognizing each party's responsibility for bowhead whale management. In particular, the agreement recognized the National Oceanic and Atmospheric Administration's primary responsibility for managing the bowhead whale stock while also recognizing the responsibility of the Alaska Eskimo Whaling Commission to allocate a mutually agreed quota among Alaska's whaling villages and to monitor the hunt for compliance with the regulations. The quotas set by the IWC and the results of the Eskimo hunts since 1977 are shown in the table below.

Quotas and Catch of Bowhead Whales
By Alaska Eskimos, 1977-1987

Year	Quota*		Actually Landed	Struck But Lost	Total Whales Struck
	Landings	Strikes			
1977	[No quota]		26	82	108
1978	14	20	12	6	18
1979	18	27	12	15	27
1980	18	26	16	18	34
1981	45**	65**	17	11	28
1982			8	11	19
1983			9	9	18
1984			12	13	25
1985			11	6	17
1986	26****		--	--	--
1987			--	--	--

* In general, in establishing quotas on both the number of whales landed and the number of strikes, the IWC stipulated that whaling should cease whenever the number of whales landed or the number of strikes reached the specified number, whichever came first.

** In 1980, a block quota was set for the three years 1981 to 1983, with a further stipulation that, in any one year, the number landed should not exceed 17 and the number of strikes should not exceed 27.

*** In 1983, a block quota was set on strikes alone for 1984 and 1985, with the further stipulation that the number of strikes in any year may not exceed 27.

**** In 1985 a block quota was set for the three years 1985 to 1987, with the stipulation that strikes not used in any one year may be used the following year, provided that no more than 32 strikes occur in any one year.

Research Planning and Coordination

When the IWC modified its total ban on the subsistence take of bowhead whales in December 1977, it acted in part on a pledge by the U.S. Commissioner to the IWC that the United States would undertake a comprehensive research program on the species. Responsibility for planning and implementing the U.S. bowhead whale research program has been carried out by the National Marine Mammal Laboratory of the National Marine Fisheries Service. Additional research concerning bowhead whales has also been conducted or supported by the Alaska Eskimo Whaling Commission, the North Slope Borough, the oil and gas industry, the State of Alaska, the Fish and Wildlife Service, and the Minerals Management Service. Since 1977, IWC action to adopt subsistence whaling quotas for bowhead whales has carefully considered and reflected research results.

The role of the Marine Mammal Commission in developing a comprehensive research plan and initiating efforts to coordinate related bowhead whale research projects has been described in its Annual Reports for Calendar Years 1977 through 1979. Since 1981, the National Marine Mammal Laboratory has assumed responsibility for annually organizing and convening the necessary coordination meetings involving the agencies mentioned above. In 1985, the bowhead whale research coordination meeting was held on 24-25 January 1985 in Anchorage, Alaska. Marine Mammal Commission representatives participated in the meeting.

During the meeting, the groups involved in field research summarized the results of 1984 activities and discussed plans for 1985. In general, activities planned for 1985 continued the research conducted in 1984, with slight modifications. The principal bowhead whale research efforts include the following.

(1) Visual and acoustic censuses during the spring migration in the vicinity of Barrow (North Slope Borough): During the bowhead spring migration, a visual census is conducted from ice camps; however, not all the whales can be seen. An acoustic census procedure is being developed to help determine the number of whales that are not detected, thereby providing a more accurate index of the size of the bowhead population. Although the acoustic census procedure is providing useful information, poor weather conditions in 1985 seriously hampered both the visual census and the calibration between visual and acoustic censuses.

(2) Photo-identification and photogrammetric aerial surveys (National Marine Fisheries Service): Information from these studies will provide details on the relative numbers of animals within different size categories of the

population and ultimately may help determine the age structure and an estimate of net recruitment for the bowhead whale population. In 1985, the Service changed the time and location of its aerial surveys from late summer/early autumn in the eastern Beaufort Sea to late spring off Barrow. In order to collect additional data and to provide continuity with data collected in past years, a photogrammetric study was conducted in the eastern Beaufort Sea during late summer/early autumn of 1985. This work was supported by the oil and gas industry, with partial funding provided by the Marine Mammal Commission and the National Marine Fisheries Service (see Chapter II of this Report for additional details). At the end of 1985, the results of both surveys were still being analyzed.

(3) Impact of oil and gas exploration and development (Minerals Management Service): To better determine how offshore oil and gas activities may affect bowhead whales, the Service is supporting distributional surveys and field studies of bowhead whale feeding. The latter studies, started late in 1985, will help determine the location and importance of summer feeding grounds off the North Slope of Alaska.

(4) Improvement in the techniques used to take bowhead whales for subsistence purposes (Alaska Eskimo Whaling Commission): During 1985, efforts were continued to improve the equipment and methods used in the annual bowhead whale hunt so as to reduce the number of animals struck but lost and to develop the most humane whaling techniques possible. Results from the 1985 efforts are not yet available.

As a related matter, also noted in Chapter III of this Report, the Marine Mammal Commission initiated a thorough analysis of U.S. IWC-related policies late in 1985. Among other things, the Commission's analysis considered U.S. obligations to the IWC with respect to bowhead whale research. Based on a preliminary review completed before the end of 1985, the Commission concluded that the National Marine Mammal Laboratory should continue to convene annual meetings to review and coordinate bowhead whale research and should convene a meeting of involved Federal and State agencies, Native groups, and industry early in 1986. The Commission also concluded that continued National Marine Fisheries Service funding of research to better determine the net recruitment rate for the Bering Sea stock of bowhead whales was of critical importance for the U.S. to meet its obligations to the IWC and to provide information essential for managing the bowhead population. As noted in Chapter III, the Commission expects to forward these and other recommendations concerning both bowhead whales and the IWC to the National Oceanic and Atmospheric Administration early in 1986.

Right Whale (*Eubalaena glacialis*)

The right whale is the world's most endangered large whale. Over-exploitation by commercial whalers in the 19th and early 20th centuries reduced the species to a fraction of its original size and only a few small groups of animals remain. Along the northeast coast of the United States and Canada, for example, the right whale population has been estimated to number in the low hundreds and perhaps fewer than 200 animals. While the taking of right whales has been prohibited for nearly 50 years, the species' preference for coastal areas exposes it to a number of human activities that pose new threats to the whales and their habitats.

The Commission's efforts prior to 1985 to enhance protection of right whales and their habitat in the western North Atlantic and to encourage the species' recovery are described in past Annual Reports. Briefly, these have included: a Commission-sponsored workshop in 1979, which resulted in the development of a general plan for East Coast cetacean and pinniped research; Commission funding to help implement portions of that plan; Commission support for an international workshop on right whales in 1983, which further identified priority research and management needs for the species throughout its worldwide range; and the provision of funds to establish a right whale sighting network in the southeast United States. In 1984, the Commission provided funds to support: aerial surveys of right whales in the Great South Channel east of Cape Cod, Massachusetts; aerial and shipboard surveys to better document the number and movements of right whales in the Bay of Fundy; and two workshops to develop a research and management plan identifying steps that should be taken to protect and encourage recovery of the northwest Atlantic right whale population.

The workshops, sponsored cooperatively by the Commission and the Habitat Protection Branch of the National Marine Fisheries Service, Northeast Region, were held at the New England Aquarium in Boston, Massachusetts, on 11-12 February and 10-11 June 1985. The report of the workshops was submitted to the Commission in December 1985. It summarizes available information on the natural history, current and former distribution and abundance, and potential threats to the western North Atlantic right whale population. The report notes that fisheries development, offshore oil and gas development, environmental pollution, and a number of other factors could affect the whales and/or habitats essential to the survival and recovery of the population. It outlines and indicates the relative priority of actions that should be taken to (a) better determine and monitor the status of the population and habitats necessary to its survival and (b) better assess

and eliminate or mitigate threats to the population and its essential habitats.

The Commission, in consultation with its Committee of Scientific Advisors, reviewed the report and, on 31 December 1985, forwarded it to the National Marine Fisheries Service. In its transmittal letter, the Commission outlined six tasks that it considered to be of greatest immediate importance. These are efforts to: (1) continue and expand aerial and shipboard surveys in the area offshore Cape Hatteras to central Florida, in the Great South Channel, and in the Bay of Fundy in order to (a) better locate and define probable wintering grounds, (b) obtain more accurate estimates of population size, age/sex composition, and annual calf production, and (c) determine when, where, how, and how frequently to conduct surveys to most cost-effectively detect and monitor population trends; (2) continue and expand efforts to establish, maintain, and use a photo-identification system to facilitate documentation of habitat-use patterns and identification of areas of special importance to right whales and to better determine the size, age/sex composition, and productivity of the right whale population in the western North Atlantic; (3) expedite development of standard and/or satellite-linked radio tags to facilitate documentation of winter distribution patterns and obtain more reliable information on daily activity patterns, seasonal movements, and migratory routes of right whales; (4) complete compilation and analysis of historic catch, sighting, and other relevant records to provide better estimates of former distribution and abundance; (5) review and evaluate available data on fisheries and fish resources, marine debris, and other environmental contaminants and on the physical, chemical, and biological characteristics of areas where right whales are regularly observed to better determine and identify critical data gaps; and (6) continue and expand investigation and necropsy of beach-cast whale carcasses to better determine and monitor the frequency and causes of mortalities and the levels of potentially harmful contaminants present in the tissues of beach-cast right whales and other large cetaceans.

In its 31 December letter, the Commission noted that the Endangered Species Act requires the National Marine Fisheries Service to develop recovery plans for listed species, such as the right whale. To fulfill this requirement, the Commission recommended that the Service: (1) adopt the recommended research and management plan included in the workshop report as a preliminary recovery plan; (2) review the recommended research and management plan to determine those tasks that should be carried out or supported by the Service and those that should be carried out or supported by other agencies; (3) convene a meeting of Canadian and U.S. agency representatives, no later than

March 1986, to consider ways to implement the recommended research and management plan; (4) constitute a recovery team to complete and oversee implementation of the recovery plan; and (5) adopt and periodically review and update the recovery plan.

The Commission further recommended that, if it had not already done so, the Service take such steps as are necessary to develop, adopt, and implement recovery plans for populations of humpback whales, bowhead whales, and any other endangered cetaceans that occur primarily or substantially in waters under U.S. jurisdiction.

In 1986, the Commission will help support and participate in a workshop being organized by the Georgia Conservancy to review and identify additional steps that may be necessary to assess and protect possible right whale calving grounds off the coasts of Georgia and northern Florida. (See Chapter II, Research and Studies Programs, for additional information on this workshop.) The Commission also will continue to work with the National Marine Fisheries Service and other Federal agencies and organizations to ensure that urgent research and management needs for right whales are identified and carried out as promptly and as efficiently as possible.

Gray Whale (*Eschrichtius robustus*)

The gray whale occurs in coastal waters of the North Pacific Ocean. Like other species of great whales, gray whales were reduced to low levels by intense whaling pressure prior to the mid-1900s. Two separate stocks are currently recognized, a Korean or western Pacific stock, which may be extinct or close to extinction, and a California or eastern Pacific stock, which has made perhaps the most remarkable recovery of any depleted great whale population and which many biologists believe is at or near its pre-exploitation population level. Each year, members of the eastern Pacific population migrate as much as 10,000 miles along the North American coast between winter calving grounds off Mexico and summer feeding grounds off Alaska and the Soviet Union. Archaeological and historical evidence suggests that gray whales once existed in the North Atlantic Ocean but have apparently been extinct since the seventeenth century.

Commercial exploitation of the eastern Pacific gray whale population began in 1845, at which time its size is estimated to have been about 15,000 animals. It is possible, however, that aboriginal whaling prior to 1845 already may have reduced the population from a level of perhaps 24,000 animals. By 1900, the population was at or near economic extinction and commercial whalers turned

their attention to other species. In 1946, commercial whaling for gray whales was prohibited under the International Convention for the Regulation of Whaling. Limited whaling to meet aboriginal/subsistence needs, however, was and continues to be permitted. As noted in Chapter III of this Report, during its 1985 meeting the IWC set a subsistence whaling quota of 179 gray whales for this purpose in 1986. In 1970, additional protection was provided for gray whales when the species was designated as endangered under the Endangered Species Conservation Act of 1969, the predecessor to the Endangered Species Act of 1973. Under this protection, the California gray whale population has recovered to a level currently estimated at about 16,000 animals.

