ANNUAL REPORT OF THE

MARINE MAMMAL COMMISSION, CALENDAR YEAR 1981

A REPORT TO CONGRESS

Marine Mammal Commission

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CONTENTS

I. Introduction.....1
Background.....1
Personnel.....1
Funding.....2
Summary.....2

II. Research and Studies Program.....3
Survey of Federally-Funded Marine Mammal Research.....3
Research Program Reviews, Workshops, and Planning Meetings.....4
Commission-Sponsored Research and Study Projects.....5

III. Reauthorization and Amendment of the Marine Mammal Protection Act.....13

IV. International Aspects of Marine Mammal Protection and Conservation.....17
Conservation and Protection of Marine Mammals in the Southern Ocean.....17
International Whaling Commission.....25
Interim Convention on Conservation of North Pacific Fur Seals.....30
Convention on International Trade in Endangered Species of Wild Fauna and Flora.....33

V. Marine Mammal-Fisheries Interactions.....35
Marine Mammal-Caused Gear Damage, Fish Damage, and Fish Loss.....35
Competition for Fish and Shellfish Resources.....38
Workshops on Marine Mammal-Fisheries Conflicts..39

VI. Incidental Take of Marine Mammals in the Course of Commercial Fishing Operations.....41
The Tuna-Porpoise Issue.....41
The Dall's Porpoise Issue.....45

VII. Endangered and Threatened Species.....50
West Indian Manatee (*Trichechus manatus*).....50
Hawaiian Monk Seal (*Monachus schauinslandi*).....56
The California Sea Otter Population.....61
Bowhead Whale (*Balaena mysticetus*).....65
Humpback Whale (*Megaptera novaeangliae*).....67
Protected Areas.....71

VIII. Outer Continental Shelf Oil and Gas Development.....73
Proposed OCS Lease Sales.....73
The Bureau of Land Management's Environmental Studies Program.....78

IX. Permit Process.....82
Application Review.....82

Appendix A: Commission Recommendations: Calendar Year 1981.....84

Appendix B: Reports on Commission-Sponsored Research Activities Available from the National Technical Information Service (NTIS).....92

CHAPTER I

INTRODUCTION

Background

This is the ninth Annual Report of the Marine Mammal Commission, covering the period from 1 January through 31 December 1981. 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 of all Federal agencies with respect to marine mammal protection and conservation.

Personnel

At the beginning of 1981, the three Commissioners, appointed by the President, were: Dr. Douglas G. Chapman (Chairman), Seattle, Washington; Dr. Donald B. Siniff, Minneapolis, Minnesota; and Dr. Murray L. Johnson, Tacoma, Washington. On 19 January 1981, Dr. Robert B. Weeden, Fairbanks, Alaska, was appointed to replace Dr. Siniff. On 16 November 1981, Dr. James C. Nofziger, Canoga Park, California, was appointed Chairman to replace Dr. Chapman, and Dr. Donald K. MacCallum, Ann Arbor, Michigan, was appointed to replace Dr. Johnson. The Commission's senior staff members are: John R. Twiss, Jr., Executive Director; Robert J. Hofman, Scientific Program Director; Robert Eisenbud, General Counsel; and JoAnn Lashley, Administrative Officer.

The Commission Chairman appoints the nine members of the Committee of Scientific Advisors on Marine Mammals, a committee of scientists knowledgeable in marine ecology and marine mammal affairs. At the end of 1981, its members were: Dr. Daniel B. Botkin, University of California at Santa Barbara; Dr. Douglas G. Chapman (Chairman), University of Washington; Dr. Paul K. Dayton, Scripps Institution of Oceanography; Dr. L. Lee Eberhardt, Pacific Northwest Laboratory, Battelle Memorial Institute; Dr. Joseph R. Geraci, University of Guelph; Dr. Bruce R. Mate, Oregon State University;

Dr. Daniel K. Odell, University of Miami; Dr. William F. Perrin, National Marine Fisheries Service, Southwest Fisheries Center; and Dr. Katherine Ralls, Smithsonian Institution. The Committee was chaired by Dr. Dayton until 1 November 1981, by Dr. Eberhardt until 9 December, and by Dr. Chapman thereafter. During 1981, Dr. Gerald L. Kooyman, Scripps Institution of Oceanography, completed his term of service on the Committee, and Dr. Robert B. Weeden resigned as a member of the Committee to accept his appointment as Commissioner.

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: $750,000 for FY 75; $900,000 for FY 76; $1,000,000 for FY 77; $900,000 for FY 78; $702,000 for FY 79; $940,000 for FY 80; and $734,000 for FY 81. A portion of each appropriation, in some years up to 50 percent, has been used to support research and study efforts outside the Commission. As of 31 January 1982, the Commission was operating under a continuing resolution for FY 82 at an anticipated 1982 budget level of $672,000.

Summary

In 1981, the Commission focused its energies on a number of major issues, including: participation in negotiations leading to the signing and ratification of the Convention on the Conservation of Antarctic Marine Living Resources; assistance in preparing for a minerals regime for that area; reauthorization of the Marine Mammal Protection Act for three years; overview of research and management activities related to California sea otters, Antarctic whales and seals, West Indian manatees, and Hawaiian monk seals; the return of marine mammal management to the State of Alaska; and marine mammal-fisheries interactions. The Commission also continued its conservation efforts with respect to other endangered and threatened species; international negotiations affecting many species of marine mammals; impacts of outer continental shelf oil and gas development; and other issues. Information on these activities is included in the Report which follows.

CHAPTER II

RESEARCH AND STUDIES PROGRAM

The Marine Mammal Protection Act requires the Commission to maintain a continuing review of research programs conducted or proposed to be conducted under the authority of the Act, to undertake or cause to be undertaken such other studies as it deems necessary or desirable in connection with marine mammal protection and conservation, and to 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 Bureau of Land Management, and other Federal agencies; convenes meetings and workshops to identify research needs and priorities as well as 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 mammal and habitat conservation so as to complement the other agencies' activities which are either underway or contemplated.

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 and how it can 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 projects being conducted, supported or planned by other parts of the Federal Government.

In 1981, the Commission requested information from twenty-four Federal departments and agencies. Responses are not due until early in 1982, but at least seventeen agencies are known to be conducting or supporting research related to the conservation and protection of marine mammals. Those organizations are: the Army Corps of Engineers; the Bureau of Land Management; the Department of Energy; the Department of State; the National Aeronautics and Space Administration; the National Institutes of Health; the National Marine Fisheries Service; the National Park Service; the National

Science Foundation; the National Sea Grant Program; the Naval Ocean Systems Center; the North Pacific Fishery Management Council; the Office of Naval Research; the Smithsonian Institution; the U.S. Air Force; the U.S. Fish and Wildlife Service; and the U.S. Geological Survey. The Bureau of Land Management, the National Marine Fisheries Service, and the U.S. Fish and Wildlife Service have the largest and most diverse marine mammal programs.

As a result of past Commission efforts, duplication of research is no longer considered a problem, but certain programs could benefit from better integration or coordination to meet information needs more effectively and economically. As examples, the New York, New Orleans and Los Angeles offices of the Bureau of Land Management are supporting regional marine mammal surveys that could and should be better coordinated with related marine mammal studies being conducted or supported by the Northeast, Southeast and Southwest Fisheries Centers of the National Marine Fisheries Service.

When all of the information from the 1981 survey is compiled and verified, the Commission, in consultation with its Committee of Scientific Advisors, will evaluate the information and, as appropriate, recommend steps that should be taken to better develop, focus and coordinate agency programs.

Research Program Reviews, Workshops and Planning Meetings

In 1981, the Commission, in consultation with its Committee of Scientific Advisors, reviewed, commented on, and/or made recommendations concerning: the overall scope of Federally-funded marine mammal research; the National Marine Fisheries Service's tuna-porpoise, Hawaiian monk seal, and North Pacific fur seal research programs; the bowhead whale research programs being conducted and/or supported by the National Marine Fisheries Service and the Bureau of Land Management; the Bureau of Land Management's Outer Continental Shelf Environmental Studies Program; and the U.S. Fish and Wildlife Service's manatee and sea otter research programs. The Commission also convened or participated in meetings and workshops to: better define the nature and scope of research programs needed to determine what more can be done to conserve and protect the West Indian manatee and the southern sea otter; identify research programs needed to assess and mitigate human-related threats to humpback

whales in Glacier Bay and surrounding waters in southeastern Alaska; identify research needs and the optimal U.S. research program relative to the conservation and protection of living resources, including whales and seals, in the oceans surrounding Antarctica; assist the States of Washington and Oregon in implementing a program for assessing the nature and extent of marine mammal-fisheries conflicts in the Columbia River and adjacent areas; review marine mammal-fisheries interactions research programs in the U.S. and the nature and extent of marine mammal-fisheries interactions worldwide; review the use of remote sensing technology in marine mammal research; review the National Marine Fisheries Service's tuna-porpoise and California coastal marine mammal research programs, including a workshop on alternative fishing methods; and review and evaluate ongoing research related to the conservation of the North Pacific fur seal. Details of these activities, and the resulting recommendations, are provided elsewhere in this Report.

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 U.S. 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 and supports, within its budget limitations, other research it deems necessary. Since it was established, the Commission has contracted for more than 300 projects ranging in amounts from several hundred dollars to $128,000. The average contract cost has been approximately $9,000. Total contract amounts were: $258,787 in FY 74; $446,628 in FY 75; $479,449 in FY 76; $132,068 in the FY 76-77 transition quarter; $523,504 in FY 77; $407,678 in FY 78; $219,897 in FY 79; $391,000 in FY 80, and $173,652 in FY 81.

Contract work undertaken by the Commission in 1981 is summarized below. Final reports from Commission-sponsored studies completed in 1981 and earlier are available from the National Technical Information Service and are listed in Appendix B of this Report.

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

The Commission conducts an annual survey to identify marine mammal research conducted or supported by Federal agencies. At the end of 1981, the contractor was beginning to organize and summarize information provided by the agencies on their FY 81 and FY 82 research programs. After the completed report has been sent to the agencies for verification of the data contained therein, the Commission, in consultation with its Committee of Scientific Advisors, will review the information and, as appropriate, recommend actions to better develop, orient, and coordinate agency research programs. Copies of the final report will be provided to all agencies.

Requirements for Effective Implementation of the Antarctic Living Resources Convention
(K. A. Green Hammond, Ecosystem Modeling Inc.)

Developing fisheries, particularly the fishery for Antarctic krill (*Euphausia superba*), and the possible development of offshore oil and gas deposits in the Antarctic could pose serious threats to whales, seals, and other marine organisms in the Southern Ocean. In recognition of these threats, the Antarctic Treaty Consultative Parties concluded a Convention on the Conservation of Antarctic Marine Living Resources ("Living Resources Convention") in May 1980 and, in 1981, the Consultative Parties took the first steps towards developing a regime for non-living resources. This study was undertaken to provide scientific and technical information that would be useful for determining how best to implement the Living Resources Convention and how best to pursue development of a regime for non-living resources. The contractor identified issues which should be addressed before or during the first meetings of the Commission and Scientific Committee to be established when the Living Resources Convention comes into force, and presently is completing a discussion paper summarizing and evaluating available information on the possible direct and indirect effects of offshore oil and gas exploration and exploitation in the Antarctic.

Third Meeting of Ad Hoc Group of U.S. Antarctic Scientists
(National Oceanic and Atmospheric Administration)

Pursuant to an agreement reached during the May 1980 Conference at which the Antarctic Living Resources Convention was concluded, the Government of Australia convened a meeting in Hobart, Tasmania, on 10-24 September 1980, to consider steps that might be taken to facilitate early operation of the Commission, Scientific Committee, and Executive Secretariat to be established when the Convention comes into force. To assist in developing positions on a number of issues that were to be discussed at this meeting, the Marine Mammal Commission helped organize and provided funds to the National Oceanic and Atmospheric Administration to convene a meeting of U.S. scientists to consider and provide advice on a number of scientific issues bearing on the effective implementation and operation of the Convention. The meeting was held in Washington, D.C. on 12-14 August 1981 and the report, prepared by the National Marine Fisheries Service, was provided to and used by the U.S. delegation to prepare positions for the Hobart meeting.

Preparation for the Fourth Meeting of the Ad Hoc Group of U.S. Antarctic Scientists
(K. A. Green Hammond, Ecosystem Modeling Inc.)

The Antarctic Living Resources Convention will come into force thirty days following deposit of the eighth instrument of ratification and, under the terms of the Convention, the first meeting of the Antarctic Commission must be held within 3 months following entry into force. At the end of 1981, six nations had deposited instruments of ratification and several others, including the U.S., are expected to do so early in 1982. The Convention is thus expected to enter into force in February or March and the first meetings of both the Antarctic Commission and Scientific Committee are expected to be held in May or June 1982. To help prepare for these meetings, the National Oceanic and Atmospheric Administration, in consultation with the Marine Mammal Commission, the National Science Foundation, and the Department of State, is planning to convene a fourth meeting of U.S. scientists in February or March 1982 to further consider and provide advice on scientific issues bearing upon effective implementation and operation of the Convention. The Marine Mammal Commission, in support of this effort, has contracted with Dr. Green Hammond to help organize the meeting and prepare the report. The report will be provided to the U.S. delegation to assist in preparing for the May-June meetings of the Antarctic Commission and Scientific Committee.

Marine Mammal-Fisheries Interactions in the Columbia River and Adjacent Waters
(National Marine Fisheries Service)

During a Commission-sponsored workshop in December 1977, participants recommended that a study be undertaken to determine what, if any, remedial measures might be needed to assure that interactions are not having an adverse impact on either the salmon fisheries or the marine mammal populations in the Columbia River and adjacent waters. Subsequently, the National Marine Fisheries Service provided funds to the Washington Department of Game to conduct the necessary studies. The Service was unable to fund the project fully in 1981 and the Commission transferred funds to the Service for radio tracking studies and periodic aerial surveys to facilitate acquisition of needed information concerning the number, size, and status of harbor seal populations which are affecting and being affected by fisheries in the study area. The project is expected to be continued by the National Marine Fisheries Service in 1982 and a progress report is to be submitted early in 1982.

Assessment of Harbor Seal Populations and Feeding Habits in the Columbia River and Adjacent Waters
(Washington Department of Game)

As noted in the preceding project description, the Washington Department of Game is conducting several studies to better determine the nature and extent of marine mammal-fisheries interactions in the Columbia River and adjacent waters and to identify remedial measures that may be necessary to mitigate possible adverse effects on either the fisheries or the marine mammals. Preliminary analysis of data from these ongoing studies indicated that most interactions involve harbor seals, *Phoca vitulina*, but that the existing studies were not going to provide all of the information needed to assess the numbers, movements, productivity, and feeding habits of habor seals in the study area. Therefore, the Commission provided additional funding to: develop better methods for acquiring data; gather additional information on the daily activity patterns and seasonal movements of all age/sex classes of harbor seals in the study area; and identify and, as possible, quantify biases in assessments of harbor seal diets inferred from analyses of harbor seal spewings and scats. The supplemental studies are scheduled to be completed by 1 October 1982 and a draft report is to be submitted by 30 December 1982.

Workshop on Marine Mammal-Fisheries Interactions
(Washington Department of Game)

The Commission, the National Marine Fisheries Service, the National Sea Grant Program, the North Pacific Fishery Management Council and several states are conducting or supporting studies to better define the nature, extent, and significance of marine mammal-fisheries interactions and measures that might be taken to mitigate possible conflicts. In some cases, the studies have been developed independently and may not be providing either directly comparable data or the precise types of data needed for decision making. Thus, the Commission held this workshop in Vancouver, Washington, on 26-28 October 1981, to ensure that information needs were defined clearly and that ongoing and planned research would obtain the needed information as quickly and as inexpensively as possible. The draft workshop report was sent to participants for review and comment, and the final report is expected to be completed by late January 1982. It will be reviewed by the Commission, in consultation with its Committee of Scientific Advisors, to determine what additional action may be required.

Compilation and Mapping of Available Biological, Ecological, and Socio-Economic Information Bearing on Protection, Management, and Restoration of the Southern Sea Otter
(U.S. Fish and Wildlife Service)

The U.S. Fish and Wildlife Service, in consultation with the Commission, the California Department of Fish and Game, and others, has determined that it may be necessary to establish one or more colonies of sea otters, outside the present sea otter range in California, to assure that the California sea otter population cannot be endangered by a major oil spill or series of smaller spills. Since the selection of sites for establishing sea otter colonies should reflect socio-economic as well as biological and ecological considerations, the Fish and Wildlife Service, acting on a Commission recommendation and with partial Commission support, contracted with a private consulting firm to compile and map relevant available data. The project report, expected to be completed by late summer 1982, will be reviewed by the Service, in consultation with the Commission, the California Department of Fish and Game, and others, to identify and, as appropriate, select one or more sites for establishing sea otter colonies outside the present California range.