The gray whale calves, breeds, and migrates near shore and, although commercial whaling does not pose a threat, the whale's nearshore presence exposes it to an increasing number of new threats associated with human activities. Such activities include shoreline development, dredging, coastal gill and trammel net fisheries, offshore oil and gas exploration and production, salt mining, and whale watching. To provide a better basis for identifying and evaluating the possible adverse effects of increasing human activities, particularly in the calving/breeding lagoons of Baja California, Mexico, the Commission sponsored a series of studies beginning in 1974. These are described in previous Annual Reports.

Under the Endangered Species Act, the National Marine Fisheries Service is required to review the status of listed whales and seals at least once every five years. In 1984, the Service completed a five-year status review for gray whales and announced the availability of the results in the Federal Register on 9 November 1984. The Service's review concluded that the California gray whale population has been increasing at a rate of about 2.5 percent per year and has recovered to a level near its pre-exploitation population level. However, because of its limited calving grounds and dependence on nearshore coastal waters, which are subject to increasing human development and use, the Service's review concluded that the stock should be listed as threatened under the Endangered Species Act of 1973. The Service also concluded that the Korean stock has not recovered and should remain listed as endangered.

Anticipating that the Service might request comments on an action to reclassify the status of the gray whale under the Endangered Species Act, the Working Group on Endangered Species of the Commission's Committee of Scientific Advisors undertook a review of information on the status of gray whales during 1985. The Working Group's draft report, which also considered species other than gray whales, was presented to the Commission and its Committee

of Scientific Advisors at their meeting in San Diego, California, on 24-26 October 1985. Based on its analysis, the Working Group concluded that: the California stock is near the level it was at in 1845 and is increasing; as the California population continues to expand towards its carrying capacity level, animals may move to the western Pacific and help repopulate the Korean stock; and, while there is some basis for removing the California population from the list of species covered by the Endangered Species Act, the Commission should support reclassification of the population as threatened because of its dependence on coastal waters which are subject to increasing human development and use.

As of the end of 1985, the National Marine Fisheries Service had not proposed any change in the gray whale's status under the Endangered Species Act. During 1986, the Commission's Working Group expects to complete its report and provide formal recommendations on the status of gray whales and certain other marine mammals. During the process of completing its report, the Working Group will consider any new information that becomes available and will revise its conclusions and recommendations appropriately.

In addition to the Working Group's status review, the Commission sponsored a workshop in Monterey, California, on 16-18 October 1985 to determine and describe research needs and opportunities relative to the conservation and protection of gray whales. The objectives of the workshop were to: (a) review current knowledge and ongoing and planned research concerning the biology, ecology, and conservation of gray whales; (b) identify human activities that could have significant adverse effects on gray whales or habitats essential to their survival and productivity; (c) identify critical gaps in existing knowledge of the biology and ecology of gray whales; (d) determine how gray whale studies might contribute to understanding and resolving methodological and management problems involving other species of cetaceans; (e) describe the types of research needed to fill the critical data gaps, and the time, money, or other resources that would be required to do the needed research; (f) identify the types of monitoring programs needed to detect and determine population trends; and (g) prepare a report that can be used as a basis for developing a five-year plan for meeting key research need and opportunities. Participants included scientists from Mexico and the United States.

A draft report on the workshop is expected to be available early in 1986. The Commission anticipates that this report will provide the basis for the development of a long-term research plan needed to direct and coordinate gray whale research and management. The Commission looks

forward to working with the National Marine Fisheries Service and with scientists and administrators from Mexico, Canada, and the Soviet Union to develop and implement this plan.

Gulf of California Harbor Porpoise (Phocoena sinus)

The Gulf of California harbor porpoise, also known as the vaquita in Mexico, is one of the smallest and least-known cetaceans. There are only about 40 confirmed records of the species, including 14 during the past year. Its range is thought to be limited to the northern portion of the Gulf of California, Mexico. Field surveys of the area, supported by the Commission in 1976 and again in 1979, resulted in only a few probable sightings.

As noted in the Commission's past two Annual Reports, a petition was submitted to the National Marine Fisheries Service by Defenders of Wildlife in 1983, proposing that the Gulf of California harbor porpoise be listed as threatened under the Endangered Species Act. In response, the Service published a Federal Register notice on 3 June 1983 in which it noted that the action may be warranted and solicited any additional information that might help in evaluating the status of the species. The Commission responded to that request by letter of 14 September 1983. In its letter, the Commission provided an analysis and recommendation supporting action by the Service to list the species as endangered, rather than threatened. The Service concurred with the Commission's analysis and, on 25 April 1984, it proposed that the Gulf of California harbor porpoise be listed as endangered. On 29 June 1984, the Commission wrote to the Service noting that the proposed action was consistent with its earlier comments and that it supported the proposal.

On 9 January 1985, the National Marine Fisheries Service determined that the Gulf of California harbor porpoise was endangered pursuant to the Endangered Species Act, and, effective 8 February 1985, the species was added to the Endangered Species List. In support of its action, the Service noted that the determination was based on the following: (a) the presumed low number of animals; (b) the known mortality associated with incidental taking in fisheries for more than 40 years in the Gulf of California; and (c) the continuation of similar fisheries. In addition, there is concern over the possible adverse effects of increased pesticide runoff into the Gulf of California and the reduction in the flow of water into the Gulf resulting from the damming of the Colorado River.

The primary concern for this species is related to the level of incidental take in the gill net fishery for

totoaba (Cynoscion macdonaldi). This fishery operated from the late 1940s through 1975 in the Gulf of California. In 1975, the fishery was closed due to depletion of totoaba stocks, but there has been recent interest in reopening the fishery. An experimental gill net fishery for totoaba was operated during 1985, and thirteen harbor porpoise were taken incidental to those activities.

In 1985, the Commission contracted for an examination of carcasses of harbor porpoise taken incidentally to the totoaba fishery and to train students in methods of small cetacean identification, collection, and museum preparation. A final report is expected early in 1986. Preliminary results indicate that the training program has helped bring to light a number of new specimens of this poorly known species, thereby confirming its continued existence and adding valuable new information concerning its biology and ecology.

During 1986, the Commission will continue to assist, as possible, in efforts to increase knowledge and enhance the protection of this species.

Harbor Porpoise (Phocoena phocoena)

Central California Population

The harbor porpoise, one of the smallest cetaceans, occurs in temperate coastal areas throughout most of the world, including the waters off Europe, the Far East, and both coasts of North America. Because of its nearshore distribution, the species is particularly vulnerable to water pollution and coastal set net fisheries.

As noted in previous Annual Reports, it became apparent in 1983 that the rapidly growing use of gill and trammel nets off northern and central California was causing a large incidental kill of harbor porpoise and other non-target marine species. The Commission, as also noted in previous Annual Reports, called the problem to the attention of the National Marine Fisheries Service in November 1983. By letter of 12 January 1984, the Service advised the Commission that: it had been working with researchers from the California Department of Fish and Game to determine the extent of the problem; the level of incidental mortality had increased off San Mateo, San Francisco, and Marin Counties; existing data indicated that interactions with fisheries were occurring primarily at the southern part of the harbor porpoise range; the seasonal abundance of harbor porpoise in this portion of the range is at a minimum when fishing effort is maximum; an aerial survey of the Farallon Basin conducted in October 1983 indicated that harbor porpoise abundance in this area was comparable to that observed during surveys in 1980, 1981,

and 1982; and the California Department of Fish and Game was proposing legislation to prohibit net fishing in affected areas off San Mateo, San Francisco, and Marin Counties.

The State, as noted in the Commission's 1984 Annual Report, subsequently enacted legislation, which went into effect in July 1984, to restrict the use of gill nets off San Mateo, San Francisco, and Marin Counties. In addition, the California Department of Fish and Game increased its fishery observer program. In September 1984, the National Marine Fisheries Service, in cooperation with the California Department of Fish and Game, the Oregon Department of Fish and Game, and the Washington Department of Game, conducted a combined aerial/shipboard survey to census harbor porpoise in coastal waters from Point Conception, California, to Cape Flattery, Washington.

The restrictions on the use of gill nets did not eliminate and may not have reduced the incidental take of harbor porpoise, sea birds, and other non-target species. Consequently, Representative Barbara Boxer and four other California Representatives wrote to the National Marine Fisheries Service and the Fish and Wildlife Service on 21 February 1985 expressing their concern about the potentially harmful effects of gill and trammel net fisheries along the central and northern California coast. The National Marine Fisheries Service's 3 April 1985 response to this letter did not address a number of critical issues and, by letter of 23 July, Representative Boxer requested additional information. The Service's 27 September 1985 response to this second letter indicated, among other things, that: (a) the Southwest Fisheries Center's budget for harbor porpoise work was being reduced in 1986 since more extensive Fiscal Year 1984-85 survey work was being completed and carried forward by less expensive data analysis and monitoring programs, and (b) the Service would continue to work with the State to collect and analyze data and take steps to resolve the problem rather than using Federal authority to further restrict fishing areas or prosecute fishermen for incidentally taking porpoise without proper authorization under the Marine Mammal Protection Act.

In 1985, the National Marine Fisheries Service conducted two additional harbor porpoise surveys -- one in late January/early February and one in September, the latter in cooperation with several agencies. The California Department of Fish and Game also continued its fishery observer program begun in 1983, but was unable to expand the program to the desired level. To help offset this, the Commission, as described in Chapter II, provided funds to the California Marine Mammal Center to hire qualified observers to augment the State's observer program.

The Commission also contracted with a veterinarian to recover and do necropsies on marine mammal carcasses found washed up on beaches in the Point Reyes National Seashore.

During the 1983/1984 fishing season, observers watched 1,312 nets being pulled off central California and saw 27 harbor porpoise caught in those nets. During the period July through October 1983, 42 harbor porpoise carcasses were found on beaches in Marin, San Francisco, and San Mateo Counties. Only a fraction of the total net pulls were observed and California Department of Fish and Game biologists estimate that approximately 300 harbor porpoise were caught incidentally during the 1983/1984 fishing season.

In 1984, observers watched 629 nets being pulled off central California and saw 21 harbor porpoise caught in those nets. In 1985, 26 harbor porpoise were caught in 266 observed net pulls. Although the analyses have not yet been completed, these data suggest that the incidental take of harbor porpoise may have increased in both 1984 and 1985.

The impact of incidental take depends, in part, upon the size and age/sex composition of the population or populations being affected. Analysis of the data collected during the aforementioned aerial/shipboard surveys conducted by the National Marine Fisheries Service will provide estimates of harbor porpoise abundance in different areas along the coast from Point Conception to Cape Flattery. However, it is not known whether harbor porpoise in the survey area are part of a single population or constitute several more or less discrete local populations.

Assessing annual and seasonal changes which may occur in the distribution, movements, abundance, and age/sex composition of harbor porpoise in the areas of set net fisheries may be the only way to determine whether the harbor porpoise are either part of one or more relatively small resident populations or part of a large panmictic population whose range may extend throughout the rim of the North Pacific Basin. Radio-tagging and tracking a representative sample of harbor porpoise in or near the area affected by the fisheries may be the most practical way to determine annual and seasonal changes in distribution and movements. To facilitate development and implementation of a radio-tagging and tracking program, the Commission, in consultation with its Committee of Scientific Advisors, developed and, on 6 December 1985, forwarded a program scope of work to the National Marine Fisheries Service.

The described work will take at least two years to complete and will cost about \$75,000. Recognizing that the

Service may be unable to provide all of the funding necessary to initiate the project in Fiscal Year 1986, the Commission indicated that it was prepared to transfer funds to the Service to help fund the first phase of the project, with the understanding that the Service would provide the funding in subsequent years necessary to complete the project.

At the end of 1985, the Commission was awaiting the Service's response. The Commission also was waiting to receive and review the results of a Service-sponsored feasibility study to determine whether there are differences in the ratios of chemical pollutants in blubber samples from harbor porpoises found washed up on beaches in Washington and California. If there are significant differences, it will support the hypothesis that harbor porpoise off California and Washington do not have overlapping distributions and may be part of separate and discrete populations.

Bottlenose Dolphin (*Tursiops truncatus*)

The bottlenose dolphin is the most common cetacean in the coastal waters of the southeast United States and is the cetacean species most frequently maintained in captivity for public display and scientific research. Capture of bottlenose dolphins for these purposes began early in the 1900s and as many as 1,800 animals appear to have been taken from coastal U.S. waters prior to passage of the Marine Mammal Protection Act in 1972. In the waters of Florida alone, at least 600 animals were taken from 1970 to 1972. Since that time, authorizations have been granted to collect 591 bottlenose dolphins in U.S. waters, of which 423 were actually collected as of the end of 1985.

Despite the considerable number of animals that have been removed from U.S. waters, these removals probably have not had a significant adverse effect on the species as a whole. However, the species does not occur uniformly throughout its range and a number of more or less discrete "local" populations may exist. If so, repeated captures and removal of animals from certain geographic areas could have an adverse effect on these local populations. Such effects could be compounded by incidental take in fisheries and by disturbance and environmental degradation resulting from coastal development, offshore oil and gas development, and other human activities.

The National Marine Fisheries Service is responsible, under the Marine Mammal Protection Act, for assuring that live-capture and removals do not have significant adverse effects on individual bottlenose dolphins or the popula-

tions of which they are a part. To help meet this responsibility, the Service, in consultation with the Commission, developed and, in 1977, adopted a system for regulating the number of bottlenose dolphins authorized to be taken annually from specified management areas. The following year, again in consultation with the Commission, the Service convened a workshop to determine the information necessary to (a) accurately identify and assess the status of populations that may have already been affected by the removal of animals and (b) better determine the number of animals, by age and sex, that could be taken from various management areas without causing possible local populations to be reduced below their optimum sustainable levels. Subsequently, the Southeast Fisheries Center of the National Marine Fisheries Service developed and initiated a long-range program for assessing and monitoring the number, age/sex composition, and productivity of dolphins in areas where past and current collection activities were concentrated.

Although funding has been limited, the program has been carried out effectively. Following a program review in February 1983, the Commission recommended that the Southeast Fisheries Center be commended for its continuing efforts to develop an effective research and monitoring program. The Commission also recommended: (a) that available survey data be assessed for evidence of seasonality; (b) where such seasonality is found, that quotas for live captures and removals be based upon the minimum, rather than the average, counts or estimates; and (c) that planned aerial and vessel surveys be modified or expanded to better monitor bottlenose dolphin abundance in areas where live captures and removals are being permitted as well as to provide better information on regional distribution, abundance, and productivity.

The Service responded positively to these recommendations. It also adopted the Commission's 15 May 1984 recommendation that permits be revised to reflect all forms of taking, not just permanent removal of individual animals. The latter recommendation reflected the Commission's concern that more animals are chased and encircled than are actually removed and that disturbance from repeated chase and capture could be having effects beyond those of actual removals.

The Service has not been able to conduct or support the complete range of research and monitoring programs necessary to assess and monitor the status of all potentially affected dolphin populations in waters off the southeastern United States. Nor has the Service been able to determine whether the existing management program is unnecessarily restrictive or not restrictive enough. To help expedite development of the needed information base,

the Commission transferred funds to the Southeast Fisheries Center in 1984 to help pay for monthly boat surveys of the Mississippi Sound to determine whether the authorized removal of 25 animals from the Sound had any effect on the ratio of marked to unmarked dolphins, and thus any effect on local population size. The Commission also organized and convened a workshop on 30 October 1984 to determine whether recently developed techniques for detecting variation in mitochondrial DNA might be useful for determining the relative discreteness of local concentrations of bottlenose dolphins and other marine mammals.

Workshop participants concluded that analysis of variation in mitochondrial DNA very well could provide a useful means for identifying discrete marine mammal populations, particularly if useful information could be derived from small samples of blood or other tissues from living animals. Following the workshop, the Commission contracted with investigators from the University of Michigan and Scripps Institution of Oceanography to conduct preliminary feasibility studies (see Chapter III in the Commission's Annual Report covering Calendar Year 1984 and Chapter II in this Report). The results of these preliminary studies, completed in 1985, indicate that useful information can be obtained from small blood samples and other tissues from living animals. Although the sample sizes were very small, the preliminary study results also indicated that there are significant differences in the mitochondrial DNA from bottlenose dolphins collected in different parts of the Gulf of Mexico and off the east coast of Florida. The Commission therefore expects to support additional work in 1986 to further evaluate the potential utility of this analytical technique.

Although the Commission is generally aware of the bottlenose dolphin research and monitoring programs that have been carried out by the Southeast Fisheries Center since the program review in 1983, it lacks complete information on the precise nature and results of the studies that have been completed, what research and monitoring programs are ongoing, and what further research or monitoring programs are being contemplated for the next three to five years. Therefore, by letter of 12 December 1985 to the Service, the Commission requested that it be advised of: (1) the studies that have been carried out since 1983; (2) the results of those studies; (3) the nature, extent, and anticipated utility of ongoing studies; (4) the nature, extent, and anticipated utility of studies and/or monitoring programs being planned or contemplated for the next three to five years; (5) the nature of any problems that have been encountered in carrying out the work to date; and (6) how study results have been and will be used to evaluate and further refine the strategy for managing bottlenose dolphin populations so as to avoid or minimize the adverse

effects of chase, capture, and removal for purposes of public display and scientific research.

At the end of 1985, the Commission looked forward to a response to its letter and to continuing cooperative efforts with the Service and others to ensure the protection of bottlenose dolphins and their habitats in waters under U.S. jurisdiction.

Guadalupe Fur Seal (Arctocephalus townsendi)

The Guadalupe fur seal is named for its primary pupping and breeding site on Isla de Guadalupe, 140 miles west of Baja California, Mexico. The species' historical distribution and abundance are unknown because commercial sealers and other observers failed to distinguish between it and the northern fur seal in their records. Once thought to be extinct, the Guadalupe fur seal population was estimated in 1984 to number about 1,500 to 2,000 animals, with an annual production of approximately 200 pups. Although the primary breeding colony is on Isla de Guadalupe, recent sightings of adult and juvenile seals on some of the Channel Islands off southern California suggest the possibility that recolonization of that area may occur in the future.

As noted in the Commission's previous Annual Report, in 1983, the National Marine Fisheries Service received a petition to list the species as endangered under the Endangered Species Act. On 6 February 1984, the Service requested additional information and data for use in evaluating the status of the Guadalupe fur seal. In response to that request, the Commission, in consultation with its Committee of Scientific Advisors, wrote to the Service on 9 April 1984 recommending that the species be designated as threatened under the Endangered Species Act. The recommendation was based on the Commission's conclusion that, while the population could become endangered within the foreseeable future, it currently does not appear to be in danger of extinction. The Commission further recommended that, if new information becomes available indicating that possible threats to the species' breeding grounds are increasing and/or the trend in population growth is halted or reversed, the status of the populations should be promptly reassessed to determine whether it should be reclassified as endangered.

On 3 January 1985, the National Marine Fisheries Service published in the Federal Register a proposed determination to list the Guadalupe fur seal as threatened under the Endangered Species Act. On 16 December 1985, the Service published a final rule listing the species as threatened, to become effective 15 January 1986.

During 1986, the Commission and its Committee of Scientific Advisors will continue to review the status of the population and to assist the National Marine Fisheries Service and others in further efforts to determine appropriate actions with regard to conservation and protection of this species.

CHAPTER IX

OUTER CONTINENTAL SHELF OIL AND GAS DEVELOPMENT

Activities and accidents associated with the exploration and development of non-living resources of the Outer Continental Shelf, including oil and gas deposits, have the potential for adversely affecting marine mammals and the ecosystems of which they are a part. Under the Outer Continental Shelf (OCS) Lands Act, the Department of the Interior's Minerals Management Service is responsible for predicting, detecting, and mitigating the adverse effects of OCS exploration and development. The National Marine Fisheries Service and the Fish and Wildlife Service are responsible, under the Marine Mammal Protection Act and the Endangered Species Act, for reviewing proposed actions and advising the Minerals Management Service of measures that may be needed to assure that those actions will not be to the disadvantage of marine mammals and other wildlife. The Commission reviews relevant policies and activities of these agencies and recommends actions that appear necessary to conserve marine mammals and their habitats. The Commission's activities in this regard in 1985 are discussed below.

Proposed OCS Lease Sale #92 North Aleutian Basin

Lease sale #92, tentatively scheduled for early in 1986, involves up to 990 blocks (approximately 5.6 million acres) of submerged lands in the southeastern Bering Sea off the Alaska Peninsula. The species of marine mammals likely to be found in the proposed sale area include sea otters, five species of pinnipeds, at least ten species of non-endangered cetaceans, and as many as eight species of endangered whales. The Minerals Management Service's Draft Environmental Impact Statement on the proposed action concludes that the sea otter is the marine mammal most vulnerable to effects of an oil spill in the area and that the sea otter population in the area could sustain moderate impacts if a large spill occurred. The draft Statement also concludes that impacts on pinnipeds, non-endangered cetaceans, and endangered gray, fin, right, and humpback whales are likely to be minor and that impacts on endangered bowhead, blue, sei, and sperm whales would be negligible.

The Commission, in consultation with its Committee of Scientific Advisors, reviewed the draft Statement and provided comments to the Service by letter of 13 March 1985. The Commission noted that the draft Statement provided a reasonably thorough review and analysis of available information regarding the types of impacts, particularly from oil spills, noise, and disturbance, that could affect marine mammals, and an accurate and useful review of information on the marine mammal populations found in the proposed lease area. The Commission noted that most of the conclusions on the expected impacts on marine mammal species seemed justified, but that the potential effects on northern fur seals, Steller sea lions, gray whales, and right whales seemed to be underestimated.

With respect to northern fur seals, the Commission pointed out that the draft Statement did not consider recent information on the size and ongoing decline of the Pribilof Islands fur seal population or the status of recent proposals to list the species as threatened under the Endangered Species Act. The Commission also pointed out that the draft Statement did not fully consider the likelihood or potential significance of disrupting or inhibiting gray whale feeding in the sale area or the implications of the ongoing decline in the Steller sea lion population. The Commission recommended that, if the Minerals Management Service had not already done so, it consult with the National Marine Fisheries Service to ensure that: (a) information and impact assessments concerning the northern fur seal, the Steller sea lion, and the gray whale are accurate and complete; and (b) all measures to detect and mitigate potential unforeseen effects on these species are identified and addressed. With respect to the latter point, the Commission recommended that certain potential mitigation measures identified in the draft Statement, including stipulations for an orientation program, protection of biological resources, and information to lessees on bird and marine mammal protection, endangered whales, and a Bering Sea Biological Task Force, be incorporated as part of the proposed action.

The Commission further recommended that the draft Statement be modified to: (a) provide additional discussion and analysis of possible cumulative effects on northern fur seals, gray whales, and other important living marine resources in the Bering Sea area; (b) identify the post-sale research and monitoring responsibilities of the Service's Environmental Studies Program as a potential mitigating measure and describe its role in ensuring that lease managers have the environmental information necessary for predicting, avoiding, and detecting possible adverse impacts on endangered and non-endangered marine mammals and the ecosystems of which they are a part; (c) expand the oil spill trajectory analysis to consider additional hypothetical spill points and additional oil spill targets adjacent to the

Alaska Peninsula; (d) indicate that impacts on gray whales, northern fur seals, and Steller sea lions could be moderate to major and that impacts on right whales, while unlikely due to the rare occurrence of right whales in the sale area, could be major if any right whales are affected; and (e) indicate what was done to take account of the results of consultations with the National Marine Fisheries Service pursuant to Section 7 of the Endangered Species Act.