Research Needs Relative to Zonal Management of Sea Otters
(J. M. Packard, University of Minnesota)

Because of possible conflicts with commercial and recreational fisheries, it may be necessary to establish "sea otter zones" and "sea otter-free zones" in areas once inhabited by sea otters. Such "zonal management" would require selection of zones and/or the use of techniques which would effectively limit movement of otters out of predetermined zones. This study is intended to identify and evaluate techniques that might be used to regulate sea otter movements and, if information is insufficient to judge the utility and practicality of the alternatives, to identify the types of research that would be required to determine the most prudent and reasonable alternatives. The study is expected to be completed in early 1982, and the results will be considered by the Commission and used, as appropriate, as a basis for recommending actions to conserve both sea otters and shellfish resources.

Cleaning and Reconditioning the Pelage of Oil-Contaminated Sea Otters
(T. D. Williams, D.V.M., Monterey, California)

Sea otters depend on air trapped in their fur for warmth and buoyancy. Oil contamination mats the fur, reducing its ability to provide insulation or buoyancy, and may result in hypothermia and death. Although a number of commercially available cleaning agents can be used to remove oil, those that have been tested remove naturally-occurring as well as foreign oils. The purpose of this study is to characterize naturally-occurring oils and to determine whether there may be a combination of commercially available cleaning and reconditioning agents that can be used to clean and recondition the fur of oil-contaminated otters. If the study is successful, the results should be useful for mitigating the direct effects of possible oil spills in the sea otters' range.

Report on Preliminary Results of Ongoing Studies of Gray Whales (Eschrichtius robustus) in Laguna San Ignacio, Baja California Sur, Mexico
(S. L. Swartz, Cetacean Research Associates)

Whale-watching, oil and gas related activities, and other human actions may adversely affect gray whales in the lagoons of Baja California where they calve and breed. Over the past four years, the contractor, with support from the Marine Mammal Commission, National Marine Fisheries Service, World Wildlife Fund, and National Geographic Society, has

collected information on the number and behavior of the whales and their interactions with humans in Laguna San Ignacio. Such data are needed to identify and prevent possible adverse impacts. The Commission provided funds for the contractor to analyze and report the data collected during the 1980-81 calving/breeding season, and the report indicates that whale counts were 19% higher than during the 1979-80 season, that 728 whale-watchers aboard 28 tour vessels observed the whales, and that there were no measurable changes in the number, distribution, or movements of the whales attributable to human activities.

Antarctic Minke Whale Assessment Cruise
(National Marine Fisheries Service)

Intensive exploitation of minke whales (*Balaenoptera acutorostrata*) began in the Antarctic during the 1971-72 whaling season and is continuing under regulations promulgated by the International Whaling Commission (IWC). Since population estimates are not reliable, the IWC, acting on the advice of its Scientific Committee, initiated a tagging and survey program during the 1978-79 whaling season to provide a more reliable basis for management decisions. The survey, conducted from ships provided by Japan and the Soviet Union, is continuing and involves scientists from a number of countries, including the United States. Although the National Marine Fisheries Service has supported the program in the past, it was unable to do so in 1981, and therefore asked that the Commission provide funds to support U.S. scientists' participation in surveys during the 1981-82 whaling season. This was done, and a draft report is expected to be submitted to the Marine Mammal Commission by 1 June 1982. The results of the assessment will be provided to the IWC's Scientific Committee and used, as appropriate, to improve management of minke whales in the Antarctic.

Individual Recognition and Assessment of Right Whales in the Northwest Atlantic
(National Marine Fisheries Service)

Right whales, which occur seasonally in the Northwest Atlantic, are one of the most endangered species of large cetaceans. Offshore oil and gas development and other human activities could further jeopardize the species and, in FY 1980, the Commission transferred funds to the National Marine Fisheries Service to initiate a study of right whales and other cetaceans in the lower Bay of Fundy and elsewhere in the Northwest Atlantic. The Service was expected to

continue the program in 1981 but was unable to fund it fully, and the Commission provided additional funds to assure that the surveys were continued. Preliminary analyses of data collected during the 1981 survey indicate that at least 30 individually recognizable whales were present in the survey area and that individuals may reside in certain areas for extended periods of time. Thus, a significant number of right whales could be affected by offshore oil and gas development and other activities in the New England area. The nature and extent of the possible effects are uncertain, however, and the Commission will continue to work with the National Marine Fisheries Service and others to ensure, insofar as possible, that the studies are continued.

Distribution Patterns and Movements of Humpback Whales in the North Atlantic
(H. Whitehead and K. Chu, Cambridge University)

It is not known whether the humpback whales which occur seasonally in several parts of the North Atlantic comprise a single population or several discrete populations. Although commercial exploitation is prohibited, aboriginal harvests continue off Greenland and Bequia in the West Indies and a number of humpback whales are killed accidentally each year in fisheries off Newfoundland. Since even these low levels of take could be having an adverse effect, participants at a Commission-sponsored humpback whale workshop held in November 1980 recommended that determination of the relationship, if any, between humpback whales of Greenland and other areas of the North Atlantic be treated as a matter of priority. The study was undertaken in response to that recommendation and, in July and August 1981, the investigators surveyed and photographed humpback whales over the continental shelf of West Greenland. Preliminary analysis of the data indicate that some of the same whales have been seen in the West Indies during the winter months and that some whales may have been seen along the U.S. and Canadian coasts in previous summers. The implications and importance of this work lie in the fact that this may be the first evidence that there may be some interchange and mixing of Greenland and east coast humpbacks in northern feeding grounds and possibly their southern breeding areas as well. What is not known and still requires research is whether actual reproductive activity occurs between animals from different feeding or breeding areas and the extent to which this occurs. Once this is known, it will be possible to determine whether or not the low levels of take are having a significant adverse effect.

CHAPTER III

REAUTHORIZATION AND AMENDMENT OF THE MARINE MAMMAL PROTECTION ACT

The Marine Mammal Protection Act was enacted in 1972 for the purpose of protecting and encouraging the development of marine mammals to the greatest extent feasible commensurate with sound policies of resource management. In the nine years since the Act came into effect, substantial progress has been made in marine mammal protection resulting, for example, in the dramatic decrease in the numbers of porpoise killed incidentally in the course of tuna purse seining operations from an estimated level of 368,600 in 1972 to 18,780 in 1981. Yet, experience with the Act during that period also served to identify certain problems associated with its implementation and administration that warranted attention. Some of those problems were examined by the General Accounting Office during 1979 and 1980 in its review of the Federal Government's marine mammal program. While commending the Commission and its Committee of Scientific Advisors on Marine Mammals for their active and constructive role in carrying out their responsibilities, the GAO report, issued 11 May 1981, concluded that, as a whole, the pace of the Federal Government in implementing the Act had been unacceptably slow and that a number of improvements were needed. These and other issues were considered by the Congress in the course of hearings on reauthorization of the Act during the spring of 1981.

Representatives of the Commission presented testimony during those hearings before the Senate Committee on Commerce, Science, and Transportation on 3 April and the Subcommittee on Fisheries and Wildlife Conservation and the Environment of the House Committee on Merchant Marine and Fisheries on 7 April 1981. During those hearings, representatives of commercial fishing industries, state fish and game agencies, the fur industry, and the oil and gas industry advocated amendments to the Act to resolve certain problems they had encountered. Based upon the information received during the hearings, both Committees reported out bills in May. The House Committee's H.R. 2948 extended the authorization of the Act for one year without amending the Act and the Committee indicated its intention to hold additional hearings in an attempt to develop solutions to the identified problems. The Senate Committee's S. 1186 authorized appropriations for two years, provided that all interested parties would continue to work toward drafting any necessary amendments

to resolve the problems that had been identified. Final action on the bills by the full House and Senate was deferred while the staffs of the Committees worked with representatives of interested parties to develop a consensus.

On 13 July 1981, the House Subcommittee on Fisheries and Wildlife Conservation and the Environment held hearings on H.R. 4084, a revised bill which reflected effort made during the summer to reach a consensus on reauthorization and amendment of the Act. Representatives of the Commission and other interested parties testified before the Subcommittee in support of the bill, which was passed without opposition by the full House of Representatives on 21 September and by the Senate on 29 September 1981. The President signed the enrolled bill into law on 9 October 1981.

The resulting reauthorization and amendment of the Marine Mammal Protection Act leave intact its basic protective philosophy and provisions while clarifying certain definitions and provisions and modifying others to facilitate management efforts by Federal and state agencies. Among the most significant of those amendments are the following:

-- Appropriations of funds were authorized for the Departments of Commerce and the Interior and the Marine Mammal Commission to carry out their responsibilities under the Act during Fiscal Years 1982 through 1984;

-- The definition of the term "optimum sustainable population" was modified slightly to delete the term "optimum carrying capacity," which was considered to lack independent significance, and to substitute "carrying capacity" or "optimum sustainable population" in its place, depending upon the context. The House Report on the bill indicates that it was the intent of the Committee that the regulatory definition of OSP (a range of population sizes between the maximum net productivity level and the largest supportable level) be endorsed, that no change was intended in the meaning or manner by which OSP is calculated, and that modifications of the regulatory definition of OSP may be made in the future if new scientific information in support of such a change becomes available. Thus, the amendments simply clarified the definition of OSP to reflect the practice of the federal agencies;

-- The definition of the term "depleted" was modified to clarify that a species or population is depleted when it is found to be either below its OSP level or is listed as

endangered or threatened under the Endangered Species Act. This amendment, again, simply conformed the text of the Act with the practice of the Federal agencies;

-- The Act's goal of reducing the incidental taking of marine mammals in the course of commercial fishing operations to insignificant levels approaching a zero mortality and serious injury rate was retained. Language was added, however, to clarify that the "zero goal" shall be satisfied in the case of the purse seine fishery for yellowfin tuna by the "continuation of the application of the best marine mammal safety techniques and equipment that are economically and technologically practicable." This clarification was designed to recognize the substantial progress made by the U.S. tuna fleet in reducing incidental mortality and serious injury and, again, reflects the practice of the Federal agencies over the past several years. A provision was also added directing the Secretary of Commerce to undertake, and provide assistance for, research into new methods of locating and catching yellowfin tuna without the incidental taking of marine mammals;

-- A new scheme was established to govern incidental taking of marine mammals in the course of commercial fishing operations by U.S. fishermen, except those by tuna purse seiners and others that involve intentional setting on marine mammals. The Secretary is directed to authorize such incidental taking of small numbers of marine mammals if the affected stock is not depleted, if he finds that the total of such taking will have a negligible impact upon the stock, and if a system is established among the fishermen for monitoring the taking;

-- A new scheme was established to govern other non-fishing-related types of incidental taking of marine mammals such as that associated with outer continental shelf exploration and exploitation. The Secretary is directed to authorize such incidental taking by U.S. citizens if he finds that the total of such taking will have a negligible impact on the population of marine mammals, on its habitat, and on the availability of that population for subsistence uses in Alaska. The Secretary must also prescribe regulations setting forth permissible methods of taking so as to ensure the least practicable impact on the population and its habitat and he must also set forth requirements for monitoring and reporting the incidental taking; and

-- The provisions relating to the return of management of marine mammals to states were modified to allow the Secretary to transfer management authority to a state if the

state has developed and will implement a program which, among other things, is consistent with criteria set forth in a new section. The state is given the authority and responsibility to make the determinations of OSP and maximum number that may be taken, but a public hearing must be conducted on those determinations, if requested, at which interested parties may present evidence and cross-examine witnesses. The Secretary cannot transfer management authority to the State of Alaska unless the State has adopted a statute and regulations that ensure that subsistence use will be the priority consumptive use of the species. The amendments clearly indicate that the taking of marine mammals by Alaskan natives will be subject to an approved marine mammal management program of the State of Alaska. These amendments were designed to facilitate return of management to states while maintaining essential safeguards and Federal review and, in particular, to resolve the difficult problems associated with the return of management of marine mammals to the State of Alaska.

The Commission will consult with the National Marine Fisheries Service and the U.S. Fish and Wildlife Service as well as other interested groups and individuals during 1982 to develop the necessary regulations and otherwise implement the amendments to the Act.

CHAPTER IV

INTERNATIONAL ASPECTS OF MARINE MAMMAL PROTECTION AND CONSERVATION

Section 108 of the Marine Mammal Protection Act directs that the Departments of Commerce, 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 as well as such new arrangements as might be appropriate for the protection and conservation of marine mammals.

The Commission's activities in 1981 with respect to conservation and protection of marine mammals in the Southern Ocean, the International Whaling Commission, the Interim Convention for the Conservation of North Pacific Fur Seals, and the Convention on International Trade in Endangered Species of Wild Flora and Fauna are discussed below.

Conservation and Protection of Marine Mammals in the Southern Ocean

The Southern Ocean supports at least thirteen species of seals and whales, several of which are or were in danger of extinction as a consequence of unregulated or poorly regulated sealing and whaling. Commercial sealing has ceased and regulation of whaling under the International Whaling Commission has been improved, so that commercial exploitation no longer poses as serious a threat as it once did to the continued existence and well-being of these species. However, developing fisheries, particularly the fishery for Antarctic krill (*Euphausia superba*), and increasing interest in possible offshore oil and gas resources, could pose new and perhaps more serious threats to marine mammals and other biota of the Southern Ocean.

As noted in previous Commission Reports, Antarctic krill occupies a central role in the Southern Ocean food web. It is the dominant herbivore and the principal component in the diets of: fin, blue, humpback and minke whales; crabeater and Antarctic fur seals; Adelie, chinstrap, macaroni and rockhopper penguins; several other species of seabirds; and several species of fishes and squids. Some of these species are eaten in turn by sperm whales, killer whales, leopard seals, and other species.

The biology and ecology of krill and krill-dependent species are not well documented. Available information is insufficient, for example, to predict either how much krill can be harvested annually without adversely affecting the krill population(s) and/or the species dependent upon krill, or how these species and other components of the Southern Ocean ecosystem might be affected by offshore oil and gas development. Likewise, available baseline information and existing monitoring programs are inadequate to detect changes in the distribution, abundance, or productivity of krill, whales, seals, etc., that may result from commercial fisheries or offshore oil and gas development.

Because of the great importance of the Southern Ocean, the Marine Mammal Commission has, since 1974, undertaken a continuing review of matters affecting conservation of its living resources and has made numerous recommendations on the need for a comprehensive biological/ecological research program in the Southern Ocean, as well as the need for international arrangements to regulate fisheries and offshore oil and gas activities in the Antarctic. Commission activities before 1981 are reported in detail in earlier Commission Reports. A brief summary of these earlier activities and a discussion of 1981 activities follow.

Activities Related to Living Resources

Within its first month of operation in 1974, the Commission became involved in efforts to prepare an environmental impact statement on the Convention on the Conservation of Antarctic Seals, and also worked with the Department of State and other agencies to prepare materials which were provided to the Senate for its consideration of the agreement which was ratified in 1976.

In 1975, the Commission was asked by the National Science Foundation to review material relating to the conservation of krill in the Southern Ocean and, in responding to this request, the Commission noted, among other things, that: existing information was inadequate to provide a

reliable basis for management decisions; research on various aspects of krill and the impacts of a possible krill fishery should be given high priority; attention should be paid to the principle of establishing management regulations prior to exploitation; and all necessary steps should be taken to conclude an effective international agreement to govern any krill fishery.

In 1976, the Commission, concerned with the lack of progress in addressing the conservation of living resources, recommended to the Department of State that it: (1) promptly undertake a review and re-evaluation of U.S. policy regarding the Antarctic; (2) pursue the development of a policy to conserve the living resources of the Southern Ocean and the development of an international convention to implement that policy; and (3) undertake measures to prepare a draft environmental impact statement in the course of developing the policy and the convention. Throughout 1977, the Commission continued to encourage the Department of State and the National Science Foundation to develop, adopt, and pursue policies that would lead to cooperative international efforts to protect the Antarctic marine ecosystem. At the IXth Antarctic Treaty Consultative Meeting held in late 1977, the representatives of the United States and the other Antarctic Treaty Consultative Parties* recommended to their governments that a definitive regime for the conservation of Antarctic marine living resources be concluded before the end of 1978 and that a Special Consultative Meeting be convened for the purpose of developing a Draft Convention.

In response to the decision made at the IXth Consultative Meeting, Australia hosted a Special Consultative Meeting in Canberra, Australia (27 February to 16 March 1978). To prepare for the meeting, the Department of State, among other things, prepared and requested comments on a "Draft Environmental Impact Statement (DEIS) for a Possible Regime for Conservation of Antarctic Marine Living Resources". The Commission, in consultation with its Committee of Scientific Advisors, reviewed and provided extensive comments on the

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*The Antarctic Treaty Consultative Parties at that time were: Argentina, Australia, Belgium, Chile, France, Japan, New Zealand, Norway, Republic of South Africa, U.S.S.R., United Kingdom, and the United States. Since then, the Federal Republic of Germany and Poland have become Consultative Parties.

DEIS (see pages 66-69 of the Commission's Annual Report for 1978). In addition, the Commission helped prepare a Draft Convention which was tabled at the Canberra meeting and the Commission's Scientific Program Director participated in the meeting as an advisor to the U.S. representative.