Proposed OCS Lease Sale #100
Norton Basin

Proposed Lease Sale #100, tentatively scheduled for March 1986, involves up to 1,755 blocks (approximately 9.8 million acres) of submerged OCS lands in the Norton Basin off the west coast of Alaska. The Minerals Management Service's draft Statement on the proposed sale addresses possible effects associated with four alternative actions and provides information on 14 species of marine mammals likely to occur in the proposed sale area, including four species of endangered whales (bowhead, gray, humpback, and fin whales). The draft Statement concluded that, under the proposed and alternative actions, possible effects on gray and bowhead whales are likely to be minor and possible effects on humpback and fin whales are expected to be negligible. It further concluded that possible effects on non-endangered marine mammals are likely to be minor under all of the alternatives except alternative V, which would defer block offerings in the western part of the sale area and reduce the possibility of affecting any of the species.

The Commission, in consultation with its Committee of Scientific Advisors, reviewed the draft Statement and provided comments to the Service by letter of 14 May 1985. The Commission noted that the draft Statement provided a useful review of information on the marine mammal species likely to be affected and a reasonably thorough review and analysis of available information on the possible impacts of oil spills and acoustic disturbances on these species. The Commission also noted that the potential effects on gray and bowhead whales may have been underestimated. In this regard, the Commission pointed out that the Biological Opinion on the proposed sale, prepared by the National Marine Fisheries Service pursuant to Section 7 of the Endangered Species Act, had concluded that major oil spills or noise associated with the proposed sale could jeopardize the continued existence of bowhead and gray whales if they were to adversely affect the migration and/or reproductive activities of bowhead whales or interfere with gray whale feeding activities.

The Commission recommended that the draft Statement be modified to indicate that possible effects on bowhead and gray whales are uncertain but could be substantial rather

than "minor." The Commission also recommended that the conclusion and summary statements in the draft Statement be changed to indicate that possible adverse effects from alternative V (deferral of the western tracts) would be unlikely and less significant than those that might occur under the other leasing alternatives outlined in the draft Statement. The Commission further recommended that potential mitigating measures concerning an orientation program, the protection of biological resources, the protection of bowhead whales, and certain "information to lessees" notices identified in the draft Statement, be incorporated as part of the proposed action and other leasing alternatives. Finally, the Commission recommended that, as an additional mitigating measure, the Minerals Management Service identify a program of post-sale studies and monitoring activities to ensure that lease managers have the environmental information necessary for detecting and avoiding or mitigating possible adverse impacts on endangered and non-endangered marine mammals and the ecosystems of which they are a part.

The Minerals Management Service's Regional Environmental Studies Program

As noted above, the Minerals Management Service is responsible for assessing and mitigating the possible adverse effects of offshore oil and gas exploration and development. To help meet this responsibility, the Service has established Regional Environmental Studies Programs, which are administered by its OCS offices in Metairie, Louisiana; Los Angeles, California; Anchorage, Alaska; and Vienna, Virginia. The Service also has contracted with the National Oceanic and Atmospheric Administration's Office of Oceanography and Marine Assessment to plan and administer the Alaska Outer Continental Shelf Environmental Assessment Program (OCSEAP).

To help the Service meet its responsibilities with regard to the conservation and protection of marine mammals, the Commission: reviews and provides comments on regional studies plans, environmental impact statements, and requests for proposals related to marine mammal research developed by the Service; participates in meetings of Technical Proposal Evaluation Committees convened by the Service to review research proposals; and helps plan and participates in meetings and workshops to review and coordinate relevant research programs being conducted or planned by the Minerals Management Service, the National Marine Fisheries Service, the Fish and Wildlife Service, and other Federal, State, and private agencies and organizations.

In 1985, Commission representatives participated in an 24-25 January meeting in Anchorage, Alaska, to review, plan, and coordinate bowhead whale research being conducted or supported by the Minerals Management Service, the National

Marine Fisheries Service, the Alaska Eskimo Whaling Commission, the North Slope Borough, and the Alaska Oil and Gas Association. Commission representatives also participated in meetings to review plans and preliminary results of sea otter population studies being carried out by Minerals Management Service contractors to obtain information necessary to better determine how the California sea otter population likely would be affected by oil spills in or near its range.

In 1985, the Commission staff consulted with the Marine Management Service staff concerning the development of regional environmental plans and the development of requests for proposals for additional studies needed to better determine the possible indirect and cumulative effects as well as the direct effects of offshore oil and gas activities on sea otters, gray whales, and other marine mammals. The Commission staff also provided detailed comments to the Minerals Management Service staff on a draft report describing the results of a Minerals Management Service contract study to test and evaluate the effectiveness of different detergents and procedures for cleaning and rehabilitating oiled sea otters.

Minerals Management Service representatives attended the 24-26 October meeting 1985 of the Commission and its Committee of Scientific Advisors in San Diego, California, and provided a briefing on the five-year lease schedule for the U.S. Outer Continental Shelf and on studies that have been and are being supported or planned by the Los Angeles Regional Office to assess and determine how to avoid or mitigate the possible effects of offshore oil and gas development on sea otters and other marine mammals in California waters.

CHAPTER X

MARINE MAMMALS IN CAPTIVITY

On 20 September 1979, the Department of Agriculture's Standards and Regulations for the Humane Handling, Care, Treatment, and Transportation of Marine Mammals went into effect. These Standards were promulgated by the Department of Agriculture under the Animal Welfare Act in response to the Commission's recommendations of 20 October 1974. They were the subject of lengthy and extensive correspondence, consultation, and rulemaking, all of which are discussed in the Commission's past Annual Reports.

The Standards require dealers, exhibitors, operators of auction sales, carriers, and intermediate handlers to comply with minimum standards relating to maintenance and transportation of marine mammals in captivity. The same Standards apply to research facilities as well. All persons or facilities maintaining marine mammals in captivity in the United States, be they for purposes of public display or scientific research, must obtain a license from the Department of Agriculture's Animal and Plant Health Inspection Service and must maintain those marine mammals in compliance with the Standards unless a variance has been obtained to allow a limited time for modification of existing facilities, construction of new facilities, or other actions necessary to achieve full compliance.

During succeeding years, representatives of the Animal and Plant Health Inspection Service consulted with representatives of the Commission, the National Marine Fisheries Service, the Fish and Wildlife Service, the American Association of Zoological Parks and Aquaria, and others concerning the practical effects of application of the Standards and the need for changes.

On 28 June 1984, the Animal and Plant Health Inspection Service published amendments to the Standards in the Federal Register. Significant areas covered by the final amendments included space requirements for primary enclosures for certain marine mammals, new procedures for the granting of variances, construction requirements for housing marine mammals, requirements for accompanying pinnipeds during transport, and specifications for holding areas for marine mammals maintained in transportation facilities.

In an effort to facilitate enforcement of the Standards and to provide Animal and Plant Health Inspection Service inspectors with information that is likely to assist them in performing their responsibilities, the Animal and Plant Health Inspection Service, in conjunction with the Commission, the Fish and Wildlife Service, and the National Marine Fisheries Service sponsored a three-day training seminar on 9-12 April 1985 in Orlando, Florida.

The program included presentations on the requirements of the Animal Welfare Act, the Standards for the Humane Handling, Care, Treatment, and Transportation of Marine Mammals, and the Marine Mammal Protection Act. Representatives of the Commission and its Committee of Scientific Advisors on Marine Mammals instructed participants on marine mammal biology, including species identification, behavior, general anatomy and physiology, and the basic practices of marine mammal husbandry. Representatives of the public display industry presented information on handling and training methods and techniques, water quality, and transportation methods and problems. The program also included panel discussions on what to look for during facility inspections, and on the permitting authorities and responsibilities of the Commission, the Fish and Wildlife Service, and the National Marine Fisheries Service. The program was concluded with an inspection tour of the Sea World facility in Orlando.

In August 1985, the Commission convened a Working Group to address the problems that are becoming apparent as a result of additions to captive populations of marine mammals from captive-born and beached/rehabilitated stock. Particular emphasis was placed on behavioral, biological, and legal issues associated with the release of captive-born marine mammals to the wild. The Working Group was directed to collect relevant data and information, identify and address behavioral and biological issues, analyze related legal questions, and suggest needed research, as well as desirable statutory, regulatory and administrative changes. Participants in the Working Group include members of the Commission's staff and the Committee of Scientific Advisors on Marine Mammals, and input will be requested from other government agencies and interested parties. At the end of 1985, the Working Group had completed its initial draft report.

On 4 October, representatives of the Committee of Scientific Advisors and the National Marine Fisheries Service assisted the Animal and Plant Health Inspection Service in an on-site inspection of a public display facility with a history of compliance problems under the Standards for the Humane Handling, Care, Treatment and Transportation of Marine Mammals. The inter-agency team's findings and recommendations were transmitted to the Department of Agriculture, Office of the General Counsel, for action.

Also in 1985, the Commission staff, utilizing data obtained from the National Marine Fisheries Service, began an analysis of the survival patterns for three species of captive cetaceans. The purpose of this study is to estimate the average annual survival rate for each of the three species (bottlenose dolphins, white whales, and killer whales) and to compare those findings with the literature on the survival of captive and free-ranging cetaceans. The final report based on this analysis is expected to be completed early in 1986.

On 4 December 1985, the Fish and Wildlife Service published in the Federal Register proposed regulations governing the humane and healthful transport of wild animals and birds. These regulations are intended to satisfy the requirements of the 1981 amendments of the Lacey Act, which governs the importation and shipment of wild animals and birds in interstate commerce. The 1981 amendments required, among other things, the implementation of transportation standards for all wild animals and birds. Separate regulatory requirements have been proposed for the transport of marine mammals. The Commission will comment on these regulations early in 1986.

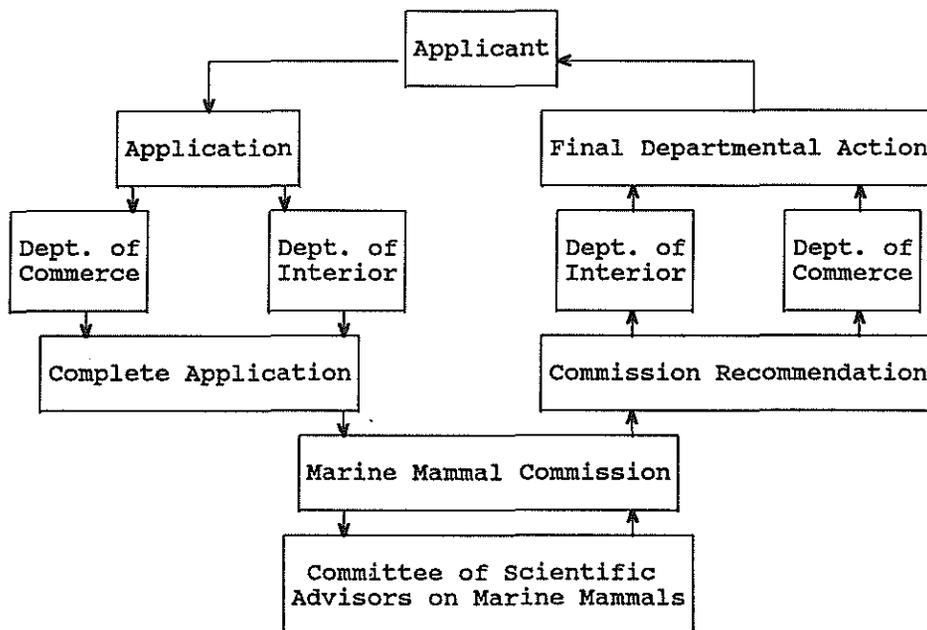
CHAPTER XI

PERMIT PROCESS

The Marine Mammal Protection Act places a moratorium, with certain exceptions, on the taking and importing of marine mammals and marine mammal products. One exception is the provision for the issuance of permits by either the Secretary of Commerce or the Secretary of the Interior, depending upon the species of animal involved, for the taking of marine mammals for purposes of scientific research or public display. Prior to the issuance of a permit, an application is reviewed by the Marine Mammal Commission in consultation with its Committee of Scientific Advisors on Marine Mammals.

Application Review

The permit application and review process involves three stages: (1) receipt and initial review of the application at the Department, publication of a notice of receipt of application in the Federal Register, and transmittal to the Commission; (2) review of the application by the Commission and transmittal of its recommendation to the Department; and (3) final processing by the Department, including consideration of all comments and recommendations of the Commission and the public, resulting in the approval or denial of the application. The following is a schematic representation of this process.



The total review time (initial receipt of application until final Departmental action) depends on many factors, including: the sufficiency of the information provided by the applicant; special actions, such as inspection of an applicant's marine mammal holding facilities, that may be warranted before a decision can be reached; and the efficiency and thoroughness of those responsible for the agency review.

During 1985, the Commission made recommendations on 43 applications submitted to the Department of Commerce (including nine applications that were received in 1984 but which did not receive final action until 1985) and nine applications submitted to the Department of the Interior. The Commission's average review time for complete applications was 29 days (median, 30.5 days). Not included in the preceding statistics are recommendations on three applications that were awaiting final action by the Department of Commerce at year's end and four applications that were under Commission review at year's end. The Commission, in consultation with its Committee of Scientific Advisors, also made recommendations on 20 requests to modify permits and other related permit actions during 1985. The average time required for Commission review of these matters was 32 days.

For the 43 applications processed by the Department of Commerce during 1985, it took an average of 109 days (median, 85 days) from the date the application was received by the Department until final action was taken. The nine permit applications submitted to the Department of the Interior were processed in an average of 116 days (median, 109 days). If calculated from the date of receipt of a complete application by the Departments, the average processing times for the Departments of Commerce and the Interior were 89 and 99 days, respectively, compared to 69 and 61 days, respectively, in 1984.

Working Group on Permit System

In July 1985, the Commission established a Working Group composed of members of the Commission staff and the Committee of Scientific Advisors on Marine Mammals for purposes of preparing a report on how the Marine Mammal Protection Act permit system could be improved. The Working Group was asked to identify problems that have arisen with regard to the review of applications and the issuance, modification, and enforcement of marine mammal permits, as well as to recommend such statutory, regulatory, and administrative changes as might be appropriate to address the problems.

A draft version of the Working Group's report was reviewed by the Committee of Scientific Advisors and considered during the October 1985 meeting of the Commission and Committee in San Diego. Informal comments on the draft report were also received from the Animal and Plant Health Inspection Service, the National Marine Fisheries Service, and several non-governmental parties.

Based on those comments, the draft report is being revised and is expected to be made available for formal review early in 1986. The resulting comments will be considered and incorporated, as appropriate, in the final Working Group report.

Permit-related Litigation

On 1 November 1985, a permit was issued to Sea World, Inc. for the collection of killer whales in Alaska. Litigation leading to the invalidation of the permit by the U.S. District Court for the District of Alaska and subsequent legal action are discussed in detail in Chapter IV, Marine Mammals in Alaska, of this Report.

CHAPTER XII

ENDANGERED SPECIES ACT REAUTHORIZATION

In addition to the protection provided by the Marine Mammal Protection Act, certain species of marine mammals also are covered by the Endangered Species Act. In recent years, concerns have been expressed about apparently conflicting provisions of the two Acts and the need to reconcile these differences. In 1985, some of these concerns were addressed during Congressional deliberations on the reauthorization of the Endangered Species Act.

Reauthorization hearings were held on 14 March 1985 before the Subcommittee on Fisheries and Wildlife Conservation and the Environment of the House Committee on Merchant Marine and Fisheries. At the hearings, representatives of the National Marine Fisheries Service identified the need to amend the Endangered Species Act to provide exception to the more stringent provisions of the Marine Mammal Protection Act. Specifically, they proposed amending the Endangered Species Act so as to establish a procedure whereby the taking of endangered and threatened marine mammals incidental to an otherwise lawful activity can be authorized. Such authorizations would be permitted when a determination has been made that the activity is not likely to jeopardize the continued existence of the species or result in the destruction or adverse modification of its critical habitat. This authority already exists under the Endangered Species Act, but cannot be extended to endangered or threatened marine mammals because of the more restrictive provisions of the Marine Mammal Protection Act.

The House Subcommittee also addressed issues related to the southern sea otter recovery program. At the 14 March hearing, a panel of representatives of the Fish and Wildlife Service, Friends of the Sea Otter, Save Our Shellfish, and the Western Oil and Gas Association discussed the matter. They presented testimony on a number of issues, including the importance of translocating sea otters and the need to address resource management conflicts related to that action. Some panel participants questioned the Fish and Wildlife Service's legal authority to translocate and contain sea otters under the taking prohibitions of the Marine Mammal Protection Act.

Senate reauthorization hearings were held on 18 April 1985 before the Subcommittee on Environmental Pollution of the Committee on Environment and Public Works. As in the House subcommittee hearing, a sea otter panel was convened and concerns similar to those presented during the House hearing were raised.

On 29 July 1985, the House of Representatives passed H.R. 1027, a bill reauthorizing the Endangered Species Act through 1988 and amending the Act to address both marine mammal issues discussed above.

Section 2 of the House-approved bill sets forth authority to allow the taking of endangered or threatened marine mammals incidental to otherwise lawful activities for which a no-jeopardy opinion has been issued. This authorization may be granted only if a finding is made that the taking would not contravene the purposes and policies of the Marine Mammal Protection Act. In addition, reasonable and prudent measures must be established to advance those objectives and minimize the impact of such takings on marine mammals used for subsistence purposes. Section 5 of the bill sets forth an amendment on the translocation of sea otters. The provisions of that section are discussed in Chapter VIII of this Report (see the discussion of the California Sea Otter Population).

On 4 December 1985, the Senate Committee on Environment and Public Works approved S. 725, a bill calling for a three-year reauthorization of the Act with no amendments. At the end of 1985, S. 725 had not been presented to the full Senate for a vote. Final action by the Senate and resolution of differences between H.R. 1027 and S. 725 are expected early in 1986.

APPENDIX A

COMMISSION RECOMMENDATIONS: CALENDAR YEAR 1985

17 January	Commerce, collector of record application, Richard Borguss.
22 January	Interior, modification of scientific research permit, Mote Marine Laboratory.
24 January	Interior, scientific research permit application, Hubbs-Sea World Research Institute.
5 February	Interior, scientific research permit application, Florida Cooperative Fish and Wildlife Unit.
5 February	Interior, scientific research permit application, University of Michigan.
11 February	Commerce, scientific research permit application, West Coast Whale Research Foundation.
15 February	Commerce, commenting to the National Marine Fisheries Service on the "Supplemental Environmental Impact Statement, Proposed Designation of Critical Habitat for the Hawaiian Monk Seal in the Northwestern Hawaiian Islands" and recommending that the Statement be revised to include a more complete and accurate analysis of recent information on the diving behavior and habitat use patterns of monk seals at sea and that the proposed action (designating critical habitat out to the 10-fathom contour around certain islands and atolls) be changed to Alternative 1 (designating critical habitat out to 20 fathoms around certain islands and atolls) as previously recommended by the Hawaiian Monk Seal Recovery Team.

- 25 February Interior, recommending to the Fish and Wildlife Service that the Service establish a policy of encouraging the use of captive-bred marine mammals for public display and, if appropriate, for scientific research purposes.
- 5 March Interior, modification of scientific research permit, Fish and Wildlife Service and Southwest Fisheries Center.
- 5 March Commerce, scientific research permit application, Craig O. Matkin.
- 13 March Interior, commenting to the Minerals Management Service on the "Draft Environmental Impact Statement North Aleutian Basin Sale 92" and recommending that, if it had not already been done, the Service consult with the National Marine Fisheries Service to ensure that information and impact assessments concerning the northern fur seal, the Steller sea lion, and the gray whale are complete and accurate and that all measures necessary to detect and mitigate potential unforeseen effects on these species have been identified and addressed, and further recommending that the Statement be modified to: (a) provide additional discussion concerning cumulative effects on northern fur seals, gray whales, and other important regional marine species; (b) identify post-sale research and monitoring responsibilities of the Service's Environmental Studies Program as a mitigating measure for ensuring that lease managers have the types and quality of environmental information necessary for predicting, avoiding, and detecting possible adverse impacts on marine mammals and the regional ecosystem; (c) expand the oil spill trajectory analysis to better reflect oil spill risks adjacent to the Alaska Peninsula; (d) indicate that impacts on gray whales, northern fur seals, and Steller sea lions could be moderate-to-major and that impacts on right whales could be major; and (e) indicate what was done in response to consultations with the National Marine Fisheries Service pursuant to Section 7 of the Endangered Species Act.

- 15 March Interior, commenting to the Fish and Wildlife Service on proposed amendments to the appendices for the Convention on International Trade in Endangered Species of Wild Fauna and Flora and recommending that the United States support proposals to transfer the narwhal from Appendix I to Appendix II, add hooded seals to Appendix II, and delete elephant seals from Appendix II.
- 18 March Commerce, commenting to the National Marine Fisheries Service on proposed "Regulations Governing the Taking and Importing of Marine Mammals" and recommending that, in its final regulations, the Service: (a) restrict all taking under general permits to non-lethal and non-injurious methods; (b) specify which methods of take are authorized and impose appropriate restrictions on the manner in which they are used; (c) include detailed reporting requirements as a condition of any general permit; and (d) establish quotas for the numbers of sea lions and other species that may be taken pursuant to a general permit.
- 18 March Commerce, scientific research permit application, Susan H. Shane.
- 18 March Interior, modification of scientific research permit, Donald B. Siniff.
- 22 March Commerce, commenting to the National Marine Fisheries Service on the draft issue paper prepared for the 1985 meeting of the North Pacific Fur Seal Commission, and recommending, among other things, that the Service examine the findings of the November 1984 Workshop on the Fate and Impact of Marine Debris and that the proposed U.S. position on the entanglement issue be expanded to indicate specific research and management proposals that the United States will put forward for consideration and action by parties to the Convention.

25 March Commerce, commenting to the National Ocean Service on the draft report on the Workshop on National Marine Pollution Research and Monitoring Issues and recommending that, in light of recent information on the subject, the Service reassess the low ranking assigned to the issue of entanglement of marine organisms in debris and that the importance of this issue be clearly reflected in the next edition of the Service's five-year Federal Plan for Ocean Pollution Research, Development, and Monitoring.

1 April Commerce, collector of record application, Richard Borguss.

1 April Commerce, public display permit application, San Antonio Zoological Gardens.

2 April Commerce, scientific research permit application, Center for Coastal Marine Studies.

3 April Commerce, forwarding a recommended program outline for Fiscal Year 1985 net entanglement research and management activities.

3 April Commerce, scientific research permit application, Oregon Department of Fish and Wildlife.

3 April Commerce, scientific research permit application, Alaska Maritime National Wildlife Refuge.

4 April Commerce, modification of scientific research permit, Northwest and Alaska Fisheries Center.

4 April Commerce, public display permit application, Triple Five Corporation.

5 April Commerce, further commenting to the National Marine Fisheries Service on position papers for the next meeting of the North Pacific Fur Seal Commission and recommending, among other things, that the U.S. delegation propose that parties exchange information on domestic laws pertaining to the discard of marine debris and that a workshop be held prior to the next meeting to review past and

needed actions to identify and mitigate the cause of the fur seal population decline.