Although a Draft Convention was developed at the Canberra meeting, all issues were not resolved and the necessary continuation of discussions was planned for Buenos Aires, Argentina, in July 1978. To help prepare for the Buenos Aires meeting, the Commission contracted for a comprehensive review of available information on the structure and dynamics of the Southern Ocean ecosystem.* The Commission also described the need for and helped to organize a meeting of U.S. scientists to provide advice on steps that might be taken to assure conservation of the Southern Ocean ecosystem prior to the eventual entry into force and implementation of the Convention. The National Marine Fisheries Service convened such a group on 15-16 June 1978. The Commission's Scientific Program Director participated in the Buenos Aires meeting as an advisor to the U.S. representative.

All remaining issues were not resolved in Buenos Aires and informal consultations were subsequently held in Washington, D.C. (18-26 September 1978), Bern, Switzerland (12-16 March 1979), and Washington, D.C. during the Xth Antarctic Treaty Consultative Meeting (17 September to 5 October 1979). The Commission participated in preparations for these informal consultations and, in the spring of 1979, helped organize a second meeting of U.S. scientists to provide advice on scientific and technical matters bearing upon the conservation of Antarctic marine living resources.

As a result of the informal consultations held at the Xth Consultative Meeting, sufficient agreement on a draft text was reached so that a formal Diplomatic Conference to conclude the Convention was held in Canberra, Australia, on 7-20 May 1980. At this Conference, the Convention on the Conservation of Antarctic Marine Living Resources was formally agreed upon. Parties to the Conference also agreed that: (1) a meeting should be held in 1981 to determine steps that might be taken to facilitate early operation of the Commission, Scientific Committee, and Executive Secretariat to be established when the Convention comes into force; and (2) the parties

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*See Appendix B. Bengtson, J. L. 1978. Review of information regarding the conservation of living resources of the Antarctic marine ecosystem.

entitled to become members of the Commission would, to the greatest extent practical and feasible, identify and compile needed scientific data and fisheries data in order to distribute those data to the Contracting Parties upon entry into force of the Convention.

Pursuant to the first agreement, Australia organized and convened a "preparatory meeting" in Hobart, Tasmania from 10-24 September 1981. The Commission helped develop U.S. positions on issues to be discussed at the preparatory meeting by funding a study to provide scientific and technical information useful in determining how best to implement the Convention. The Commission also helped organize and provided funds for the National Oceanic and Atmospheric Administration to convene a third meeting of U.S. scientists to advise on scientific issues bearing on the implementation and operation of the Convention (see Chapter II of this Report).

At the third meeting of the U.S. scientists on 12-14 August 1981, participants noted that there has been relatively little experience in managing marine living resources from an ecosystem perspective as the Convention mandates and that the success of the Convention will depend in no small measure on the Scientific Committee's advice, which will in turn depend upon the Committee's composition, competence, and organization as well as the usefulness of data provided it by the Contracting Parties and the adequacy of the Executive Secretariat's support services. The group recommended: that discussions be started at the preparatory meeting on the types of catch, effort, and related biological information that should be collected to provide the basis for assessing the effects of harvesting and related activities; that a principal function of the Executive Secretariat be to establish and maintain a system for archiving catch, effort, and related information bearing on living marine resource conservation and management; and that, in preparation for the first Scientific Committee meeting, the U.S. develop discussion papers on a number of key issues that will affect implementation and operations of the Convention. The group also recommended that it be reconvened, before the first Commission and Scientific Committee meetings, to review the background papers and identify other steps to facilitate prompt and effective Convention implementation.

The recommendations were used in developing positions on various agenda items for discussion at the 10-24 September Hobart meeting. With certain exceptions, the exchange of

views on scientific and technical issues was limited. For example, while the importance of data was generally recognized, there was no discussion of either the precise types of data needed or methods of collection. Instead, discussions tended to focus on administrative, procedural, and budgetary issues. It was anticipated that if the Convention entered into force in early 1982, the first meetings of the Commission and Scientific Committee should be held in Hobart, Tasmania, in May and/or June of 1982.

With respect to ratification, hearings on the Convention were held by the Senate Committee on Foreign Relations on 27 October 1981. During the hearing, the Commission testified in support of ratification, calling the Convention "a necessary and potentially effective mechanism for assuring that whales, seals, and other components of the Southern Ocean ecosystem are not adversely affected by developing fisheries, particularly the krill fishery, in the Southern Ocean." On 4 November 1981, at the request of the Senate Committee, the Commission provided additional information on the evolution of the Convention and the Commission's involvement in Antarctic matters.

The U.S. Senate gave its advice and consent to the ratification of the Convention on 16 December 1981. It is expected to enter into force early in 1982, and the first meetings of the Antarctic Commission and Scientific Committee should take place in May or June of 1982.

Activities Related to Non-Living Resources

Activities associated with exploration for and development of non-living resources, particularly offshore oil and gas, could have direct and indirect effects on whales, seals, krill, and other components of the Southern Ocean ecosystem. The Antarctic Treaty Consultative Parties recognize these risks and, at the Xth Antarctic Treaty Consultative Meeting (Washington, D.C., September/October 1979), the Consultative Party representatives recommended that their governments facilitate the development of research programs which would contribute to an improved understanding of relevant aspects of the Antarctic and its environment, that an agenda item for the XIth Consultative Meeting be "Antarctic Resources - The Question of Mineral Exploration and Exploitation" and that a meeting be held before the XIth Consultative Meeting to consider ecological, political, technological, legal, and other aspects of an Antarctic mineral resources regime. The representatives also noted that an agreed regime should provide a means for judging the acceptability of activities and governing those judged acceptable.

The Commission helped prepare for and served on delegations to the Xth Antarctic Treaty Consultative Meeting and the Special Meeting on Antarctic Mineral Resources held in Washington, D.C., 8-12 December 1980. At the latter meeting, there was a thorough exchange of views on the need for and possible structure of an Antarctic minerals regime, and, at the XIth Consultative Meeting (Buenos Aires, Argentina, 23 June to 7 July 1981), Consultative Party representatives adopted a recommendation calling on their governments to convene a Special Consultative Meeting to: (1) elaborate a regime for Antarctic mineral resources; (2) determine the form of the regime, including the question as to whether an international instrument such as a Convention is necessary; (3) establish a schedule for negotiations, using informal meetings and sessions of the Special Consultative Meeting as appropriate; and (4) take any other steps that may be necessary to facilitate the conclusion of the regime, including a decision as to the procedure for its adoption.

To help prepare for the XIth Consultative Meeting and subsequent negotiation of a minerals regime, the Commission, in early 1981, contracted for the preparation of the paper entitled "Environmental Aspects of Potential Petroleum Exploration and Exploitation in Antarctica: Forecasting and Evaluating Risks." A draft of the paper was provided to the Department of State and other agencies for use in preparing for the meeting.

After the XIth Consultative Meeting, the Government of New Zealand offered to host a Special Consultative Meeting to begin elaboration of a regime for Antarctic mineral resources. In addition, the Department of State prepared and distributed a "Draft Environmental Impact Statement (DEIS) on the Negotiation of an International Regime for Antarctic Mineral Resources."

The Commission, in consultation with its Committee of Scientific Advisors, reviewed the DEIS and, by letter of 8 October 1981, provided detailed comments to the Department of State. In its comments, the Commission noted, among other things, that it concurred, in general, with the stated purpose of the proposed regime, but that it believed that the criteria or guidelines against which determinations of "acceptability" are to be made should be incorporated into the regime and that the DEIS should address this point so as to provide a better basis for judging the acceptability of the proposed action. The Commission therefore suggested that the FEIS be expanded to include a description and discussion of criteria and guidelines that could be used to judge the acceptability of potential mineral activities in Antarctica.

Research-Related Issues

The Living Resources Convention and the non-living resources regime discussed above will provide a mechanism for conserving Antarctic resources and protecting the ecosystem of which they are a part. However, since available information on the nature, extent, and interrelationships of these resources presently is insufficient to accurately predict and mitigate the possible adverse effects of development and related activities, it may be difficult, if not impossible, to achieve the purposes of either agreement if existing research programs and capabilities are not expanded substantially.

The need for assessing and expanding U.S. research capability and efforts in the Antarctic was pointed out in a 14 December 1978 letter from the Commission to the National Science Foundation. In that letter, the Commission recommended that the Foundation constitute one or more groups of experts to provide advice, among other things, on the nature of research programs and capabilities needed to assess and monitor the possible direct and indirect effects of resource-related activities in the Antarctic. To help with the effort, the Commission also developed and forwarded a paper which identified, in general terms, various elements that should be considered in developing a comprehensive research plan for the Southern Ocean. The paper noted, among other things, that severely depleted whale populations could be affected adversely by even low levels of krill harvest, and suggested that high priority be assigned to assessing and monitoring the status of krill-eating whales and that efforts be focused in the Scotia and Bellingshausen Seas where the krill fishery was focused at that time.

These and subsequent efforts, described in detail in the Commission's Reports for 1979 and 1980, led to funding by the National Oceanic and Atmospheric Administration, the National Science Foundation, and the Marine Mammal Commission of a National Academy of Sciences' committee to evaluate and make recommendations on marine ecosystem research in the Antarctic. The Committee, under the chairmanship of Dr. John H. Steele, Director of Woods Hole Oceanographic Institution, met several times during 1980 and in the spring of 1981. The resulting report, "An Evaluation of Antarctic Marine Ecosystem Research," was published by the National Academy of Sciences in the fall of 1981.*

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*This report is available in limited quantity from the Polar Research Board, National Academy of Sciences, 2101 Constitution Avenue, N.W., Washington, D.C. 20418.

The committee report cites ways whereby marine research programs in the Antarctic can be strengthened, and notes, among other things that: the U.S. should have a strong, long-term program in Antarctic biological oceanography; the U.S. should develop its own scientific programs to support the general aims of the international BIOMASS research program and use its strengths to contribute to these goals in ways that complement the efforts of other countries; the U.S. program should include coordinated, multi-disciplinary, long-term programs as well as special studies and individual projects; remote sensing, moored instruments, drifting buoys, and towed samplers all may provide biological data in new forms and with increased efficiency and future planning should incorporate these techniques and instruments; U.S. long-term plans must include the construction of a new ice-strengthened vessel or vessels and, as an interim solution only, smaller ships capable of working in ice should be made available; inter-disciplinary planning should be an essential requirement in future Antarctic marine programs; and a continuing scientific committee to advise on programs and for other purposes should be established. The Committee's report was widely distributed and well received.

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Although significant progress has been made in the past several years, the conservation and protection of marine mammals and other components of the Southern Ocean ecosystem will not be assured until a satisfactory regime to govern non-living resources is concluded and until that regime and the Convention on the Conservation of Antarctic Marine Living Resources are effectively implemented. Therefore, the Commission will continue to work with the National Science Foundation, the Department of State, the National Oceanic and Atmospheric Administration, the National Academy of Sciences, and other appropriate organizations and agencies to attain these goals.

International Whaling Commission (IWC)

Representatives of the Marine Mammal Commission consulted with the U.S. Commissioner to the International Whaling Commission and others in preparation of the Thirty-third Annual Meeting of the IWC in Brighton, England, 20-25 July 1981 and attended the meetings of the IWC and its Scientific Committee during the year. The Commission's activities in 1981 regarding the bowhead whale issue as they relate to the IWC are discussed in Chapter VII of this Report. A summary of the Commission's activities relating to other aspects of IWC action in 1981 is set forth below.

The July 1981 Meeting

At its thirty-third annual meeting, the IWC took several significant actions to further the conservation of whales throughout the world. While continuing to reduce the total number of whales that may be killed, the IWC banned any additional sperm whaling and extended the ban against use of the inhumane "cold harpoon" so as to prohibit its use in killing minke whales. Seven non-whaling nations (Costa Rica, India, Jamaica, The Peoples Republic of China, St. Lucia, St. Vincent, and Uruguay) joined the IWC and participated in the July 1981 meeting. Dominica deposited its instrument of ratification prior to the meeting but did not send a commissioner to the meeting. Canada withdrew from the IWC effective 30 June 1982, but attended the 1981 meeting as an observer and did not vote.

As in past years, various proposals to establish moratoria on commercial whaling were considered early in the meeting. The proposals were approved by the required simple majority in the IWC's Technical Committee, but were blocked by whaling nations and failed to win the necessary three-quarter majority in the plenary session, despite the efforts of the U.S. and other conservation countries. First to be considered was the proposal by the United States and United Kingdom for an indefinite, worldwide moratorium on all commercial whaling. It was approved by the Technical Committee by a vote of 14 to 8, but failed in the plenary session, 16 to 8. Subsequent proposals to establish a commercial whaling moratorium in the North Atlantic and to impose a moratorium on the pelagic harvest of minke whales after the 1983/84 season were approved by the Technical Committee but also failed in the plenary. A proposal for a five-year phase-out of commercial whaling, introduced by Australia, met with the same fate. This year, as in the past, the U.S. and other conservation nations sought to ban commercial killing of sperm whales and a proposal to establish a zero quota for all sperm whale stocks was adopted by the Technical Committee by a vote of 17 to 5, with 5 abstentions. This proposal was passed with two modifications in the plenary session by a vote of 25 to 1 (Japan), with 3 abstentions (Peoples Republic of China, Iceland, and U.S.S.R). First, a footnote was included in the provision to be inserted in the IWC's Schedule of regulations that allows Iceland to take in 1982 any sperm whales remaining from its 1981 quota of 130 set last year for the North Atlantic stock. Second, the IWC agreed not to insert a zero in the Schedule for the western North Pacific stock of sperm whales which are killed by Japanese coastal whalers and for which a quota of 890 had been set at last year's meeting for the 1981 season. Instead, the IWC agreed to specify by a footnote in the Schedule that, beginning in

the fall of 1982 and thereafter, no sperm whales may be taken from this stock until catch limits are established by the IWC. The IWC also agreed to convene a special meeting of its Scientific Committee in Cambridge, England, from 27 February until 5 March and a special meeting of the Commission in Brighton, England, 24-25 March 1982 to consider any additional data and analyses that may become available relating to this stock. As a result of these decisions, sperm whaling throughout the world has been banned and Japan must gain the support of a three-quarter majority in order to secure a quota allowing its nationals to kill sperm whales from the western North Pacific stock. Such a vote is considered extremely unlikely.

The members of the IWC also agreed to an especially significant action relating to the methods used to kill whales by extending the ban on the use of the inhumane, non-exploding "cold" harpoon to kill minke whales, beginning with the 1982/83 pelagic and 1983 coastal whaling seasons. The IWC had banned the use of the cold harpoon to kill all other species of whales at its previous meeting in 1980, but whaling nations had successfully blocked attempts to ban its use in killing the smaller minke whales, arguing that the exploding harpoon would destroy too much of the valuable meat and pose risks to the safety of the whalers. These arguments were not successful at the 1981 meeting and the ban on the use of the cold harpoon passed the Technical Committee by a vote of 17 to 6, with 5 abstentions, and was adopted in plenary session without a recorded vote.

In addition to the virtual ban on sperm whaling and prohibition of the use of the cold harpoon, the IWC set quotas for individual stocks of whales that resulted in a reduction from the total limit of 14,523 set at last year's meeting to 14,070. Of these, no more than 13,448 are likely to be taken because of the ban on taking some of those whales with a factory ship and the ban on any whaling within the Indian Ocean Sanctuary. The quota for the Antarctic stocks of minke whales, believed to be the most abundant species subject to IWC regulation, was set at 8,102, an increase over the 7,072 level set last year and the same as the level that had been set for the 1979/80 season. The quotas for other stocks of whales remained the same as or were reduced from those set at the previous meeting.

In addition to the establishment of quotas and the ban on the cold harpoon, the IWC considered a proposal to revise the management procedures by which it sets quotas. Representatives of the Commission participated in two meetings of a Technical Committee Working Group convened prior to the July 1981 meeting to develop proposals for revisions of the

management procedures, taking into account a report on the subject by the IWC's Scientific Committee. The United States has been concerned that many of the catch limits set by the IWC lack adequate justification and that the management procedures need to be revised to require the reduction or elimination of whaling unless there is sufficient information for reliable scientific management. The U.S. took the position that the report of the Scientific Committee provided the basis for more adequate management measures and proposed revisions based upon that report. Unfortunately, the Working Group could not reach agreement, even after two meetings; representatives of the whaling countries adamantly opposed any strengthening of the current management procedures. The U.S.-sponsored proposed revision of the management procedures was adopted by the Technical Committee at the July 1981 meeting by a vote of 15 to 7 with 4 abstentions, but it lacked the necessary three-quarter support in plenary session. Consideration of the issue was deferred with passage of a resolution calling upon interested parties to pursue consultations and attempt to reach agreement prior to the 1982 IWC meeting.

The IWC also considered several other matters relating to whale conservation. A resolution was adopted calling upon the Secretariat to maintain a register of whaling vessels and equipment and a list of exports and imports of whale products, and to investigate all reports of non-member whaling. Although juridical concerns relating to exclusive economic zones complicated consideration of the issue, the IWC also adopted, in response to a U.S. proposal, a resolution calling upon Canada to take account of the advice and recommendations of the IWC's Scientific Committee and undertake immediate research and management action to protect the severely depleted stock of white whales (belugas) and the stocks of narwhals taken by persons subject to its jurisdiction. The members also reviewed the results of a special meeting concerning revision of the International Convention for the Regulation of Whaling and noted that there is a continuing difference of opinion on the need for such a revision.

Post-Meeting Decisions

Under the terms of the Convention, decisions reached by the IWC at its July 1981 meeting setting quotas and otherwise amending the Schedule of regulations governing whaling activities did not become effective until 9 November 1981, 90 days after they were formally transmitted to the members. Any member that filed an objection within the 90-day period would not be legally obligated to comply with any Schedule change to which it objected. As of 9 November 1981, Iceland, Norway, and Japan had filed objections to the ban on the use

of the cold harpoon for killing minke whales and Japan had filed an additional objection to the ban on taking any sperm whales from the western North Pacific stock. Under the Convention, the filing of those objections extended the objection period for another 90 days and any other nation may join in filing objections to those provisions of the Schedule.

In filing the objections, Iceland, Norway, and Japan all indicated that their objections are conditional in the sense that they will be withdrawn if safe and effective equipment and techniques are developed to replace the cold harpoon or, in the case of Japan, if the special March 1982 meeting on western North Pacific sperm whales or the regular IWC meeting in July 1982 resolves the issues to its satisfaction.

As discussed in previous Annual Reports, whaling activities pursuant to objections to the IWC Schedule may trigger certain provisions of 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 that of 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. Fisheries Conservation Zone by any nation so certified. The significance of these sanctions was evidenced most recently in the context of the Republic of Korea's objection last year to the IWC's decision in 1980 banning the use of the cold harpoon on all whales except minkes. On 1 April 1981, Korea withdrew that objection in response to the urgings of the U.S. and advice that Korea's whaling activities would be reviewed for possible certification and sanctions under these laws. In response to the recent objections, the U.S. has advised Iceland, Norway, and Japan of the potential applicability of these laws to their activities and urged them to withdraw their objections and comply with the Schedule changes.

The Commission will continue to consult and cooperate with other agencies and interested groups and individuals during 1982 concerning these and other issues relating to the International Whaling Commission.

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 the U.S., Japan, Canada and the U.S.S.R. to achieve the maximum sustainable productivity of the fur seal resources of the North Pacific Ocean. The objective is to maintain fur seal populations at the levels which will provide the greatest harvest year after year, with due regard to their relation to the productivity of other marine living resources of the area. Harvesting of fur seals at sea has been prohibited by agreement of the parties to the Convention and an average of 32,278 fur seals have been harvested annually in recent years -- 26,507 on the Pribilof Islands of the U.S. and 5,771 on the Commander and Robben Islands of the U.S.S.R. The Convention entered into force in 1957 and has been extended by four Protocols. The most recent extension was agreed to by the parties in a Protocol signed on 14 October 1980. On 12 November 1980, this Protocol was transmitted by the President to the U.S. Senate for the necessary ratification.

As part of the process leading up to the extension of the Interim Convention, the National Marine Fisheries Service consulted with the Commission in developing the U.S. position as to whether to renegotiate, extend, or allow the Convention to expire. During the course of these discussions, the Commission suggested steps that should be taken to facilitate subsequent reconsideration, should the Convention be extended for another four years. These steps were set forth in a 14 May 1980 letter to the Service and are discussed in the Commission's 1980 Annual Report. The major thrust of the Commission's recommendations was that the Service should initiate the research which would provide the data needed to evaluate the three options -- i.e., renegotiation, extension, or expiration -- at the time of a future reconsideration. A 4 November 1980 response from the National Marine Fisheries Service and subsequent discussions between the Service and the Commission did not fully address the Commission's concerns and recommendations and, on 19 January 1981, the Commission wrote the Service again, noting that it remained uncertain as to the precise steps that the Service had taken or planned to take to better prepare for reconsideration at a future date. The Commission's 19 January letter requested, among other things: clarification of the status of existing data from past pelagic sampling operations and plans for future data analyses; the nature and extent of current and planned activities related to assessing the possible effects of fisheries development and other human activities on the northern fur seal; the nature and status of current studies related to determining the optimum sustainable population

of fur seals; the availability of a draft paper on OSP which was to be prepared for the Fur Seal Commission meeting in April 1981; the nature and schedule of past and planned consultations with Pribilof Island residents, the Bureau of Indian Affairs, and the Army Corps of Engineers relative to efforts to identify and evaluate additional or alternative sources of income for Island residents; the status and possible effects of certain fisheries on the fur seal and its habitat; and the Service's views on the possibility that harbor development could result in increased fishing effort in fur seal feeding areas.

In the letter, the Commission recommended that the Service attempt to quantify the probable impacts of pelagic sealing on the distribution, size, and productivity of the fur seal herd and, in consultation with the Department of State, determine whether it might be possible to negotiate agreements with other parties to effectively prohibit pelagic sealing if the Convention were to be terminated, and to determine what effect, if any, termination would have on U.S. efforts to protect whales, seals and other species in the Bering Sea and elsewhere. In order to better judge the cost-effectiveness and likely utility of the fur seal research program, the Commission also recommended that the Service develop a comprehensive three-year research plan and send the plan to the Commission and other interested parties for review and comment prior to implementation. The Commission also sought information on the fur seal research programs being conducted by the U.S.S.R., Japan, and Canada and how these relate to the U.S. program.

On 30 March 1981, the National Marine Fisheries Service responded to the Commission's 19 January letter. In its reply, the Service noted, among other things, that: a summary and general analysis of past pelagic sampling data is expected in approximately two years; the U.S. has no plans to resume pelagic sampling; feeding studies now underway on the northern fur seal and other marine mammals, along with studies on fur seal growth, should throw light on the possible effects of fisheries development on the fur seals; and the Service did not intend to submit a report on OSP to the Fur Seal Commission at the 1981 meeting, but would continue the exchange of population information and the discussion of ecosystem studies currently underway. The Service also noted that: significant changes in the areas fished or the amount of fish taken were not anticipated as a result of possible harbor development in the Pribilofs; and it was not felt that a directed pelagic harvest of fur seals, beyond nearshore areas, would be economically feasible but that, as an adjunct to the already extensive commercial fishing operations in the area, a pelagic take would be a distinct possibility without the restraints of the current Convention.

In April 1981 during consideration by the U.S. Senate of the Protocol to extend the Interim Convention, a proposal was made to modify the Protocol. This "reservation" called on the United States to halt the harvest of its portion of the fur seal quota, effective 1 January 1981, and to negotiate an agreement with Canada and Japan that would provide those nations with the number of fur seal skins they would have received, had the U.S. taken its share. The Senate Committee on Foreign Relations requested comments from the Administration on the proposed reservation on 29 April 1981. Following consultation with the Commission as well as the National Marine Fisheries Service, the Department of State responded to the Senate Committee, reaffirming the Administration's support of the Protocol as negotiated and expressing its opposition to the proposed reservation. The Department of State advised the Committee that the Administration viewed the reservation as "contrary to the intent of the Interim Convention" and as a possible cause of "serious concern to the other Party Governments which expect the United States to harvest the number of seals agreed upon...."

In approving the Protocol, the Senate Committee on Foreign Relations rejected, by a vote of 6 to 9, the proposed reservation on the grounds that the seal herds are not endangered and that its approval would have an uncertain biological effect on the seals and an adverse effect on the Aleut communities in Alaska. However, before the Protocol was brought before the full Senate, a compromise agreement was worked out between supporters of the reservation and those who wished to continue the present arrangements under the Convention. This compromise, or "understanding," provides a basis for eventual adjustments in the commercial harvest of North Pacific fur seals, based on sound scientific judgment. It specifically calls for studies to be undertaken to determine: fur seal feeding habits, food requirements, at-sea migration and distribution patterns; the impact that any change in the size of the harvest would have on the Pribilof Island residents, the fur seal herd and the Bering Sea ecosystem; and the impact of possible alternative sources of employment for the residents on those residents, the animals and the ecosystem. The Protocol, modified by this understanding, was ratified by the Senate on 11 June 1981.

At the meeting of the Commission and its Committee of Scientific Advisors in October 1981 in Seattle, further discussions were held with representatives of the Service on North Pacific fur seal issues, including research plans, the possibility of harbor development in the Pribilofs, and possible alternative sources of income for Island residents.

The Commission again inquired as to preparations for the next reconsideration of the Interim Convention, which will expire in 1984. Service officials indicated they felt it was still too early to discuss such planning, but expressed a desire to work closely with the Commission and other interested parties on the matter. In terms of being in a better position in 1984 to evaluate the options available for future international fur seal management, Service representives noted that they are setting research priorities in light of the information needs identified in the Senate "understanding," but that it is important to recognize the inability to answer some questions.

The Commission remains convinced of the need for early and effective planning for the reconsideration of the Interim Convention in 1984 and will continue to encourage the Service and other interested parties to undertake the necessary efforts in 1982.

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

The United States is a party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which is designed to control trade in animal and plant species which 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 in one of three appendices which can be modified by agreement of the 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, as well as species that must be regulated so that trade in "look-alike" species that are endangered 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 other parties in controlling trade.

As discussed in the Commission's previous Annual Report, the Department of the Interior's U.S. Fish and Wildlife Service has overall responsibility for coordinating the development of the U.S. positions and implementation of the provisions of CITES, and it consulted with the Commission and others concerning proposals to add marine mammals to the appendices. France proposed to include all stocks of gray seals and harbor seals in Appendix II, and West Germany

proposed to add all stocks of fin, sei, and sperm whales to Appendix I, including some stocks for which the International Whaling Commission allows a commercial harvest. The U.S. had proposed, in response to the Commission's recommendation, that all those stocks of whales for which the International Whaling Commission allows no commercial harvest be listed in Appendix I with an annotation explaining that they were being included so as to complement the IWC's conservation measures even though some of those stocks might not have been determined to be in danger of extinction in accordance with the CITES' "Bern Criteria" for listing.

On 13 February 1981, after considering additional comments from the National Marine Fisheries Service and others, the U.S. Fish and Wildlife Service published a Notice of Negotiating Positions for the CITES meeting. The Notice stated that the U.S. had proposed inclusion on Appendix I of those whale stocks protected by the IWC and that it would oppose the West German proposal for a broader listing. It also stated that the U.S. would oppose the French proposal on the harbor seal and that a proposed negotiating position on the gray seal had not yet been developed.

At the CITES meeting, held 25 February - 8 March 1981 in New Delhi, India, the U.S. Delegation, headed by an official of the U.S. Fish and Wildlife Service, sought two major objectives: agreement on technical issues and measures to improve implementation of the Convention; and protection and enhancement of the integrity of the appendices and the listing process. After lengthy substantive discussions, the West German proposal to add all stocks of fin, sei, and sperm whales to Appendix I passed by an overwhelming majority, with the U.S. abstaining. The French proposals to list the gray seal and harbor seal on Appendix II were opposed by the U.S. Delegation on the grounds that both were unsupported by scientific evidence. France agreed to withdraw the gray seal proposal and the harbor seal proposal was rejected by the CITES parties.

As of 24 July 1981, a number of nations had entered reservations (objections) to various of the CITES listings of whales, including Japan, Norway, Canada, and the U.S.S.R. On 4 September 1981, after consulting with the Commission and others, the U.S. Fish and Wildlife Service announced that the U.S. would enter no reservations to any of the changes in the appendices made by the parties at the New Delhi meeting.

The Commission will continue to consult and cooperate with the U.S. Fish and Wildlife Service and other groups and individuals on these and other issues pertaining to CITES during 1982.

CHAPTER V

MARINE MAMMAL-FISHERIES INTERACTIONS

Marine mammals are known to interact with sport and commercial fisheries in a number of ways. They are sometimes killed, injured, or harassed, either inadvertently or deliberately, during fishing operations; they take or damage fish caught on lines or in traps and nets; they damage fishing gear during these encounters or when they accidentally become entangled; and, in some areas, they compete with fishermen for the same fish and shellfish resources.

The most widely known example of a marine mammal-fishery interaction is that involving the yellowfin tuna purse seine fishery in the eastern tropical Pacific Ocean and the Commission's overview and actions with respect to this issue are discussed in the following chapter of this Report. Commission efforts to identify and resolve other forms of marine mammal-fisheries interactions are described below.

Marine Mammal-Caused Gear Damage, Fish Damage and Fish Loss

Prior to the Marine Mammal Protection Act of 1972, sport and bounty hunting and various forms of harassment were used to control the distribution, abundance, and behavior of marine mammals in certain areas. Fishermen saw this as an effective way to reduce or eliminate gear damage, fish damage, or fish loss caused or thought to be caused by marine mammal populations. The Act imposed a moratorium on such activities and, in recent years, animals in certain areas apparently have become more numerous and bolder in their interactions with fishermen and fishing gear.

Many of the reports of increasing interactions came from the Pacific Northwest and, in December 1977, the Commission convened a workshop to gather and review information on the nature and extent of marine mammal-fisheries conflicts in Oregon, Washington, California, Alaska, and Hawaii (see 1977 Annual Report). Participants in that workshop concluded that information was not sufficient to determine either the need for or the type of remedial measures that might be used to mitigate adverse impacts on the fisheries involved, the fish stocks, or the marine mammal populations. They did note

that the most acute problems seemed to involve seals, sea lions, and the salmon gill net fisheries in the Copper River Delta area of Alaska and the Columbia River in Washington and Oregon. The workshop thus recommended, among other things, that studies be initiated to develop appropriate methodology to determine levels of incidental take, gear damage, and fish damage and loss in these areas.

Following the 1977 workshop, the Commission provided funds to initiate a study of marine mammal-fisheries interactions in the Copper River Delta/Prince William Sound area in Alaska. The Commission also provided funds to begin development of a plan for investigating such conflicts in the Columbia River and adjacent waters. Early in 1980, with funding from the National Marine Fisheries Service, the Washington Department of Game, in cooperation with the Oregon Department of Fish and Wildlife, initiated a study of marine mammal-fisheries interactions in the Columbia River and adjacent waters. Partial support was also provided by the Columbia River Estuary Data Development Program.

The Commission-sponsored Copper River Delta/Prince William Sound study was completed in 1978 and a report was provided to the National Marine Fisheries Service and other interested parties. However, neither the Commission nor the Service had adequate funds to continue support for the study in subsequent years. The Columbia River study, which was initiated early in 1980, is scheduled to be completed late in 1983, but it also has been affected by budget limitations. In its 1980 Annual Report, the Commission expressed its concern that the limited funding by the National Marine Fisheries Service might prevent the Columbia River study from being completed on schedule and in such a way as to provide the kinds and quality of information needed. The Service shared the Commission's concerns and scheduled a project review for early in 1981.

On 2 January 1981, the Commission received a draft of the first annual report of the Columbia River marine mammal-fisheries interaction study, prepared by the Washington Department of Game. On 15 January 1981, the Commission submitted written comments on the draft, with a number of suggestions for improving the report and focusing efforts to better meet the project's objectives. The Commission questioned whether the objectives had been defined with sufficient precision and whether the project, as structured and funded, would provide the quality and kinds of data needed for decision-making.

Members of the Commission, the Committee of Scientific Advisors, and the staff also participated in the review of the Columbia River study held on 19 January 1981 in Olympia, Washington. On 3 March 1981, the Commission wrote the National Marine Fisheries Service, commenting on both the draft annual report and the project review. The Commission noted that the project appeared to be well-conceived and likely to provide much, but not all, of the information needed to decide what remedial measures might be necessary to resolve conflicts in the area. The Commission reiterated its belief that the Columbia River project is essential for defining and resolving fishery conflicts, both in that region and elsewhere, and stressed the importance of assessing the demographic parameters of the harbor seal population(s) in the study area and identifying and evaluating potential non-lethal methods for reducing conflicts. It was felt that these areas of study might be slighted while efforts were concentrated on documenting the nature and extent of the conflict.

Recognizing the need for additional work, the Commission noted that it was prepared to consider the transfer of funds to the Service to help support the project. This offer was accepted and the Commission and the Service developed a scope of work for additional study of the number, movements, and diet of harbor seals in the Columbia River and adjacent waters. An agreement between the Commission and the Service on the transfer of funds was signed on 20 April 1981. In September, the Commission provided additional funds to the Washington Department of Game to continue the harbor seal work being carried out under the funding transfer (see Chapter II of this Report).

On 9 April 1981, the Commission wrote the National Marine Fisheries Service suggesting the Service focus efforts on assessing the status of affected marine mammal populations and evaluating alternative measures that might be used to mitigate conflicts. The Commission also suggested that it would be appropriate to pool the limited funds currently being used to assess fishery conflicts in other regions so as to assure that at least one conflict would be clearly defined and resolved in the shortest time possible. The Commission called on the Service to review its ongoing and planned research in all regions and to advise the Commission as to whether it might be possible to reorient, combine, and/or better coordinate the programs so as to assure that available resources were used to the best possible advantage.