- 12 April Commerce, commenting to the National Marine Fisheries Service on the "Combined Draft Fishery Management Plan, Environmental Assessment and Regulatory Impact Review for the Bottomfish and Seamount Groundfish Fisheries of the Western Pacific Region" and recommending that, if the Service had not already done so, it enter into immediate consultation with the Hawaiian Monk Seal Recovery Team to determine whether the proposed action could adversely affect Hawaiian monk seals, and further recommending that, if such effects are possible and if the Service and the Western Pacific Fishery Management Council had not already done so, they initiate Section 7 consultations under the Endangered Species Act.
- 15 April Interior, scientific research permit application, Detroit Zoological Park.
- 18 April Commerce, transmitting to the National Marine Fisheries Service a recommended plan of expenditures for Fiscal Year 1985 to address problems associated with entanglement of marine mammals and other marine species in lost and discarded fishing gear and other marine debris.
- 19 April Commerce, public display permit application, Dolphin Research Center.
- 19 April Commerce, forwarding copies of completed scopes of work for recommended net entanglement program.
- 19 April Commerce, public display permit application, Glen Oak Zoo.
- 22 April Commerce, public display permit application, Baltimore Aquarium.
- 24 April Commerce, commenting to the National Marine Fisheries Service on its decision not to list the North Pacific fur seal as "threatened" under the Endangered Species Act and requesting that it provide the Commission certain previously requested information on measures the Service

considers necessary to halt the ongoing decline of the North Pacific fur seal population and the studies the Service plans to undertake in the next three years to assess and resolve the problem.

30 April Commerce, public display permit application, Singapore Zoological Gardens.

30 April Commerce, scientific research permit application, Lewis Rigley.

30 April Commerce, modification of scientific research permit, Richard H. Lambertson.

30 April Commerce, modification of scientific research permit, Randall S. Wells.

30 April Commerce, scientific research permit application, Jo Guerrero.

7 May Commerce, further commenting to the National Marine Fisheries Service on the "Combined Draft Fishery Management Plan, Environmental Impact Assessment and Regulatory Impact Review for the Bottomfish and Seamount Groundfish Fisheries of the Western Pacific Region" and recommending, among other things, that the Hawaiian Monk Seal Recovery Team be consulted as part of formal Section 7 consultations under the Endangered Species Act and that the results of these consultations and the Biological Opinion be appended to the Fishery Management Plan/Environmental Assessment. Further recommending that the FMP/EA be expanded to: (a) provide additional information concerning the at-sea movements and habitat-use patterns of Hawaiian monk seals and compare that information with information concerning the distribution of bottomfish fishing off the Northwest Hawaiian Islands; (b) provide a more complete analysis of possible impacts from monk seal-bottomfish fishery interactions; (c) identify research and monitoring measures that would be undertaken to ensure that possible adverse effects on monk seals and other endangered species are avoided or detected and mitigated; and (d) identify steps that would be taken to ensure that all bottomfish fishermen in the Northwestern

Hawaiian Islands are aware of potential interactions and relevant regulations necessary to protect Hawaiian monk seals and other endangered and non-endangered species.

- 8 May Interior, public display permit application, Seattle Aquarium.
- 8 May Commerce, commenting to the National Marine Fisheries Service on its proposal to reduce funding for the entanglement program, noting that research envisioned under the entanglement program is essential for determining mitigating measures necessary to halt the continuing population declines of northern fur seals and Steller sea lions, and recommending that: the Service assign highest priority to these research activities; if possible, the Service restore the entanglement program to its full funding level; and if full funding cannot be restored, the Service reprogram funds from its St. George Island activities and/or the Dall's porpoise research program.
- 9 May Commerce, public display permit application, Montreal Zoological Park.
- 10 May Commerce, scientific research permit application, Howard E. Winn.
- 10 May Commerce, public display permit application, Sea World, Inc.
- 14 May Interior, commenting to the Minerals Management Service on the "Norton Basin Sale 100 Draft Environmental Impact Statement," noting that the Statement provides a reasonably thorough review and analysis of available information regarding the effects of oil spills and acoustic disturbances on marine mammals, and recommending that: (a) certain identified potential mitigating measures aimed at protecting biological resources, including bowhead whales, be incorporated as part of the proposed action and other leasing alternatives; and (b) a new mitigating measure be added that identifies a program of post-sale studies and monitoring activities to ensure that lease managers have the types and quality

of environmental information necessary for detecting and avoiding or mitigating possible adverse impacts on endangered and non-endangered marine mammals and the ecosystems of which they are a part.

- 15 May Commerce, scientific research permit application, John D. Hall.
- 24 May Commerce, public display permit application, Mystic Marinelife Aquarium.
- 24 May Commerce, public display permit application response to Service's 26 April letter, recommending that the Service seek the advice of the Animal and Plant Health Inspection Service on the type of alternative support to be required if the attending veterinarian is geographically far distant.
- 24 May Commerce, scientific research permit application, Dolphin Research Center.
- 28 May Commerce, scientific research permit application, Michael Hunt.
- 31 May Interior, modification of scientific research permit application, Carle Foundation Hospital.
- 6 June Commerce, modification of scientific research permit, Southwest Fisheries Center.
- 6 June Interior, public display permit application, Oregon University Visual Arts Resources Center.
- 6 June Commerce, scientific research permit application, Brent S. Stewart.
- 10 June Commerce, public display permit application, Baltimore Aquarium.
- 10 June Commerce, scientific research permit application, BBN Laboratories Inc.
- 17 June Commerce, scientific research permit application, Los Angeles County Museum of Natural History.
- 1 July Commerce, commenting to the National Marine Fisheries Service on its proposed

"Regulations Governing the Taking and Importing of Marine Mammals" and recommending, among other things, that the regulations and accompanying environmental impact statement be revised to better indicate the continuing significance of the objective for reducing incidental kill and serious injury of marine mammals "to insignificant levels approaching a zero mortality and serious injury rate" and explaining how the proposed changes are expected to further that goal, and further recommending that the proposed regulations and Statement be expanded to identify gaps and uncertainties in available information and to note that a more accurate assessment of the present abundance and population trends of the affected stocks is not yet available.

- 2 July Commerce, scientific research permit applications, IGL Limited.
- 3 July Commerce, public display permit application, Ocean Action, Inc.
- 17 July Commerce, commenting to the National Marine Fisheries Service on ways to improve the draft Antarctic Marine Living Resources Program Development Plan being prepared in partial response to the Antarctic Marine Living Resources Act of 1984.
- 19 July Commerce, modification of scientific research permit, Dolphin Plus Human/Diving Operation.
- 22 July National Science Foundation, providing Commission comments on the draft Antarctic Marine Living Resources Program Development Plan and calling attention to the importance of strengthening and continuing the Foundation's basic marine research program in the Southern Ocean.
- 22 July Commerce, commenting to the National Oceanic and Atmospheric Administration on the importance of developing and implementing a directed research program on Antarctic marine living resources.

24 July Commerce, commenting to the National Marine Fisheries Service on emergency interim regulations governing the subsistence taking of North Pacific fur seals, noting that present circumstances justify the promulgation of emergency regulations, and providing further comments for the Service's consideration in developing proposed permanent regulations.

25 July Commerce, scientific research permit application, Daniel H. Mann.

29 July Interior, modification of scientific research permit, Hubbs-Sea World Research Institute.

29 July Commerce, scientific research permit application, California Department of Fish and Game.

30 July Interior, modification of scientific research permit, Denver Wildlife Research Center.

31 July Commerce, scientific research permit application, Thomas F. Albert.

7 August Commerce, commenting to the National Marine Fisheries Service on rulemaking approaches to be used in promulgating permanent regulations governing the subsistence take of North Pacific fur seals and designating the North Pacific fur seal as a depleted species under the Marine Mammal Protection Act, and recommending, among other things, that:
 (a) the Service use the rulemaking procedures of the Marine Mammal Protection Act for promulgating permanent regulations;
 (b) the Service explore the prospects for developing a cooperative agreement with residents of the Pribilof Island to govern the taking of fur seals for subsistence purposes; and (c) action be taken immediately to designate the Pribilof Island population of North Pacific fur seals as depleted through informal rulemaking under the Marine Mammal Protection Act.

9 August Commerce, modification of scientific research permit, West Coast Whale Research Foundation.

9 August Commerce, scientific research permit application, Northeast Fisheries Center.

12 August Commerce, public display permit application, Hagenbeck Tierpark.

12 August Commerce, public display permit application, Stephen W. Mitchell.

13 August Commerce and Interior, commenting to the National Marine Fisheries Service and the Fish and Wildlife Service on a petition to amend regulations under the Marine Mammal Protection Act to require that, among other things, the two Services review the status of marine mammal species at least once every five years to determine if an existing moratorium on a species should be waived, and recommending that the petition be denied on the grounds that the actions requested are unnecessary and, in some cases, possibly unlawful.

27 August Commerce, collector of record application, Ron Hardy.

29 August Interior, modification of scientific research permit, Donald B. Siniff.

29 August Interior, commenting to the Fish and Wildlife Service on the report of its recent meeting with Federal and State agency representatives to review information on habitat protection needs for the Crystal River subpopulation of the West Indian manatee, commending the Service for its progress in this area, and recommending that the Service take such steps as are necessary to carry out the actions identified in the meeting report, including the need to: (a) expand the boundary of the Chassahowitzka National Wildlife Refuge; and (b) acquire a site on King's Bay for use as an interpretative center/headquarters for public information, administration, and enforcement of the existing Crystal River National Wildlife Refuge.

29 August National Science Foundation, commenting on the "Draft Environmental Impact Statement for the Ocean Drilling Program" and recommending that, if the subject was not

previously considered during Section 7 consultation under the Endangered Species Act, the Foundation reinstitute consultation with the Fish and Wildlife Service and the National Marine Fisheries Service to: (a) revise the description for selecting specific drilling sites so as to ensure that drilling activities avoid times and locations critical to endangered and non-endangered marine mammals and (b) to determine the applicability of Section 101(a)(5) of the Marine Mammal Protection Act governing the incidental, unintentional take of marine mammals to the proposed Ocean Drilling Program.

30 August

Commerce, commenting to the National Marine Fisheries Service on the environmental assessment and proposed regulations concerning the take of non-depleted marine mammals by the Department of the Air Force during operations of the space shuttle from Vandenberg AFB, California; seeking confirmation of its understanding that shuttle activities would be prohibited over the Channel Islands during certain periods of the year unless the Service had determined that such activities would have a negligible impact on marine mammal populations, and recommending that, if this understanding was incorrect, further consideration of the proposed action be suspended pending further consultations. Further recommending, among other things, that the Service not authorize the proposed taking until it has received and, in consultation with the Commission, reviewed and determined that the proposed monitoring plan is adequate to detect and measure the possible effects on pinnipeds on San Miguel Island.

30 August

Interior, commenting to the Fish and Wildlife Service on the San Nicolas Island baseline studies and the time table for the sea otter translocation project and relaying the Commission's expectation that the Service will be able to complete its decision-making in time for a trans-location in 1986 if Congress acts to reauthorize the Endangered Species Act.

3 September Interior, public display permit application, Otaru Public Aquarium.

3 September Commerce, public display permit application, Connyland.

9 September Interior, public display permit application, Miyajima Public Aquarium.

20 September Commerce, scientific research permit application, Warren M. Zapol, Robert C. Schneider, and Donald B. Siniff.

20 September Commerce, modification of scientific research permit, Donald B. Siniff.

26 September Commerce, scientific research permit application, Southeast Fisheries Center.

27 September Commerce, public display permit application, Pueblo Zoological Society.

27 September Interior, modification of scientific research permit, California Department of Fish and Game.

1 October Commerce, modification of scientific research permit, Southwest Fisheries Center.

2 October Florida Department of Natural Resources, commenting on the efforts of the Department and other State agencies to acquire and protect essential manatee habitat areas; commending the Department on its recent accomplishments to list certain manatee habitat areas in the Crystal River on the State's recommended land acquisition list; and urging that the State complete certain land acquisition projects which complement land acquisition efforts contemplated by the Fish and Wildlife Service in the Crystal and Homosassa River areas of northwest Florida.

9 October Interior, scientific research permit application, David S. Bruce.

16 October Commerce, scientific research permit application, University of California, Institute of Marine Sciences.

22 October Interior, modification of scientific research permit, Hubbs Marine Research Institute.

30 October Commerce, scientific research permit application, Steven D. Feldkamp.

31 October Commerce, commenting to the National Marine Fisheries Service on the revised "Combined Draft Fisheries Management Plan for the Bottomfish and Seamount Groundfish Fisheries of the Western Pacific Region" and recommending that the draft plan be strengthened to ensure protection of the Hawaiian monk seal and other endangered and threatened species, including identification of research and monitoring programs needed to resolve uncertainties concerning possible direct and indirect effects of bottomfish fishing operations and related activities on such species.