Competition for Fish and Shellfish Resources

Since marine mammals and fishermen compete for some of the same fish and shellfish, the Commission believes that marine mammals and fisheries must be managed cooperatively in order to obtain and maintain optimum sustainable populations of marine mammals and optimum sustainable yield of fish resources. The Commission also believes that the Magnuson Fishery Conservation and Management Act and the Marine Mammal Protection Act provide the opportunity for such cooperative management. However, it was felt that early efforts in developing fishery management plans under the Magnuson Fishery Conservation and Management Act did not adequately consider possible effects on marine mammals, and a study carried out in 1978 under contract to the Commission confirmed that this was generally the case.

In 1979, the Commission reviewed the Draft Fishery Management Plan and Draft Environmental Impact Statement for the Bering Sea/Aleutian Islands Groundfish Fishery and found consideration of marine mammals to be inadequate. The Director of the North Pacific Fishery Management Council, which prepared the plan, agreed with the Commission that the plan could be revised to better identify uncertainties and the lack of knowledge about the Bering Sea ecosystem and that available information and theory were not fully reflected in the draft plan. The Commission and the Council agreed to work together to develop an approach to the problem and, at the Commission's suggestion, a steering group, consisting of representatives of the North Pacific Fishery Management Council, the National Marine Fisheries Service, and the Commission, was constituted to discuss and develop a plan for approaching the problem. During 1980, the Commission and the Council agreed to jointly support a study to determine whether available data on the status, food habits, and food requirements of marine mammals in the Bering Sea were adequate to design fishery management plans which would take account of the intents of both the Marine Mammal Protection Act and the Fishery Conservation and Management Act, and, if the data were judged inadequate, to identify needed research.

Working through the steering group, the Commission and its Committee of Scientific Advisors participated in developing a request for proposals for the Bering Sea study. Because of concern about duplicating research already in progress within the National Marine Fisheries Service, the North Pacific

Fishery Management Council suggested early in 1981 that the request for proposals be delayed until results of the Service's ongoing work were available. However, after consultation with the Commission, it was determined that the request for proposals could be redrafted to avoid any overlap with the Service's research and that it was important to issue the request as soon as possible. On 5 March 1981, the North Pacific Council approved a revised request entitled "Compilation and Evaluation of Data on Feeding Habits and Food Requirements of Marine Mammals in the Bering Sea."

The Commission, in consultation with its Committee of Scientific Advisors, later worked with Council and Service personnel to review the four proposals submitted in response to the offer, and an eight-month study contract was awarded to the Alaska Department of Fish and Game on 9 July 1981. Since that issuance, the Commission has commented, and will continue to comment, on progress reports and other documents related to the study. The study is scheduled to be completed early in 1982 and the results will be reviewed and used, as appropriate, to develop more effective programs for conserving marine mammals and fish stock in the Bering Sea and elsewhere. In accomplishing this, the Commission looks forward to continuing its productive association with the North Pacific Fishery Management Council, a group that has done much to address these difficult questions.

Workshops on Marine Mammal-Fisheries Conflicts

As has been noted above, the Commission, the National Marine Fisheries Service, the North Pacific Fishery Management Council, the State of Alaska, and others are supporting work on marine mammal-fisheries interactions and related subjects. However, the Commission was concerned that since many of these studies had been developed independently, they might not be providing comparable data or the type and quality of information needed to define and mitigate possible conflicts. Therefore, in order to assure that the maximum amount of useful information would be obtained from current and future studies, the Commission contracted with the Washington Department of Game in September 1981 to organize and convene a workshop with the following objectives: (1) to identify, to the extent possible, all U.S. research programs related to marine mammal-fisheries interactions; (2) to facilitate the flow of information and coordination of ongoing and planned research programs; (3) to review all ongoing and planned programs, with particular emphasis on programs being

funded by the Commission and the National Marine Fisheries Service, to determine whether the identified information needs are being or are likely to be met in a timely and efficient manner; and (4) to identify steps that might be taken to meet information needs more effectively.

The workshop was held on 26-28 October 1981 in Vancouver, Washington, and brought together the persons involved in the various research projects, along with representatives of the Commission, the National Marine Fisheries Service, and other organizations. A draft report has been distributed to participants for review, and a report, including the workshop's conclusions and recommendations, is expected to be available early in 1982.

Commission representatives also participated in an earlier workshop on marine mammal-fisheries interactions, held 30 March to 2 April 1981, in La Jolla, California, and sponsored by the International Union for the Conservation of Nature and Natural Resources (IUCN). This workshop's objectives were to: (1) examine the ecological relationships involved in the actual or perceived competition between marine mammals and fisheries, including a review of information on historical change; (2) develop approved methodology to determine the nature and extent of the problem, including economic aspects of marine mammal consumption of marine resources; (3) develop methodology for assessing how commercial fisheries may be conducted, including the setting of quotas, to avoid depletion of marine mammal populations dependent upon them; (4) assess the problems of calculating from fish consumption by marine mammals the potential changes in fishery yields arising from changes in the numbers of marine mammals and other top predators; (5) identify particularly acute problems (apart from incidental catch) involving marine mammals and fisheries; and (6) indicate areas where problems may arise in the near future. Thus, while the Commission-sponsored workshop focused its attention on information needed to identify, quantify, and possibly mitigate direct conflicts between marine mammals and fisheries, the IUCN-sponsored workshop placed emphasis on indirect conflicts, that is, competition between marine mammal populations and fisheries for the same fish resources. A final report on the IUCN workshop is anticipated in 1982.

CHAPTER VI

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

The Marine Mammal Protection Act directs the Secretary of Commerce, 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 the 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 porpoise 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. The Commission's activities relating to both of these issues are discussed below.

The Tuna-Porpoise Issue

A detailed discussion of the Commission's past activities and a historical summary of efforts to resolve the problem are presented in the Commission's previous Annual Reports. During 1981, the Commission continued to devote attention to this issue and consulted with the National Marine Fisheries Service and others on modification and enforcement of the regulations governing the incidental take of porpoise and on efforts to develop alternative fishing methods that would reduce or eliminate the need to set on porpoise in order to catch yellowfin tuna.

The 1981 Fishing Season

The National Marine Fisheries Service issued final regulations on 31 October 1980 establishing an annual quota of 20,500 animals for each of the years 1981 through 1985, and a general permit to take porpoise incidentally in compliance with the final regulations and quotas was issued to the American Tunaboat Association on 1 December 1980. In 1981, as in recent years, the U.S. fishing fleet maintained the total porpoise mortality and serious injury level below the

upper limits established by the quotas. Although analyses have not yet been completed and a final figure is not yet available, the data available at the end of 1981 indicate that the total estimated mortality and serious injury for the year was 18,780 animals. For reference, figures for the estimated porpoise mortality and serious injury associated with U.S. commercial yellowfin tuna fishing vessels since passage of the Act are set forth below.

Year	Estimated Kill and Serious Injury
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

Modification of Regulations

The regulations promulgated by the National Marine Fisheries Service for the years 1981 through 1985 established an aggregate annual porpoise mortality quota of 20,500 animals and, within that aggregate total, set individual allowable mortality limits for the various stocks of porpoises impacted by the U.S. tuna fishing fleet. These limits were based upon the anticipated fishing strategy of the fleet as well as upon the estimated replacement yield of the affected stocks. Under this approach, fishing on a particular porpoise stock would be prohibited when the mortality limit for that stock had been reached, even though the total quota had not been exceeded and even though the estimated replacement yield for that particular stock was sufficient to allow additional taking without causing a decrease in abundance. The U.S. tuna fishing industry questioned the appropriateness of the individual stock quotas as established and petitioned the Service for modification of the quotas in order to allow tuna fishermen to tailor their fishing strategies to the variations in the availability and location of yellowfin tuna, while ensuring that neither the aggregate quota nor the replacement yield of individual stocks was exceeded. In response, the Service proposed amendments to the regulations on 7 January 1981 to give the industry the increased flexibility it requested, while limiting mortalities from any given target stock to a maximum of fifty percent of the estimated replacement yield for that stock. By letter of 9 March 1981, the Commission advised the Service that it had no

objection to the proposed amendments in principle and requested that the Service provide it with the underlying data and calculations used as the basis for the proposed stock-by-stock quotas. This information was provided by letter of 25 March 1981. On 11 August 1981, the Commission wrote the Service inquiring as to the status of the Service's deliberations and its schedule for final action on the proposed amendments. The Service responded by letter of 18 August advising the Commission that it had determined to adopt the modified stock-by-stock quotas and notice of the final modified quotas was published in the Federal Register on 19 August 1981.

In addition to the stock-by-stock quotas, the tuna industry also asked the Service to reconsider its regulation prohibiting so-called "sundown sets" on porpoise, which are commenced within 1 1/2 hours before sunset and which had been found to result in unduly high porpoise mortality. On 8 January 1981, the Service published notice in the Federal Register that, because of information it had received about the effects of the prohibition upon the industry's operations and the potential of the U.S. fleet to develop alternative means of reducing the sundown mortalities through increased training and other voluntary measures, the Service would reconsider the regulatory ban on sundown sets. The notice invited interested persons to submit relevant information on the prohibition and indicated that, in light of the review, the Service would undertake no enforcement action for alleged violations of this prohibition occurring prior to the time that a decision was announced to proceed or not to proceed with amendment of the regulation. Although comments on the Service's decision to reconsider the ban were to be submitted by 15 February 1981, the Service had taken no further action as of 31 December 1981 and enforcement of the ban remained suspended.

Litigation

Three lawsuits relating to the tuna-porpoise regulations were pending during 1981 and two of these were decided at the U.S. District Court level by the end of the year.

On 10 November 1980, Friends of Animals and the Committee for Humane Legislation filed suit against the Government in the U.S. District Court for the District of Columbia (Friends of Animals v. Roe) challenging the final tuna-porpoise regulations which had been issued on 31 October 1980. The plaintiffs argued that issuance of the final regulations violated the Marine Mammal Protection Act and the National Environmental Policy Act because, among other things, they

failed to require a reduction in the total quotas toward insignificant levels approaching a zero mortality and serious injury rate, and they failed to designate the northern offshore spotted dolphin population as depleted and to prohibit all sets on that population. On 31 July 1981, the District Court issued a memorandum opinion and order noting that particular deference must be given to the agency's decision on technical and scientific matters and that it was supported by substantial evidence in the record. The court granted the Government's motion for summary judgment and dismissed the lawsuit.

In a second lawsuit (American Tunaboat Association v. Klutznick), filed on 12 December 1980 in the U.S. District Court for the Southern District of California, representatives of the U.S. fishing fleet challenged the same tuna-porpoise regulations. The plaintiffs in this case alleged that the decision of the Administrator and the regulations were illegal because, among other things, the recommendations of the administrative law judge concerning mean school size, density, and range of the porpoise stocks were not adopted and the determination that the coastal spotted dolphin stock is depleted was improper. The plaintiffs alleged that because the regulations and quotas were not based upon the best scientific evidence available, they are unlawful. No action had been taken by the District Court in this case at the end of 1981.

A third lawsuit (Balelo v. Klutznick), filed 1 October 1980, was also brought by representatives of the U.S. fishing fleet in the U.S. District Court for the Southern District of California. This lawsuit challenged the statutory and Constitutional authority for the Government's use of information gathered by observers onboard tuna vessels for enforcement of the quotas and other provisions of the regulations. On 27 July 1981, the District Court ruled that in the absence of statutory authority, such use of observer-gathered information violated the Act and the Fourth Amendment of the U.S. Constitution. The Court enjoined the Government from using such information for civil or criminal penalty proceedings, forfeiture actions, permit or certificate sanctions, or any purpose except scientific research. On 22 September 1981, the Government appealed the District Court's decision to the U.S. Court of Appeals for the Ninth Circuit. In the interim, pending a decision on appeal, the Commission will consult and cooperate with the Service in exploring alternative means of ensuring compliance with the tuna-porpoise regulations.

Meeting on Alternative Fishing Techniques

As discussed in the Commission's previous Report, the Commission expressed concern in its 7 November 1980 letter to the Service about the lack of any plans for research on alternative fishing techniques that might serve to reduce or eliminate the potential adverse impacts associated with the pursuit and capture of porpoise schools. Following consultation with representatives of the Service, the Inter-American Tropical Tuna Commission (IATTC), and other interested parties, the Commission, with the assistance of the Service and the IATTC, organized and convened a group of experts in San Diego, California, on 27-29 May 1981. The group reviewed past and current research and attempted to identify and estimate the cost of those efforts that might lead to the timely development of cost-effective alternatives to the current fishing method of "setting on porpoise." The participants at the meeting noted that two basic approaches appear to warrant further investigation: separating the tuna from the porpoise with which they are associated prior to setting the purse seines on the tuna; and locating and catching sufficient numbers of yellowfin tuna that are not associated with porpoise. Remote sensing of tuna habitat and schools, tuna aggregating devices, and various other techniques, as well as necessary research and development efforts, were discussed. A report of the meeting will be available early in 1982.

The Dall's Porpoise Issue

Dall's porpoises (*Phocoenoides dalli*) become entangled and die in the gill nets used by the Japanese salmon fishermen in the North Pacific Ocean. As discussed in the Commission's Annual Report for Calendar Year 1978, the International Convention for the High Seas Fisheries of the North Pacific Ocean (INPFC) was renegotiated by the United States, Japan, and Canada in 1978. The resulting Protocol amending the INPFC permitted the Japanese to fish for salmon both within and outside the United States' 200-mile Fishery Conservation Zone (FCZ) subject, among other things, to a coordinated United States-Japan research and development program on incidental taking of Dall's porpoise and other marine mammals. The Annex to the Protocol and the amendments to the United States' North Pacific Fisheries Act implementing the INPFC exempted the Japanese salmon fishing vessels from the incidental take permit requirements of the Marine Mammal Protection Act until 9 June 1981. A Memorandum of Understanding (MOU) was executed between the United States and Japan concerning the three-year coordinated research and development program. After 9 June 1981, Japanese salmon fishing operations within the U.S. fishery zone were to be subject to the permit and other requirements of the Marine Mammal Protection Act.

Regulations and Permit for the 1981-1983 Fishing Seasons

On 4 February 1981, the National Marine Fisheries Service published notice of a formal hearing to be conducted before an administrative law judge (ALJ) in order to determine whether the affected populations of Dall's porpoise were at the optimum sustainable population level and, if so, to promulgate quotas and other regulations governing incidental taking after 9 June 1981.

Representatives of the Commission participated in the hearing, held in Seattle on 5-6 March 1981, and filed briefs and participated in oral argument following the hearing. Although the Commission agreed with the National Marine Fisheries Service that the Dall's porpoise population appeared to be within the OSP range, the Commission opposed the positions of the Service with respect to the estimated size of the current population, its reproductive rate, the ratio of the current population size to its initial population size, the duration of the permit to be issued, and the arrangements for observing and evaluating incidental take under the permit. In particular, the Commission recommended that 4 percent rather than 12 percent be found to be the maximum net recruitment rate for Dall's porpoise, that the ratio of current to initial population size be found to be 69 percent, and that the duration of the permit be limited to one rather than three years. On the latter point, the Commission maintained that neither the Service nor the Japanese permit applicants had provided any basis for confidence that action would be taken to resolve the significant uncertainties regarding the status of the population, reduce mortalities, or monitor the level of incidental take adequately if a three-year permit were granted.

The recommended decision of the ALJ, issued on 24 April 1981, was substantially consistent with the Commission's positions with the exception of the duration of the permit. Rather than limiting the permit to one year, as the Commission had recommended, the ALJ recommended that a three-year permit be issued, subject to modification if new evidence becomes available and subject to conditions requiring, among other things, research and observation of at least 10 percent of the catcher boats.

On 15 May 1981, the Service published notice of the Administrator's final decision, final regulations, and issuance of the permit allowing the Japanese fishermen to incidentally take up to 5,500 Dall's porpoise, 450 northern fur seals, and 25 northern sea lions each year during the 1981 through 1983 fishing seasons. The permit required the permit holder to accept U.S. Government observers onboard

fishing vessels but did not specify the percentage of vessels to be observed. The permittee was also required to "assist as requested in meeting the objectives of the research program agreed to by Governments of the United States of America and Japan" but did not specify the nature of that research or the permittee's responsibilities because, as the Commission had noted during the hearing, no such research program had been negotiated.

The Memorandum of Understanding with Japan

As part of their continuing cooperative efforts under the INPFC and to set forth the responsibilities of the United States and Japan for the coordinated research program referenced in the permit, the National Marine Fisheries Service pursued negotiations through the Department of State of a Memorandum of Understanding (MOU) with the Government of Japan. These negotiations were conducted in the spring of 1981, shortly before the 1981 fishing season was to commence and at the same time that proceedings relating to the permit were underway.