7 November Commerce, scientific research permit application, Jim Harvey.

7 November Commerce, recommending revisions to the draft procedural guidelines for porpoise safety procedures.

7 November Commerce, scientific research permit application, Hermann Gucinski.

15 November Commerce, scientific research permit application, Duke University Marine Laboratories.

18 November Commerce, public display permit application, Gulf World, Inc.

18 November Commerce, scientific research permit application, James T. Staley.

25 November Interior, commenting to the Fish and Wildlife Service on steps being taken to promote recovery of the southern sea otter population and recommending that steps be taken immediately to ensure that funding will be available for a translocation experiment to be carried out in the fall of 1986 and that the Service make continuation of the program for observing set net fisheries within the sea otter range a high priority.

29 November Interior, modification of scientific research permit, Denver Wildlife Research Center.

29 November Commerce, commenting to the National Marine Fisheries Service regarding the North Pacific fur seal and recommending that: (1) the Service promptly hold a research program review and continue to hold such reviews annually at least until the ongoing population decline is reversed; (2) the Service cooperatively constitute with the Commission a group of experts to write and help implement a conservation plan; (3) the Service seek the cooperation of other countries in efforts to implement the plan; (4) the Service designate the Pribilof Islands population of North Pacific fur seals as depleted under the Marine Mammal Protection Act; and (5) the Service promulgate permanent regulations governing the taking of this species for subsistence purposes.

6 December Commerce, commenting to the National Marine Fisheries Service on the need to carry out research on the incidental take of harbor porpoise in gill and trammel nets off the coast of central California, forwarding a proposed scope of work for such research, and offering to transfer funds to the Service to initiate the work, with the understanding that the Service would provide necessary funding in subsequent years.

6 December Commerce, commenting again on the need for a conservation plan for the North Pacific fur seal and enclosing the Commission's draft of such a plan.

10 December State, endorsing and suggesting ways to improve the Draft Program Development Plan for Antarctic Marine Living Resources, drafted by the National Marine Fisheries Service in response to the Antarctic Marine Living Resources Conservation Act of 1984.

11 December Commerce, scientific research permit application, Northwest and Alaska Fisheries Center.

12 December

Commerce, requesting that the National Marine Fisheries Service provide certain information on research and monitoring programs for bottlenose dolphins.

23 December

Interior, commenting to the Fish and Wildlife Service on the taking of sea otters by Alaska Natives and recommending that the Service: (a) make available to Alaska Natives a thorough discussion of legal provisions applicable to the taking of sea otters; (b) assess past, ongoing, and anticipated takings of sea otters by Alaska Natives to determine if the takings are lawful; (c) assess the status of sea otter populations affected by lawful takings; and (d) as possible, determine the impact that taking by Alaska Natives is having on those populations.

31 December

Commerce, commenting to the National Marine Fisheries Service on the report of Commission- and Service-sponsored workshops on the northwest Atlantic right whale population, noting that completion, adoption, and effective implementation of a recovery plan for the species is required under the Endangered Species Act, outlining the tasks that it considers of greatest immediate importance, and recommending that the Service: (a) adopt the recommended research and management plan included in the workshop report as a preliminary recovery plan; (b) review the recommended research and management plan to determine what tasks should be carried out or supported by the Service and what tasks should be carried out or supported by other agencies; (c) organize and convene a meeting of relevant Canadian and U.S. agency representatives, no later than March 1986, to discuss and, as possible, agree upon steps to be taken, independently or collectively, to adopt and implement the recommended research and management plan; (d) constitute a recovery team to complete and oversee implementation of the recovery plan; and (e) adopt, periodically review, and update the recovery plan. Further recommending that, if the Service had not already done so, it take such steps as are necessary to develop, adopt, and implement recovery plans for populations

of humpback whales, bowhead whales, and any other endangered cetaceans that occur primarily or substantially in waters under U.S. jurisdiction.

APPENDIX B

REPORTS OF COMMISSION-SPONSORED ACTIVITIES AVAILABLE FROM THE NATIONAL TECHNICAL INFORMATION SERVICE (NTIS)¹

- Ainley, D.G., H.R. Huber, R.P. Henderson, and T.J. Lewis. 1977. Studies of marine mammals at the Farallon Islands, California, 1970-1975. Final report for MMC contract MM4AC002. NTIS PB-274 046. 42 pp. (A03)
- Ainley, D.G., H.R. Huber, R.P. Henderson, T.J. Lewis, and S.H. Morrell. 1977. Studies of marine mammals at the Farallon Islands, California, 1975-1976. Final report for MMC contract MM5AC020. NTIS PB-266 249. 32 pp. (A03)
- Ainley, D.G., H.R. Huber, S.H. Morrell, and R.R. LeValley. 1978. Studies of marine mammals at the Farallon Islands, California, 1976-1977. Final report for MMC contract MM6AC027. NTIS PB-286 603. 44 pp. (A03)
- Allen, S.G., D.G. Ainley, and G.W. Page. 1980. Haul out patterns of harbor seals in Bolinas Lagoon, California. Final report for MMC contract MM8AC012. NTIS PB80-176 910. 31 pp. (A03)
- Balcomb, K.C., J.R. Boran, R.W. Osborne, and N.J. Haenel. 1980. Observations of killer whales (Orcinus orca) in greater Puget Sound, State of Washington. Final report for MMC contract MM1300731-7. NTIS PB80-224 728. 42 pp. (A03)
- Bean, M.J. 1985. United States and international authorities applicable to entanglement of marine mammals and other organisms in lost or discarded fishing gear and other debris. Final report for MMC contract MM2629994-7. NTIS PB85-160471. 65 pp. (A04)

¹ Price codes for printed reports (including postage) are shown in parentheses at the end of each citation. Microfiche copies of the reports are also available (price code A01). The key to the codes and ordering information can be found on the last page.

- Beddington, J.R., and H.A. Williams. 1980. The status and management of the harp seal in the north-west Atlantic. A review and evaluation. Final report for MMC contract MM1301062-1. NTIS PB80-206 105. 127 pp. (A07)
- Bengtson, J.L. 1978. Review of information regarding the conservation of living resources of the Antarctic marine ecosystem. Final report for MMC contract MM8AD055. NTIS PB-289 496. 148 pp. (A08)
- Bishop, J.B. 1985. Summary report of gill and trammel net (set-net) observations in the vicinity of Morro Bay, California, 1 November 1983 - 31 August 1984. Final report for MMC contract MM2629900-2. NTIS PB85-150076. 18 pp. (A02)
- Bockstoe, J. 1978. A preliminary estimate of the reduction of the western Arctic bowhead whale (Balaena mysticetus) population by the pelagic whaling industry: 1848-1915. Final report for MMC contract MM7AD111. NTIS PB-286 797. 32 pp. (A08)
- Brownell, R.L., Jr., C. Schoenwald, and R.R. Reeves. 1978. Preliminary report on world catches of marine mammals 1966-1975. Final report for MMC contract MM6AC002. NTIS PB-290 713. 353 pp. (A16)
- Chapman, D.G., L.L. Eberhardt, and J.R. Gilbert. 1977. A review of marine mammal census methods. Final report for MMC contract MM4AC014. NTIS PB-265 547. 55 pp. (A04)
- Clark, W.G. 1984. Analysis of variance of photographic and visual estimates of dolphin school size. Southwest Fisheries Center Admin. Report LJ-84-11C. Final report for MMC contract MM2324792-1. 36 pp.²
- Committee to Evaluate Antarctic Marine Ecosystem Research, National Research Council. 1981. An evaluation of Antarctic marine ecosystem research. National Academy Press, Washington, D.C. 99 pp.³
- Contos, S.M. 1982. Workshop on marine mammal-fisheries interactions. Final report for MMC contract MM2079341-0. NTIS PB82-189 507. 64 pp. (A04)

² Available from Director, National Marine Fisheries Service, Southwest Fisheries Center, La Jolla, California 92038.

³ Available from Polar Research Board, National Academy of Sciences, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

- Cornell, L.H., E.D. Asper, K.N. Osborn, and M.J. White, Jr. 1979. Investigations on cryogenic marking procedures for marine mammals. Final report for MMC contract MM6AC003. NTIS PB 291 570. 24 pp. (A03)
- Dayton, P.K., B.D. Keller, and D.A. Ven Tresca. 1980. Studies of a nearshore community inhabited by sea otters. Final report for MMC contracts MM6AC026 and MM1300702-9. NTIS PB81-109 860. 91 pp. (A06)
- DeBeer, J. 1980. Cooperative dedicated vessel research program on the tuna-porpoise problem; overview and final report. Final report for MMC contract MM8AC006. NTIS PB80-150 097. 43 pp. (A03)
- Dohl, T.P. 1981. Remote laser branding of marine mammals. Final report for MMC contract MM4AC011. NTIS PB81-213 449. 34 pp. (A03)
- Erickson, A.W. 1978. Population studies of killer whales (Orcinus orca) in the Pacific Northwest: A radio-marking and tracking study of killer whales. Final report for MMC contract MM5AC012. NTIS PB-285 615. 34 pp. (A03)
- Fay, F.H., H.M. Feder, and S.W. Stoker. 1977. An estimation of the impact of the Pacific walrus population on its food resources in the Bering Sea. Final report for MMC contracts MM4AC006 and MM5AC024. NTIS PB-273 505. 38 pp. (A03)
- Foster, M.A. 1981. Identification of ongoing and planned fisheries in the Northwestern Hawaiian Islands. Final report for MMC contract MM1801069-7. NTIS PB81-207 516. 90 pp. (A05)
- Foster, M.S., C.R. Agegian, R.K. Cowen, R.F. Van Wagenen, D.K. Rose, and A.C. Hurley. 1979. Toward an understanding of the effects of sea otter foraging on kelp forest communities in central California. Final report for MMC contract MM7AC023. NTIS PB-293 891. 60 pp. (A04)
- Fowler, C.W., W.T. Bunderson, M.B. Cherry, R.J. Ryel, and B.B. Steele. 1980. Comparative population dynamics of large mammals: A search for management criteria. Final report for MMC contract MM7AC013. NTIS PB80-178 627. 330 pp. (A15)
- Fowler, C.W., R.J. Ryel, and L.J. Nelson. 1982. Sperm whale population analysis. Final report for MMC contract MM8AC009. NTIS PB82-174 335. 35 pp. (A03)
- Gaines, S.E., and D. Schmidt. 1978. Laws and treaties of the United States relevant to marine mammal protection policy. Final report for MMC contract MM5AC029. NTIS PB-281 024. 668 pp. (A99)