On 30 March 1981, the Commission received from the Service a copy of a draft MOU which representatives of the Service intended to negotiate with representatives of the Government of Japan in Tokyo the following week. The Commission responded to the Service by letter of 3 April 1981 recommending that the U.S. position and the draft be modified in several respects, including the following: the MOU should state that the terms and conditions of the permit will prevail over any less restrictive or demanding provisions in the MOU; the provisions for placement of U.S. observers were inadequate and should be modified to provide for at least 10 percent coverage of catcher boats inside the U.S. FCZ and to provide for observation of operations outside the FCZ in the land-based fishery; the provisions should be modified to provide for collection of samples outside the U.S. FCZ and from the land-based fishery during the fishing season and at other times of the year; the Japanese should be required to provide a dedicated vessel or other means for accomplishing research and development during the fishing season and at other times of the year; provisions for reporting incidental take should be strengthened; the United States should not incur any substantial expense in conjunction with these activities; and the Service should make it clear to the Japanese that the Dall's porpoise problem was caused by Japanese fishermen and that they should pay for its resolution. The Memorandum of Understanding was signed by representatives of the United States and Japan on 3 June 1981. Its provisions were consistent with only some of the Commission's recommendations noted above.

Litigation

On 6 July 1981, Friends of Animals filed suit against the Government in the U.S. District Court for the District of Columbia (Friends of Animals v. Baldrige) challenging the regulations and permit which had been issued on 15 May 1981. The plaintiff argued that the issuance of the regulations and permit violated the Marine Mammal Protection Act and the National Environmental Policy Act because, among other things, they failed to require a reduction in the incidental take toward insignificant levels approaching a zero mortality and serious injury rate, and they failed to base the regulations on the best scientific evidence available so as to ensure that the taking would not be to the disadvantage of the affected population. No action had been taken by the District Court in this case at the end of 1981.

The 1981 Fishing Season and Plans for the Future

During the course of the Commission's meeting in Seattle in October 1981, representatives of the Service provided information on the mortality and serious injury of Dall's porpoise during the 1981 fishing season and on the results of and plans for the Dall's porpoise research program. Most of that information was presented orally, and for the first time, at the meeting and the Commission therefore wrote to the Service on 5 November 1981 to follow up on issues raised during the proceedings relating to the permit and to provide the basis for the Commission's efforts to assist the Service in planning for the coming fishing season. In this regard, the Commission noted that the Memorandum of Understanding with Japan calls for annual consultations to develop the most effective research program and it indicated that it was especially anxious to gain the benefit of the Service's determinations of what research is needed so that the United States' position could be developed and negotiated effectively.

The Service responded to the Commission's letter on 20 November 1981 and indicated, among other things, that: only 6 percent of the sets within the U.S. FCZ had been observed; the estimated incidental take within the U.S. FCZ was 2,039 and the total take by the Japanese mothership fishery, inside and outside the FCZ, was 2,812 in 1981; no estimate of the incidental take by the land-based fishery was available; no report is yet available on the analysis of specimens collected in 1980; the research performed by the dedicated vessel did not answer the questions to which it was addressed; additional research is needed, but research plans for 1982 and 1983 are not yet available; and the research plans

are being prepared for the March 1982 meeting of the INPFC and will be transmitted to the Commission when completed.

The Commission continues to be concerned about the lack of adequate advance planning for research and timely analysis of data relating to the Dall's porpoise problem. The data received from the Service indicate an observed kill per set rate of .32 in 1981 compared to .94 in 1980 and previous years. The significant variation between years has not yet been explained and it appears to suggest the need for increased observer coverage so as to provide a larger, more representative sample of the fishing operations. The Commission will consult with the Service during 1982 relating to this and other relevant matters to encourage the development of an effective research program well before the beginning of the next fishing season in June 1982.

CHAPTER VII

ENDANGERED AND THREATENED SPECIES

The Commission reviews the status of marine mammal populations and makes recommendations for appropriate actions and designations under the Marine Mammal Protection Act and the Endangered Species Act. During 1981, the Commission devoted particular attention to problems related to the West Indian manatee, the Hawaiian monk seal, the California sea otter population, the bowhead whale, and the humpback whale.

West Indian Manatee (Trichechus manatus)

Along with the Hawaiian monk seal, the right whale, and the bowhead whale, the West Indian manatee is among the most endangered of marine mammals inhabiting the coastal waters of the United States. The population in Florida is thought to be somewhat above 1,000 animals, but evidence suggests that it continues to decline. The level of mortality based on recovered carcasses was: 99 animals in 1977; 79 animals in 1978; 73 animals in 1979; 63 animals in 1980; and 111 animals in 1981, a year of exceptionally cold weather. There is little question that because of these mortality levels the Florida manatee population remains in serious jeopardy with extinction a possibility.

Human-related factors which diminish the species' chance for survival in the southeastern United States include: accidental death or serious injury resulting from collisions with hulls or propellers of boats and barges; entrapment in water level control gates and navigation locks; entanglement in fishing gear; poaching; vandalism; and loss of habitat due to coastal development.

As detailed in past Annual Reports, the Commission spent several years attempting to persuade Federal agencies to accelerate activities with regard to protecting and encouraging the recovery of this species. The results of these efforts were initially discouraging, but, beginning in 1980, the situation started to improve. During that year, the U.S. Fish and Wildlife Service, the agency responsible for the manatee under the Marine Mammal Protection Act and the Endangered Species Act, intensified its efforts significantly, and the number of cooperative undertakings among the State of Florida agencies, Federal Government agencies, and private organizations increased markedly.

Much progress was due to Congress' appropriation of an additional $100,000 to the Commission in FY 1980 specifically for use in addressing West Indian manatee problems. A detailed accounting of the Commission's expenditure of these funds as well as its activities in other areas is provided in the 1980 Annual Report. In brief, the money was spent as follows: $50,000 to the U.S. Fish and Wildlife Service to support the first year's work of a Manatee Recovery Activities Coordinator; $25,000 to the Service to support a pilot program to develop a site-specific research/management plan for the Crystal River area; $18,000 to the Service to assess and characterize food preferences and manatee feeding areas in certain parts of Florida; and three contracts to the Florida Department of Natural Resources, $6,700 for a series of training workshops for enforcement personnel, $5,000 for publication of a field manual for the Florida Marine Patrol, and $4,200 to support its Manatee Technical Advisory Council.

Thus, 1980 ended with increased levels of cooperation and communication as well as intensified commitments to meet problems by both governmental and non-governmental organizations. Improved law enforcement, the creation of specially protected areas, better public information and education programs, strengthened research and studies programs, and a generally heightened awareness of the problems were all evident.

Progress on manatee protection and recovery efforts continued during 1981. The strong cooperative spirit between the State and Federal Governments was further strengthened with beneficial results. One example of improvement can be seen in enforcement. The training workshops held by the Florida Marine Patrol during 1980 for its officers and those of the Game and Freshwater Fish Commission were a success, and more stringent enforcement of manatee regulations and a significant increase in the number of arrests and convictions for violations of those regulations resulted. In 1979, Florida Marine Patrol officers made 31 arrests and issued 190 warnings; in 1980, the figures were 129 arrests and 850 warnings; and in 1981, there were 301 arrests and 757 warnings. Florida Game and Freshwater Fish Commission officers' combined totals for manatee-related arrests and warnings were 200 in 1980 and 445 in 1981. Another example of an important improvement was the activation of the Department of Natural Resources' Manatee Technical Advisory Council which proved itself a source of informed advice and considerable value to the State. The year 1981 was also one of continued strengthening of the public information and education programs of both the Department of Natural Resources and the Game and Freshwater Fish Commission.

In addition, 1981 saw the beginning of extensive cooperation among the Florida Department of Natural Resources, the U.S. Army Corps of Engineers, and the U.S. Coast Guard to substantially increase the number and size of signs alerting boaters to the presence of manatees. Installation of a comprehensive network of signs, first agreed upon in 1980, was begun by the Corps of Engineers late in 1981. Through the efforts of the Department of Natural Resources, the Coast Guard and the Corps, the posting of new signs will continue throughout the 1981-82 winter season and completion is expected by early spring of 1982. Work on the posting of signs has been significantly helped through the generosity of popular singer Jimmy Buffett, who during the year held two concerts for the benefit of manatee protection and conservation and subsequently donated $35,000 to the Florida Department of Natural Resources to assist in preparing and posting signs.

Among the many involved Federal agencies working on manatee conservation, the National Aeronautics and Space Administration contributed significantly to manatee protection with its new, specially-designed ships for recovering the solid rocket boosters jettisoned from Columbia spacecraft. Although the ships are moved by conventional propeller while traveling at sea, they are moved by water-jet propulsion systems when traveling the coastal and inland waters adjacent to the Space Center. Thanks to NASA's having eliminated the threats posed by moving propellers in these waters, there have been no instances of death or injury resulting from the recovery ships' activities in these heavily populated manatee areas.

On 29 January 1981, the Fish and Wildlife Service's Draft Manatee Comprehensive Research Plan was forwarded to the Commission for review. Although a critical section on manatee research was still under revision by the Service and not included, the Commission commented on 3 March, noting that it had reviewed the Draft in consultation with its Committee of Scientific Advisors on Marine Mammals and had found it to be, with the exception noted, a fully adequate basis for moving to the next stage, i.e., the development of detailed scopes of work for each program element or task. The Commission cited the importance of completing the research section so a meaningful evaluation of the overall Plan could be made.

Although a meeting to review the Draft Comprehensive Work Plan was scheduled for 28-29 April, the Commission recommended to the Service on 15 and 22 April that the meeting be postponed until the research section had been completed and circulated for review. This was done and in early May, the Commission worked with Service representatives to review a revised research section for the work plan which was then considered at the review meeting eventually held on 19-20 May.

On 28 October the Commission received the revised Comprehensive Work Plan from the Service. After consultation with its Committee of Scientific Advisors, the Commission commented on 20 November that: in most cases, the Plan provided a clear description of the studies and other activities necessary to protect manatees and their habitats in U.S. waters; target completion dates were not provided for identified tasks; overlap appeared to exist among some of the listed tasks and associated costs estimates; some cost estimates seemed high while others low; and additional tasks, such as the study of cumulative effects, might be usefully added. The Commission also suggested that identifying priorities and establishing an implementation schedule might be expedited by indicating immediate, intermediate, and long-range objectives and then evaluating each task with respect to its likely contribution to meeting the objectives. The point was considered important since priority funding decisions might otherwise emphasize only short-term solutions at the expense of critical long-term projects. At the end of 1981, the Comprehensive Work Plan was being finished and was expected to be approved and appended to the Recovery Plan in early 1982.

On 16 April, the Commission, in consultation with its Committee of Scientific Advisors, responded to a request from the Federal Office of Coastal Zone Management for comment on the Draft Environmental Impact Statement for the Florida Coastal Management Program. The comments noted that, although the West Indian manatee is one of this country's most endangered marine mammals and that the population is centered in Florida waters, the Program Statement did not address manatee recovery activities. The Commission also noted that it was not clear how coordination under the Florida program would help to achieve the stated policy to protect endangered and threatened species and suggested that the Draft Memorandum of Understanding between various State departments be expanded to identify coordination needs relative to these species. It was also suggested that the

Florida Department of Natural Resources' responsibilities might be expanded to address cooperative efforts between the State Coastal Management Program and itself to protect habitat and encourage the recovery of endangered and threatened species.

On 11 May, the Commission wrote the Commandant of the U.S. Coast Guard to advise the agency that the Commission had recently learned that the Coast Guard might be considering establishing a station near the Riviera Beach Power Plant. The Commission pointed out that the area is heavily used by manatees, particularly in winter, and that its use as a staging area for Coast Guard search and rescue craft would pose a serious threat to the species' well-being. Since collisions with boat hulls and propellers have been a major cause of manatee mortality in the past, the Commission expressed its hope that the Coast Guard could base its craft elsewhere so as to minimize such threats. The matter remained under review at the end of 1981.

On 6 July, the Commission commented to the Army Corps of Engineers on a permit application to carry out dredge and fill activities in Indian River County. The Commission expressed concern that the proposed activity would have long-term adverse effects on the habitat while, in the short term, the activities themselves would increase the potential for death and injury from collisions. The Commission recommended that the Corps consult with the U.S. Fish and Wildlife Service on potential direct and indirect effects on manatees and the habitat as well as on identification of mitigating measures to ensure that manatees would not be adversely affected, should any of the proposed activities eventually be approved.

On 27 July, the Commission commented on a second application involving a major dredge and fill project on the Indian River about 30 miles from the site mentioned above. The Commission advised that both direct and indirect threats to manatees, through collisions with boats and barges and through habitat loss, were germane to the consideration of this project, and recommended that, if consultations with the Fish and Wildlife Service were not already underway, they be undertaken to determine the nature and extent of potential effects and to identify possible mitigating measures. The Commission also noted that, because of the proximity of the two projects, consideration of cumulative effects should be taken into account during the course of consultations.

On 17 June, the Commission received from the Fish and Wildlife Service a draft report on a project supported with funds provided the Service by the Commission. The project dealt with assessing and characterizing feeding habits, food preferences, and feeding areas of manatees in the Hobe Sound-Riviera Beach area. On 23 July, following consultation with its Committee of Scientific Advisors, the Commission commented, noting that the draft reflected a thorough review of available published and unpublished information and that important new information had been generated which would provide a much improved understanding of winter distribution, feeding activity, and feeding habits of manatees in that area. The Commission made some suggestions for restructuring and editing and, on 30 September, received copies of the final report which incorporated most of the Commission's comments. The final report is an important source of information for guiding further research and management activities.

On 19 October and 2 November, the Service forwarded for review and comment portions of a draft research/management plan for the Crystal River, also being developed with Commission support. The Commission commented on 9 November that the legal analysis section of the draft was inadequate for a number of reasons and further comment on this portion was withheld pending the Service's in-house review of the text. On 12 November, the Commission, after consultation with its Committee of Scientific Advisors, commented on the balance of the draft. It noted that the report did not constitute a research and management plan and did not meet reporting requirements set forth in the Agreement between the Commission and the Service. Although the draft indicated that much relevant information had been compiled and evaluated, the report's conclusions did not appear to fully reflect this. Noting, however, that this problem might be associated less with content than with format, organization, and an understanding of reporting requirements, the Commission suggested that the Service and the contractor work out a revised format and schedule for producing a new draft suitable for review. To provide assistance, the Commission enclosed a suggested outline.

In 1982, the Commission will continue to work closely with the State of Florida, the U.S. Fish and Wildlife Service, and other involved agencies, groups, and individuals in efforts to protect this endangered species.

Hawaiian Monk Seal (*Monachus schauinslandi*)

The Hawaiian monk seal inhabits a limited area on and around the Leeward Hawaiian Islands and is in grave danger of extinction. It is one of three members of the genus *Monachus* and may be the only member of the genus with a chance for surviving the 20th century. Of its congeners, the Caribbean species (*Monachus tropicalis*) appears to be extinct and the Mediterranean species (*Monachus monachus*) is declining rapidly.

The National Marine Fisheries Service has lead-agency responsibility for the Hawaiian monk seal under the authority of both the Marine Mammal Protection Act and the Endangered Species Act. Because the species' range includes the Hawaiian Islands National Wildlife Refuge, the U.S. Fish and Wildlife Service shares responsibility for protecting the monk seal and its habitat on the refuge.

In the past several years, the Commission has recommended a number of actions, including the constitution of a Hawaiian Monk Seal Recovery Team and designation of critical habitat, to enhance protection and recovery of the species. The Commission also has provided support on a number of population studies and in Fiscal Year 1981 received a special $100,000 appropriation to facilitate development of an effective research and management program. These activities are described in the Commission's previous Annual Reports.

Early in 1981, the Commission, in consultation with its Committee of Scientific Advisors, reviewed and provided comments and recommendations on the "Combined Fishery Management Plan, Environmental Impact Statement and Regulatory Analysis for the Spiny Lobster Fisheries of the Western Pacific Region." The plan, prepared by the Western Pacific Fishery Management Council, indicated, among other things, that: except for the stock offshore Necker Island, the spiny lobster stocks offshore the Northwestern Hawaiian Islands essentially are in a virgin state; there is considerable interest in developing the spiny lobster fishery and, in recent years, there has been a substantial increase in fishing capacity so that over-fishing is a real possibility; and the Hawaiian monk seal and other endangered species could be affected adversely by entanglement in fishing gear, disturbance by fishing operations, or depletion of food resources.

In its 21 January 1981 response, the Commission agreed with the Council's conclusions that a Fishery Management Plan is needed to prevent over-fishing of lobster stocks, and that the plan must include provisions for preventing

adverse impacts on monk seals or other endangered species. The Commission questioned, however, whether the plan recommended by the Council would, in fact, accomplish this. To correct what it felt were deficiencies in the plan, the Commission recommended that the Council consider: (1) increasing the minimum size limit for harvestable lobsters from 7.7 cm to 8.25 cm; (2) prohibiting fishing in waters less than 20 fathoms deep; and (3) requiring that observers be aboard all vessels fishing in the Fishery Conservation Zone offshore the Northwestern Hawaiian Islands. The Commission also recommended that: the proposed management system be expanded to include an orientation program to ensure that fishermen are aware of the relevant provisions of the Endangered Species Act and the Marine Mammal Protection Act; draft regulations requiring logbooks be revised to ensure that all necessary information would be included in the logbooks; and the Council's recommendation concerning biological research and monitoring activities be expanded to specify the precise programs needed to detect and monitor possible adverse impacts on the lobster stocks, the Hawaiian monk seal, other endangered or threatened species, and the ecosystems of which they are a part.

The National Marine Fisheries Service also reviewed the proposed Spiny Lobster Management Plan and, pursuant to Section 7 of the Endangered Species Act, submitted to the Western Pacific Fishery Management Council its biological opinion concerning the impact of the proposed management plan on monk seals and other endangered species in the area. The Service's 18 February 1981 comments were similar to those of the Commission, but it was not clear whether the Monk Seal Recovery Team had been consulted in developing the Service's biological opinion. Therefore, on 6 March 1981, the Commission wrote the Service requesting clarification of this and a number of other points.

The Commission's 6 March letter noted that, in the past year, the Service, among other things, had: (1) constituted a Hawaiian Monk Seal Recovery Team; (2) circulated and received comments on a "Draft Environmental Impact Statement on the Proposed Designation of Critical Habitat for the Hawaiian Monk Seal in the Northwestern Hawaiian Islands"; (3) provided a biological opinion on the proposed Management Plan for the Spiny Lobster Fisheries of the Western Pacific Region; and (4) in cooperation with the Commission, (a) convened a workshop to develop a "die-off" response plan for monk seals, (b) continued the in-depth study of monk seals on Laysan Island, (c) conducted a pilot study to evaluate the potential utility and safety of using radio-tags and dive-profile recorders to assess the activity patterns and habitat-use patterns of monk seals, and (d) initiated a

comprehensive analysis of the data from the Laysan Island study.

However, the Commission noted that it was uncertain as to the status of these efforts and the Service's plans for 1981 and beyond, and requested that it be advised as to: the anticipated number, dates, and locations of Recovery Team meetings to be held in 1981; the Service's plans and anticipated schedule for reviewing and completing a draft of the Hawaiian Monk Seal Recovery Plan by the June 1981 target date; how much the Service had budgeted for monk seal-related research and management activities in 1981; what monk seal-related research the Service planned to conduct or support in FY 81; when the Service anticipated making a decision concerning critical habitat determination; when the "die-off" contingency plan was expected to be completed and what steps the Service had taken or planned to take to detect and respond in the event of another die-off such as occurred on Laysan Island in 1978; when the Commission could expect to receive the reports from the 1980 studies on Laysan and Lisianski Islands; whether the Recovery Team or Recovery Team Leader had been asked to comment on the DEIS for Critical Habitat Determination or the proposed Management Plan for the Spiny Lobster Fisheries in the Western Pacific Region; and what steps were being taken to develop management plans for other fisheries in the Northwestern Hawaiian Islands and to assure that developing fisheries do not adversely affect monk seals or their habitats.

Concern that insufficient funds and efforts were being devoted to monk seal research and management resulted in a 17 March 1981 meeting between representatives of the Commission and the National Marine Fisheries Service. During the meeting, the Commission expressed the view that there is a critical need for periodic surveys to: (a) detect die-offs such as occurred on Laysan Island in 1978, (b) assess and monitor the number, ages, sexes, productivity, and behavior of monk seals on islands or atolls throughout their range, (c) collect spewings and feces for dietary analysis, and (d) salvage specimen material from beached carcasses. The Commission representatives also called attention to the need for: an observer program to determine the nature and extent of interactions with the spiny lobster fishery and other fisheries; and a radio tracking/dive-profile study to determine the activity and habitat-use patterns of monk seals in areas where they may be affected directly or indirectly by fisheries. The Commission noted that funding decisions would have to be made within a matter of weeks in order for any of the studies to be undertaken during the 1981 field season.

On 31 March 1981, the Service provided a detailed response to the Commission's 6 March letter, indicating, among other things, that: due to cuts in travel allocations for FY 81, only one Recovery Team meeting would be held in 1981 to review the final draft of the Recovery Plan; the target completion date of 1 June 1981 for the draft had been extended until 30 September 1981 to allow for inclusion of results from a pup survival study being conducted at Kure Atoll; and designation of critical habitat for the Hawaiian monk seal had been deferred pending consultation with the Western Pacific Fishery Management Council and the State of Hawaii. The Service's response also indicated that ongoing and planned efforts for FY 81 included: a quarterly census of monk seals on the Northwestern Hawaiian Islands; a three-month field study on Laysan Island to continue collection of data on fertility rates, age at first reproduction, and other population parameters; a captive maintenance program to enhance pup survival on Kure Atoll; analyses and reporting of data from past population studies on Laysan Island; and a cooperative study with the U.S. Fish and Wildlife Service to determine the feasibility of using aircraft to census monk seals. The response noted that, because of budget limitations, the Service was postponing continuation or initiation of depth-of-dive, radio-telemetry, ciguatera, and stock assessment studies.

On 15 April 1981, the U.S. Fish and Wildlife Service responded to a 3 March 1981 letter from the Commission requesting information on: the number and types of studies carried out on the Hawaiian Islands National Wildlife Refuge during 1980; the nature and results of any formal or informal consultations with the National Marine Fisheries Service to determine the possible direct and indirect effects of such studies on monk seals and monk seal research; the nature of any conflicts or adverse effects that may have resulted from research conducted on the Refuge during 1980; the number and types of research projects planned to be conducted on the Refuge during 1981; steps that the Fish and Wildlife Service had taken or planned to take to assure that this research did not have an adverse effect on monk seals; and the status of a Service-sponsored study to assess the possible effects of alternative uses for the abandoned Coast Guard Station on French Frigate Shoals. The Service's response provided the requested information and, among other things, indicated that: on 2 April 1980, the Service had requested formal consultations with the National Marine Fisheries Service to determine whether either the use of Tern Island as a fisheries support base or the conducting of bait fishing operations within the lagoon and shoal waters at French Frigate Shoals would jeopardize the continued existence of the Hawaiian monk seal or the green sea turtle; the Service also had requested consultations

concerning routine refuge management and its involvement in studies being carried out under a Tripartite Agreement with the State of Hawaii and the National Marine Fisheries Service; the biological opinion issued by the National Marine Fisheries Service, on 11 March 1981, indicated that bait fishing operations at French Frigate Shoals and use of Tern Island as a fisheries support base likely would jeopardize the continued existence of both monk seals and green sea turtles; for reasons which were not specified, the National Marine Fisheries Service had not provided an opinion on the possible impacts of routine refuge activities or studies being carried out under the Tripartite Agreement; the U.S. Fish and Wildlife Service was preparing a follow-up request to the National Marine Fisheries Service for an opinion concerning the possible impacts of routine refuge operations and studies being carried out under the Tripartite Agreement; and there is an additional complication in that the State of Hawaii contends that the waters and shoal areas around the Hawaiian Islands National Wildlife Refuge are not subject to the U.S. Fish and Wildlife Service's jurisdiction.

Little progress was made during the summer of 1981 to resolve the aforementioned issues. Therefore, the Commission requested that representatives of the National Marine Fisheries Service and U.S. Fish and Wildlife Service attend its 22-23 October 1981 meeting to review ongoing and planned efforts. Prior to the meeting, the Commission advised both agencies of the questions it hoped to have answered during the meeting. For example, the Commission indicated that it would like to know: when the monk seal recovery plan was expected to be completed; what research and other activities had been conducted by the agencies in 1981; what the agencies viewed as the priority issues relative to the protection of monk seals and their habitat; how much the agencies had programmed for monk seal activities in FY 82 and precisely how these funds would be used; and whether everything necessary was being done to assure that monk seals would not be affected adversely by research and other activities on the Hawaiian Islands National Wildlife Refuge.

During the Commission's 22-23 October meeting, National Marine Fisheries Service representatives indicated that: the monk seal recovery plan was in draft form and would be distributed for review in November 1981; the Service concurred, in general, with the Commission's views concerning efforts needed to protect and encourage recovery of the Hawaiian monk seal; the Service's efforts in 1981 had been limited due to budget limitations; and the Service did not yet know how much money would be available for monk seal-related activities in FY 1982. U.S. Fish and Wildlife Service representatives indicated that they planned to continue

and refine monitoring and enforcement efforts on Tern Island and French Frigate Shoals and that they were considering recommending that portions of the Midway Islands be afforded "overlay" refuge status.

The U.S. Fish and Wildlife Service provided additional information in a follow-up letter dated 30 October 1981 and, on 17 November 1981, the Commission received the draft recovery plan for the Hawaiian monk seal from the National Marine Fisheries Service. The Commission has completed a preliminary review of the draft plan and determined that it provides a relatively complete list of actions needed to protect and encourage recovery of the Hawaiian monk seal. However, the draft does not constitute a plan in that it does not provide descriptions of, or rationales for, the tasks which are identified, or indicate the agencies or organizations that should be responsible for conducting or supporting the various tasks. Additionally, the draft plan does not indicate when and how an "operational work plan" will be developed and implemented. The Commission will provide detailed comments on the draft plan early in 1982 and will continue its efforts to facilitate development and implementation of programs to protect and encourage recovery of the Hawaiian monk seal.

The California Sea Otter Population

Since the small remnant population of sea otters in California could be reduced substantially by oil spills or other catastrophic events, the California or southern sea otter was designated as "threatened" under the Endangered Species Act on 14 January 1977. Available information also indicates that sea otters eat abalone and other shellfish of commercial or recreational value, making it difficult to maintain viable fisheries for these species in areas inhabited by sea otters. On the other hand, their presence may enhance the growth of kelp, a product of commercial significance which also provides habitat for certain species of finfish of recreational and commercial importance. Thus, management of the California sea otter population must take these interactions into account, as well as the "threatened" status of the population.

The Fish and Wildlife Service has lead-agency responsibility for protecting and conserving sea otters. As part of that responsibility, the Service developed and, on 17 June 1980, sent the Technical Review Draft of the Southern Sea Otter Recovery Plan to the Commission and others for review and comment. As noted in its previous Annual Report, the Commission's 10 July 1980 comments on the Technical Review Draft noted

that the draft plan was useful only as a starting point and, on 24-25 July 1980, representatives of the Service, the Commission, the California Department of Fish and Game and the State's Scientific Advisory Committee on Sea Otters met to: review and discuss comments on the Technical Review Draft; discuss and agree upon the objectives, format, and content of the recovery plan; determine appropriate steps to expedite development, adoption and implementation of the plan, including consideration of a proposal to establish a Sea Otter Recovery Team; identify research and management actions that could and should be undertaken immediately; and assign responsibility for those actions. The issues were not fully resolved at the meeting or in subsequent correspondence with the Service and, as also noted in its previous Annual Report, the Commission recommended, on 2 December 1980, that the Service adopt and implement an approach which, among other things, would recognize the ultimate need for "zonal" management of sea otters and the need to establish at least one additional group of otters at a site not likely to be affected by an oil spill occurring in the population's present range.

The Commission received a second Technical Draft of the Southern Sea Otter Recovery Plan on 13 January 1981 and, on 15 January, the Service responded to the Commission's 2 December 1980 letter. In its response, the Service noted that it was in agreement with nearly all of the Commission's recommendations and that most of them had been incorporated into the second Technical Draft of the recovery plan.

On 9-11 January 1981, the Commission participated in a regional forum on "Management of Sea Otters and Shellfish Fisheries in California: Policy Issues and Management Alternatives," sponsored by the University of California at Santa Barbara, the Sea Grant Marine Advisory Program, and the Santa Barbara Museum of Natural History. The objectives of the meeting were to: discuss the issues involved from the perspectives of the social sciences and the humanities; provide a neutral meeting ground for groups with opposing points of view on the issue; and inform and educate the general public. One significant result of the meeting was a commitment by the Fish and Wildlife Service, with the broad endorsement of other concerned parties present, to support development of a map, as had been recommended by the Commission in August 1979, delineating the existing uses and various interests that compete with the sea otter along the west coast of the United States.

Following the forum, Commission and Service representatives met to discuss details of the sea otter mapping project and to develop a draft scope of work. On 24 February 1981, the Commission wrote the Service, noting that it was anxious to see the project undertaken and completed as soon as possible and offering to transfer up to $10,000 to the Service to help support the work. Subsequent consultations between the Commission and the Service resulted in a revised scope of work and, on 22 May 1981, the Commission provided further suggestions for the proposed mapping project and the request for proposals. On 1 June 1981, the Service transmitted a draft Memorandum of Need for the sea otter mapping project to the Commission for review and comment and, on 11 June, the Commission, in consultation with its Committee of Scientific Advisors, provided extensive comments and suggestions and urged that the project be initiated as soon as possible.

On 18 March 1981, the Commission, in consultation with its Committee of Scientific Advisors, commented on the second Technical Draft of the Southern Sea Otter Recovery Plan. In its comments, the Commission indicated its understanding that this Draft was intended to identify possible recovery activities based solely on biological and ecological considerations and that a subsequent draft, the Agency Review Draft, would include relevant socio-economic information, an implementation schedule indicating agency responsibilities, and target initiation and completion dates for each of the tasks identified in the recovery plan outline.

The comments also noted that: the Draft provided a reasonably complete and accurate summary of available information on the biology and ecology of the southern sea otter population; the recovery plan outline included in the Technical Draft provided an adequate basis for developing a comprehensive action plan; and the outline should be expanded to provide a more detailed description of needed actions, including a program to evaluate the humaneness, effectiveness, and costs of possible methods for controlling the movement of otters.

The Agency Review Draft of the Southern Sea Otter Recovery Plan was sent to the Commission on 18 August 1981. In consultation with its Committee of Scientific Advisors, the Commission advised the Service on 9 October that the Agency Review Draft, with some modification, would provide a sound basis for developing a comprehensive work plan. The Commission also noted a number of deficiencies, principal among these being: (1) the lack of a proposed or recommended

plan and schedule for translocating otters or, alternatively, the lack of a description of the steps to be taken in developing such a plan and schedule; (2) the failure to identify what and how various types of biological, ecological, and socio-economic information must be considered in deciding the optimal, long-range management strategy for the southern sea otter population; and (3) the failure to identify the role and responsibility of the Southern Sea Otter Recovery Team. The Commission therefore asked to be advised as to the steps which the Service had taken or planned to take to develop an agreed "translocation" plan, what the plan would include, how it would be developed, and when it could be expected to be completed and implemented. The Commission also asked when the Service expected to complete the comprehensive work plan and who would be responsible for its implementation.

The Service responded to the Commission on 21 October 1981, noting, among other things, that: a contract for the mapping study had recently been awarded; development of a detailed translocation plan would have to await the determination of potential translocation sites which would not be done until completion of the mapping study in June 1982; development of a comprehensive work plan would follow completion and approval of the recovery plan; and the recovery plan was expected to be completed and forwarded to the Director for approval by 15 December 1981.

Representatives of the Service attended the 22-23 October 1981 meeting of the Commission and its Committee of Scientific Advisors in Seattle, Washington, and, in response to questions from the Commission, indicated that: the Service viewed establishment of one or more new sea otter colonies as a priority task with respect to protection and recovery of the California population; several studies, in addition to the mapping project, would have to be completed before decisions could be made on when, where, how, and how many animals should be translocated; it would take at least two years to complete the necessary studies; currently available funding was insufficient to initiate and complete the necessary studies in FY 82; and the Service had initiated consultations with the Bureau of Land Management and the offshore oil and gas industry to develop a cooperative research and monitoring program. The Commission asked to be kept advised of the results of these consultations with the industry and the Bureau.

In 1982, the Commission will continue its efforts to facilitate the development and implementation of a recovery plan reflecting the zonal management approach set forth in its 2 December 1980 letter.

Bowhead Whale (Balaena mysticetus)

Over-exploitation by commercial whalers reduced the bowhead whale to extremely low levels throughout its range. It has been totally protected from commercial whaling for more than 40 years, and it is listed as both "endangered" under the Endangered Species Act and "depleted" under the Marine Mammal Protection Act.

Although commercial exploitation of the Bering Sea population of bowheads did not begin until the mid-19th century, they have been hunted for subsistence purposes by Eskimos for centuries. Reported increases in the number of bowhead whales landed, killed but lost, and struck but lost by Alaskan Eskimos during the mid-1970's, however, led to increasing concern about the adverse impact of unregulated Eskimo hunting on the endangered bowhead population. This concern led to a decision by the International Whaling Commission (IWC) in June 1977 to ban the taking of bowhead whales for subsistence by all its member nations' people, including Alaskan Eskimos. Subsequently, in December 1977 and thereafter, the IWC modified the total ban in recognition of the subsistence and cultural dependence of Alaskan Eskimos upon bowheads, and established limited quotas for subsistence hunting during 1978, 1979, and 1980. At its July 1980 meeting, the IWC adopted a total "block quota" for the years 1981 through 1983 of 45 bowhead whales landed or 65 struck, whichever comes first, provided that not more than 17 whales could be landed during any one of those three years. Detailed discussions of the Commission's activities in previous years and a historical summary of the bowhead whale issue are presented in the Commission's Annual Reports for Calendar Years 1977-1980. The Commission's efforts during 1981 to assist in the development and implementation of an effective, coordinated bowhead whale research program are discussed in Chapter VIII of this Report.