- Gard, R. 1978. Aerial census, behavior, and population dynamics study of gray whales in Mexico during the 1974-75 calving and mating season. Final report for MMC contract MM5AC006. NTIS PB-274 295. 18 pp. (A02)
- Gard, R. 1978. Aerial census and population dynamics study of gray whales in Baja California during the 1976 calving and mating season. Final report for MMC contract MM6AC014. NTIS PB-275 297. 20 pp. (A03)
- Geraci, J.R., and D.J. St. Aubin. 1979. Biology of marine mammals: Insights through strandings. Final report for MMC contract MM7AC020. NTIS PB-293 890. 343 pp. (A16)
- Geraci, J.R., S.A. Testaverde, D.J. St. Aubin, and T.H. Loop. 1978. A mass stranding of the Atlantic whitesided dolphin, Lagenorhynchus acutus: A study into pathobiology and life history. Final report for MMC contract MM5AC008. NTIS PB-289 361. 141 pp. (A08)
- Gerrodette, T. 1983. Review of the California sea otter salvage program. Final report for MMC contract MM2629677-5. NTIS PB83-262 949. 23 pp. (A03)
- Gilbert, J.R., V.R. Schurman, and D.T. Richardson. 1979. Gray seals in New England; present status and management alternatives. Final report for MMC contract MM7AC002. NTIS PB-295 599. 40 pp. (A03)
- Glockner-Ferrari, D.A., and M.J. Ferrari. 1985. Individual identification, behavior, reproduction, and distribution of humpback whales, Megaptera novaeangliae, in Hawaii. Final report for MMC contract MM262975-5. NTIS PB85-200772. 41 pp. (A03)
- Gold, J. 1981. Marine mammals: A selected bibliography. Final report for MMC contract MM1801254-3. NTIS PB 82-104 282. 91 pp. (A05)
- Gonsalves, J.T. 1977. Improved method and device to prevent porpoise mortality: Application of polyvinyl panels to purse seine nets. Final report for MMC contract MM6AC007. NTIS PB-274 088. 28 pp. (A03)
- Goodman, D. 1978. Management implications of the mathematical demography of long lived animals. Final report for MMC contract MM8AD008. NTIS PB-289 678. 80 pp. (A05)
- Green, K.A. 1977. Antarctic marine ecosystem modeling revised Ross Sea model, general Southern Ocean budget, and seal model. Final report for MMC contract MM6AC032. NTIS PB-270 375. 111 pp. (A06)

- Green-Hammond, K.A. 1980. Fisheries management under the Fishery Conservation and Management Act, the Marine Mammal Protection Act, and the Endangered Species Act. Final report for MMC contract MM1300885-3. NTIS PB80-180 599. 186 pp. (A09)
- Green-Hammond, K.A. 1981. Requirements for effective implementation of the Convention on the Conservation of Antarctic Marine Living Resources. Final report for MMC contract MM2079173-9. NTIS PB82-123 571. 36 pp. (A03)
- Green-Hammond, K.A. 1982. Environmental aspects of potential petroleum exploration and exploitation in Antarctica: Forecasting and evaluating risks. Final report for MMC contract MM2079173-9. NTIS PB82-169 772. 28 pp. (A03)
- Green-Hammond, K.A., D.G. Ainley, D.B. Siniff, and N.S. Urquhart. 1983. Selection criteria and monitoring requirements for indirect indicators of changes in the availability of Antarctic krill applied to some pinniped and seabird information. Final report for MMC contract MM2324753-6. NTIS PB83-263 293. 37 pp. (A03)
- Herman, L.M., P.H. Forestell, and R.C. Antinaja. 1980. The 1976/77 migration of humpback whales into Hawaiian waters: Composite description. Final report for MMC contracts MM7AC014 and MM1300907-2. NTIS PB80-162 332. 55 pp. (A04)
- Hofman, R.J. (Editor). 1979. A workshop to identify new research that might contribute to the solution of a tuna-porpoise problem. Proceedings of a Marine Mammal Commission-sponsored workshop held on 8-9 December 1975 at the University of California, Santa Cruz. NTIS PB-290 158. 17 pp. (A02)
- Hofman, R.J. 1982. Identification and assessment of possible alternative methods for catching yellowfin tuna. NTIS PB83-138 993. 243 pp. (A11)
- Hofman, R.J. (Editor). 1985. Workshop to assess methods for regulating the distribution and movements of sea otters. Report of a Marine Mammal Commission-sponsored workshop held 25-26 October 1984 in San Francisco, California. NTIS PB85-229250. 39 pp. (A03)
- Huber, H.R., D.G. Ainley, S.H. Morrell, R.R. LeValley, and C.S. Strong. 1979. Studies of marine mammals at the Farallon Islands, California, 1977-1978. Final report for MMC contract MM7AC025. NTIS PB-111 602. 50 pp. (A04)
- Huber, H.R., D.G. Ainley, S.H. Morrell, R.J. Boekelheide, and R.P. Henderson. 1980. Studies of marine mammals at the Farallon Islands, California, 1978-1979. Final report for MMC contract MM1300888-2. NTIS PB80-178 197. 46 pp. (A04)

- Huber, H.R., D.G. Ainley, R.J. Boekelheide, R.P. Henderson, and B. Bainbridge. 1981. Studies of marine mammals at the Farallon Islands, California, 1979-1980. Final report for MMC contract MM1533599-3. NTIS PB81-167 082. 51 pp. (A04)
- Hui, C.A. 1978. Reliability of using dentin layers for age determination in Tursiops truncatus. Final report for MMC contract MM7AC021. NTIS PB-288 444. 25 pp. (A03)
- Irvine, A.B., M.D. Scott, R.S. Wells, J.H. Kaufmann, and W.E. Evans. 1979. A study of the activities and movements of the Atlantic bottlenosed dolphin, Tursiops truncatus, including an evaluation of tagging techniques. Final report for MMC contracts MM4AC004 and MM5AC018. NTIS PB-298 042. 54 pp. (A04)
- Johnson, B.W., and P.A. Johnson. 1978. The Hawaiian monk seal on Laysan Island: 1977. Final report for MMC contract MM7AC009. NTIS PB-285 428. 38 pp. (A03)
- Johnson, B.W., and P.A. Johnson. 1981. Estimating the Hawaiian monk seal population on Laysan Island. Final report for MMC contract MM1533701-4. NTIS PB82-106 113. 29 pp. (A05)
- Johnson, B.W., and P.A. Johnson. 1981. The Hawaiian monk seal on Laysan Island: 1978. Final report for MMC contract MM8AC008. NTIS PB82-109 661. 17 pp. (A02)
- Johnson, M.L., and S.J. Jeffries. 1977. Population evaluation of the harbor seal (Phoca vitulina richardi) in the waters of the State of Washington. Final report for MMC contract MM5AC019. NTIS PB-270 376. 27 pp. (A03)
- Johnson, M.L., and S.J. Jeffries. 1983. Population biology of the harbor seal (Phoca vitulina richardi) in the waters of the State of Washington: 1976-1977. Final report for MMC contract MM6AC025. NTIS PB83-159 715. 53 pp. (A04)
- Kasuya, T., and Y. Izumizawa. 1981. The fishery-dolphin conflict in the Iki Island area of Japan. Final report for MMC contract MM1533791-7. NTIS PB81-171 357. 31 pp. (A03)
- Katona, S.K. 1983. The Gulf of Maine Whale Sighting Network: 1976. Final report for MMC contract MM6AC018. NTIS PB83-151 290. 32 pp. (A03)
- Katona, S.K., and S. Kraus. 1979. Photographic identification of individual humpback whales (Megaptera novaeangliae): Evaluation and analysis of the technique. Final report for MMC contract MM7AC015. NTIS PB-298 740. 29 pp. (A03)
- Kooyman, G.L. 1982. Development and testing of a time-depth recorder for marine mammals. Final report for MMC contract MM6AC019. NTIS PB82-257 932. 10 pp. (A02)

- Leatherwood, J.S., R.A. Johnson, D.K. Ljungblad, and W.E. Evans. 1977. Broadband measurements of underwater acoustic target strengths of panels of tuna nets. Final report for MMC contract MM6AC020. Naval Ocean Systems Center Tech. Report 126. 19 pp.⁴
- Loughlin, T. 1978. A telemetric and tagging study of sea otter activities near Monterey, California. Final report for MMC contract MM6AC024. NTIS PB-289 682. 64 pp. (A04)
- Marine Mammal Commission. 1974. Annual Report of the Marine Mammal Commission, Calendar Year 1973. Report to Congress. NTIS PB-269 708. 14 pp. (A03)
- Marine Mammal Commission. 1975. Annual Report of the Marine Mammal Commission, Calendar Year 1974. Report to Congress. NTIS PB-269 710. 27 pp. (A04)
- Marine Mammal Commission. 1976. Annual Report of the Marine Mammal Commission, Calendar Year 1975. Report to Congress. NTIS PB 269-711. 50 pp. (A04)
- Marine Mammal Commission. 1977. Annual Report of the Marine Mammal Commission, Calendar Year 1976. Report to Congress. NTIS PB-269 713. 71 pp. (A06)
- Marine Mammal Commission. 1978. Annual Report of the Marine Mammal Commission, Calendar Year 1977. Report to Congress. NTIS PB-281 564. 101 pp. (A06)
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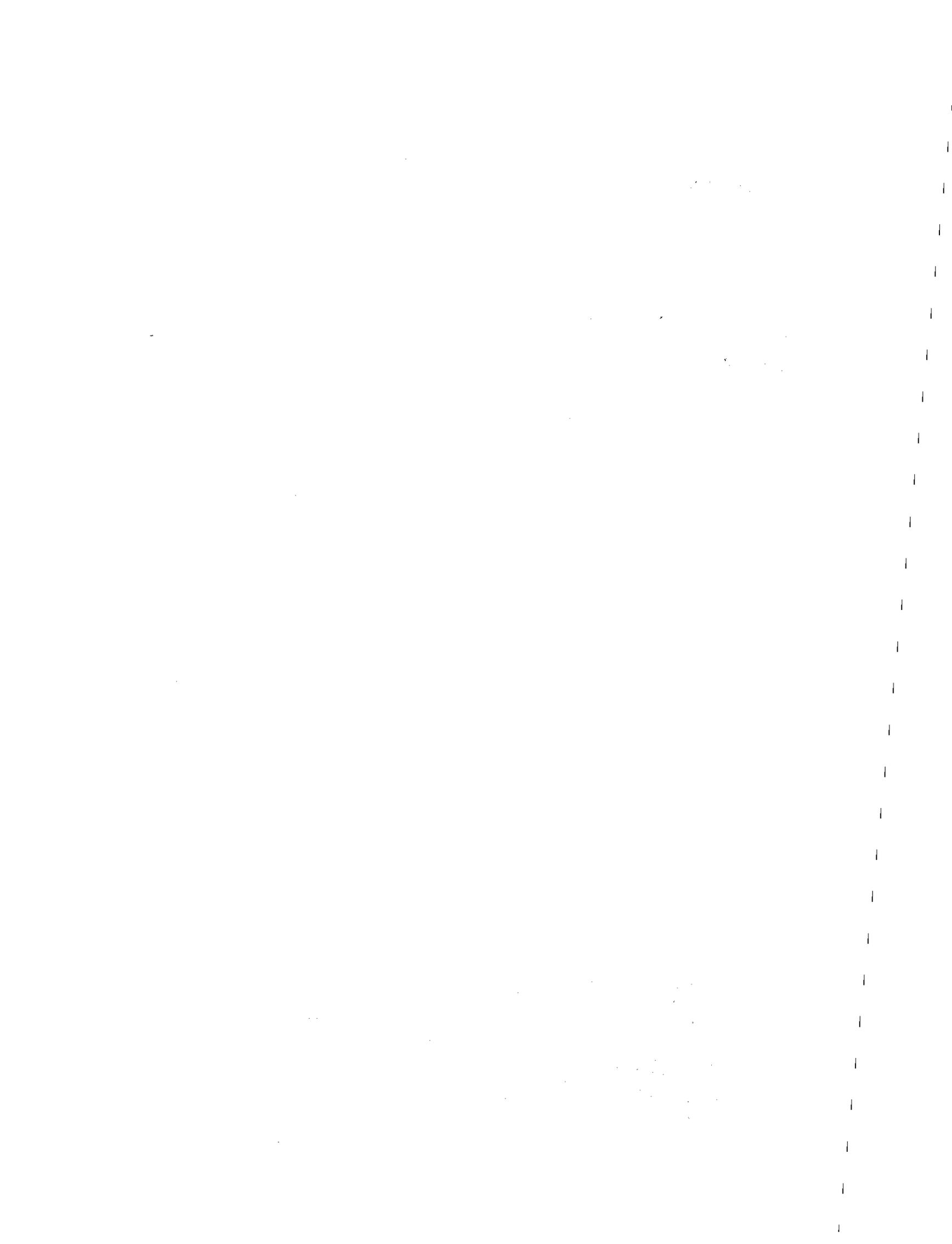
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APPENDIX C

SELECTED LITERATURE PUBLISHED ELSEWHERE RESULTING FROM COMMISSION-SPONSORED ACTIVITIES

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