Cooperative Agreement

On 24 December 1980, the National Marine Fisheries Service published the Schedule of IWC regulations in the Federal Register, thereby making those regulations, including the bowhead quota for the three years which had been adopted by the IWC at its July 1980 meeting, applicable to Alaskan Eskimos and all other persons subject to the jurisdiction of the United States. The three-year quota established by the IWC did not, however, allocate the total quota and the United States Government was allowed to allocate the number of bowhead whales to be taken each year among the nine Alaskan Eskimo whaling villages, subject to the annual limit of 17 whales landed in any one year. For this purpose, the Service published proposed regulations in the Federal Register

on 16 January 1981. The proposed regulations set limits for 1981 of 17 whales landed or 25 struck, 15 landed or 22 struck for 1982, and 13 landed or 18 struck for 1983. They were substantially the same as those that had been in effect for 1980 in all other respects. The Commission submitted comments to the Service by letter of 27 February 1981 recommending that the proposed regulations be adopted subject to certain comments and recommended modifications to ensure compliance with the limits and timely reporting of whaling activities.

After considering the comments on the proposed regulations and further discussions, it was determined that it was necessary and desirable to provide the Eskimo whalers with increased opportunity and responsibility for regulation, monitoring, and enforcement of the bowhead whale hunt. In order to achieve that goal, the Government negotiated and signed a Cooperative Agreement for management of the bowhead whale hunt in 1981 and 1982. The Agreement, signed by the National Oceanic and Atmospheric Administration (NOAA) on behalf of the Government and the Alaska Eskimo Whaling Commission (AEWC) on behalf of Eskimo whalers on 26 March 1981, recognizes that NOAA has the primary responsibility for bowhead whale management but provides a mechanism for the AEWC to assume responsibility for important aspects of whaling management under the AEWC's Management Plan. Under the Agreement, the strike limit was set at 32 for 1981 and the strike limit for 1982 is to be negotiated before 15 March 1982. The Agreement and Management Plan provide for civil assessments of up to $10,000 and for withholding a whaling captain's right to whale for up to five years if more than 17 whales are landed or 32 struck in 1981, and for other violations of the Management Plan. The AEWC assumes the responsibility for determining the allocation of strikes among the whaling villages under the terms of the Agreement and for providing daily oral reports to NOAA personnel during the hunt concerning the number of strikes and landings and a detailed written report within 30 days after conclusion of the hunt.

Eskimo Whaling During 1981

The AEWC allocated the total of 32 strikes among the whaling villages and monitored and reported on whaling activities during 1981 in compliance with the Cooperative Agreement. At the end of the spring hunt, 14 whales had been landed and 11 others had been struck but lost for a total of 25 strikes. The first three strikes during the fall hunt were successful and all three whales were landed, for a total of 17 whales landed and 28 strikes during 1981. The Eskimo whalers ceased whaling when the 17th whale was landed and the remaining strikes were not utilized. In addition, the AEWC amended its Management Plan in August 1981 to prohibit the use of the shoulder gun until

after a line and float have been secured to the whale so as to minimize the likelihood of whales being struck but lost. The AEWC also reviewed whaling practices employed by Eskimo whalers during 1981 and, as a result of its review, suspended the right of two harpooners to participate in bowhead whaling for a one-year period.

Consideration by the International Whaling Commission During 1981

Although the establishment of a three-year quota made it unnecessary for the International Whaling Commission to reconsider the quota for bowhead whales at its July 1981 meeting, the IWC reviewed the information on the spring 1981 bowhead hunt and the results of the scientific research efforts conducted by the United States. The IWC's Scientific Committee noted that the total number of bowhead whales passing ice camps during the spring 1981 count was estimated to be between 2,025 and 2,459, with a best estimate of 2,242 and an estimated gross recruitment rate of 3.4 percent. The Scientific Committee considered that the 1978 estimate of between 1,783 and 2,864 whales is still the most accurate estimate. In addition, an IWC Technical Committee Working Group met prior to the annual IWC meeting to review and develop proposed management principles and guidelines that would recognize the distinction between aboriginal and commercial whaling. Representatives of the U.S. Government and Alaskan Eskimo whalers participated in the meeting and, after extensive discussions among the interested parties, a report was prepared and distributed to the IWC member nations for review and comment. The IWC will consider the report and proposals to establish an aboriginal whaling scheme at its meeting in July 1982.

Humpback Whale (Megaptera novaeangliae)

At certain times of the year, humpback whales inhabit waters off Alaska, Hawaii, and the east and west coasts of the U.S. mainland. The species has been over-exploited throughout its range and all populations are designated as "endangered" under the Endangered Species Act. Present threats to the species include commercial and recreational vessel traffic, offshore oil and gas development, sport and commercial fisheries, and certain coastal development.

Glacier Bay National Park, Alaska

The inland waters of the Glacier Bay National Park and other areas in southeast Alaska provide summer habitat for a portion of the North Pacific population of humpback

whales. Between 1967 and 1977, about 20-25 whales were observed annually in Glacier Bay, apparently feeding on krill and other species. In 1978 and 1979, however, fewer whales entered the Bay and many of those that did remained for shorter periods of time than previously. In the summer of 1979, the National Park Service, having determined that increasing vessel traffic might be at least partially responsible for the whales leaving and avoiding the Bay, established emergency regulations to restrict vessel traffic. It also initiated consultations with the National Marine Fisheries Service to determine whether further actions might be needed to assure that the whales were not adversely affected by vessel traffic or other activities in the Bay.

In October 1979, the Marine Mammal Commission, with the assistance of the National Marine Fisheries Service and the National Park Service, convened a meeting to review available information on the possible cause or causes of humpback whale movement from Glacier Bay and to identify critical gaps in available data. Participants at the meeting concluded, among other things, that available information had not been fully evaluated and likely would be insufficient to determine with certainty whether increased vessel traffic was the cause of the observed shift in whale distribution. It was recommended that studies be undertaken to: (1) characterize the food and feeding behavior of humpback whales in Glacier Bay and surrounding waters; (2) assess the acoustic characteristics of the Bay and the vessels operating in the Bay; and (3) compare the behavioral responses of whales to the vessels in the Bay and in other areas of southeast Alaska.

The National Marine Fisheries Service considered the meeting results, as well as other information and, in its biological opinion issued on 3 December 1979 recommended, among other things, that the National Park Service undertake the three studies listed above. Subsequently, in FY 81, Congress appropriated special funds to the National Park Service to address the problem and these funds were transferred to the National Marine Fisheries Service to support the needed studies. After these were started in the early summer of 1981, the National Park Service asked the Commission to convene a meeting in the late fall or early winter of 1981 to: (1) review the results of studies carried out during 1981 and the plans, if any, for follow-up studies in 1982; (2) identify weaknesses, if any, in past or planned research; and (3) determine whether planned research projects should be revised or expanded to better meet critical information needs. This meeting was held in Seattle, Washington, on 20-21 December 1981.

At the meeting, preliminary results of the three studies undertaken in 1981 in Glacier Bay, Frederick Sound, Stephen's Passage, and other southeastern Alaska waters were discussed. These results suggest that: the acoustic environment of Glacier Bay may have certain attributes that differ from the other areas sampled; humpback whales may change their behavior patterns when vessels approach; there appears to be considerable movement of individual whales between the various southeastern Alaska waters sampled; and prey studies may not provide the data to support or refute the hypothesis that changes in the distribution of prey may have caused humpback whales to abandon or avoid Glacier Bay either during or after 1978. Participants suggested that further efforts should be made to: compile and analyze humpback whale and pertinent environmental data available from a variety of sources other than the three major projects reviewed; develop a sampling program to better assess and monitor temporal and spatial distribution, movements, and activities of humpback whales and vessels in the areas studied; and develop interdisciplinary studies using radio and sonic tracking devices, sound playback experiments, behavioral observations, and environmental sampling methods to better understand the factors (including vessel traffic and prey availability) affecting humpback whale distribution and abundance in southeastern Alaska waters.

A draft meeting report was sent to participants on 12 January 1982 and the final report is expected to be available by February or March 1982.

Humpback Whales in Hawaii

The waters surrounding the main Hawaiian Islands are used for calving and nursing by about 500 to 700 of the estimated 1,000 humpback whales comprising the North Pacific population. Since 1977, the Commission, the National Marine Fisheries Service, and the State of Hawaii have addressed a number of concerns related to the protection of humpback whales in Hawaii, including: possible adverse effects associated with whale-watching activities; the effects of operating an inter-island hydrofoil service through certain humpback whale habitats; criteria for determining activities which constitute harassment; the need to educate boat and aircraft operators about humpback whales; and research on the abundance, distribution, and movements of humpback whales in the area.

During 1981, the Commission again became concerned about the potential adverse effects of an inter-island transportation service on humpback whales, and, on 6 May 1981, wrote the National Marine Fisheries Service to convey

its understanding that: the company proposing to operate the hydrofoil service had elected to use surface-effects ships (i.e., hovercraft) instead of hydrofoils and that an order for one or more vessels had already been placed. Noting that hovercraft noise may adversely affect humpback whales in possible transportation corridors, the Commission recommended that, if the Service had not already done so, it contact the hovercraft operator to discuss the plans for the hovercraft service, the potential effects of hovercraft noise on humpback whales, and the applicability of provisions of the Service's "Notice of Interpretation." The Commission also recommended that the Service: (1) gather and evaluate available information on noise characteristics to assess the nature and potential magnitude of possible adverse effects on humpback whales and to identify possible mitigating measures, such as technological solutions and/or alternative transportation corridors and terminal sites; and (2) make appropriate cooperative arrangements with the hovercraft operator to detect, monitor, and mitigate possible adverse effects.

In its 15 July 1981 response, the Service advised the Commission that, since the proposed operator was seeking Federal funding guarantees from the Maritime Administration for purchase of the vessels, there would be sufficient Federal involvement for initiation of consultations with the Maritime Administration under Section 7 of the Endangered Species Act. The Service also noted that it was awaiting receipt of an environmental assessment on the proposed action and, once this had been reviewed, Service representatives would be meeting with the operator to discuss alternative routing, scheduling, and terminal sites; whale detection and monitoring systems; and studies necessary to evaluate the effects of hovercraft operations on humpback whales.

Humpback Whales in the Northwest Atlantic

Participants at the Commission-sponsored Workshop on East and Gulf Coast Cetaceans and Pinnipeds, held in September 1979, noted that concentrations of humpback whales appeared in various areas in the northwest Atlantic Ocean and that a small subsistence take by natives of Greenland and Bequia in the West Indies might be inhibiting the recovery of the North Atlantic humpback whale population. As a result of the workshop's recommendations on humpback whale research, the Commission, in consultation with its Committee of Scientific Advisors, developed a preliminary research plan and cooperated with the National Marine Fisheries Service in supporting humpback whale studies and a workshop on humpback whales in the northwest Atlantic (see 1980 Annual Report). Participants at the latter workshop identified additional studies that

were considered necessary to the understanding of the interactions and population dynamics of the northwest Atlantic humpback whale population(s). One of the studies, "Distribution Patterns and Movements of Humpback Whales in the North Atlantic," is being directly supported by the Commission and is briefly described in Chapter II of this Report. At the end of 1981, the National Marine Fisheries Service was consulting with the Commission on plans for continued support of a number of multi-year humpback whale studies, and the Commission will continue to consult with the Service to assure that these studies provide the necessary information to help identify and protect the humpback whale population(s).

Protected Areas

The Marine Mammal Protection Act recognizes the importance of protecting habitat and specifically calls for efforts "to protect rookeries, mating grounds, and areas of similar significance for each species of marine mammal from the adverse impact of man's actions." One of the legislative tools that can be helpful in providing habitat protection for marine mammals is the Marine Protection, Research, and Sanctuaries Act, which authorizes the Secretary of Commerce to designate certain ocean areas as marine sanctuaries to preserve or restore their conservational, recreational, ecological, or aesthetic values. Responsibility for the National Marine Sanctuary Program has been delegated to the Office of Coastal Zone Management within the National Oceanic and Atmospheric Administration.

The selection of marine sanctuaries is based on the existence of distinctive marine resources whose protection and beneficial use require comprehensive, geographically-oriented planning and management. In late 1980 and early 1981, two marine sanctuaries, the Channel Islands National Marine Sanctuary and the Point Reyes-Farallon Islands National Marine Sanctuary, were designated off the coast of California to enhance protection of significant marine mammal and seabird habitat areas. Administration of these two sanctuaries will complement other marine management and research activities relative to marine mammals and other living marine organisms.

On 10 March 1981, representatives of the Commission met with officials of the Office of Coastal Zone Management to discuss various aspects of the marine sanctuary program, including research plans for the Channel Islands and Point Reyes-Farallon Islands National Marine Sanctuaries and the status of the proposed humpback whale sanctuary in Hawaiian waters. Following that meeting, the Commission, in consultation with its Committee of Scientific Advisors, developed a sample site-specific research and data management plan which

was forwarded to the Office of Coastal Zone Management on 15 June 1981. The Commission recommended that the sample plan be used as a model for developing individual sanctuary research plans.

In order to provide an improved basis for making informed management decisions concerning human activities which may affect components of a sanctuary's ecosystem, the sample research plan established a goal of detecting and monitoring short-, intermediate-, and long-term changes in species, populations, communities, habitats, and ecosystem relationships in and adjacent to a marine sanctuary. The sample plan then suggested and organized specific research tasks to: (1) establish baseline information for characterizing a sanctuary's ecosystem; (2) improve understanding of the dynamics and interrelationships of key species, populations, and communities within a sanctuary's boundaries; and (3) monitor key species, populations, communities, human activities, and environmental parameters to detect changes and trends. At the end of 1981, the Office of Coastal Zone Management was in the process of developing research and management plans for both the Channel Islands and the Point Reyes-Farallon Islands National Marine Sanctuaries.

CHAPTER VIII

OUTER CONTINENTAL SHELF OIL AND GAS DEVELOPMENT

Activities and events associated with exploration and development of offshore oil and gas resources may have direct and indirect effects on marine mammals and the ecosystem of which they are a part. The Bureau of Land Management has been delegated responsibility by the Secretary of the Interior under the Outer Continental Shelf (OCS) Lands Act, as amended, for predicting, mitigating, and detecting the adverse effects of OCS oil and gas development. The National Marine Fisheries Service and the U.S. Fish and Wildlife Service are responsible, under the authority of the Marine Mammal Protection Act and the Endangered Species Act, for reviewing proposed actions and advising the Bureau as to measures that may be needed to assure that the proposed actions will not be to the disadvantage of marine mammals and other wildlife. The Commission reviews the 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 during 1981 are discussed below.

Proposed OCS Lease Sale #76
Northeast Atlantic

By letter of 23 February 1981, the New York OCS Office of the Bureau of Land Management advised the Commission that it was evaluating the possible scope of an oil and gas lease sale on the Atlantic outer continental shelf in accordance with the department's five-year leasing schedule. The sale was tentatively set for November 1983. The Bureau requested that the Commission and other interested Federal agencies provide information on: any valuable resources other than oil and gas within the general area; the potential effect of mineral operations on these resources, the total environment, or other uses of the area; and any foreseeable conflicts between the proposed lease sale and activities under the Commission's purview. With respect to the last point, the Bureau also requested suggestions and recommendations concerning the resolution of potential conflicts.

The Commission, in consultation with its Committee of Scientific Advisors, considered the request and by letter of 6 April 1981 advised the Bureau's New York OCS Office that: 25 species of marine mammals have been reported to occur in, or migrate through, the area under consideration; six of these species are listed as "endangered" under the

Endangered Species Act; the habitat requirements and habitat-use patterns of these species are not well documented and available information is insufficient to identify sites which are essential or critical to their well-being or survival; and available information on the possible effects of disturbance, noise, oil, and other pollutants also is insufficient to accurately predict how the species and their habitats might be affected by activities or events which would or could be associated with the proposed lease sale.

The Commission noted that the Bureau had recognized the above-mentioned data limitations and had taken steps to correct them by providing funding for several noise and oil "effects" studies, as well as a Cetacean and Turtle Assessment Program. Additionally, the Commission noted that the National Marine Fisheries Service recently had initiated a program to assess marine mammals, including endangered large cetaceans, along the northeastern coast of the United States and that the results of these studies could eliminate many of the uncertainties and should provide a basis for monitoring, as well as predicting, the possible effects of the proposed action on marine mammal populations off the northeastern coast of the United States. To assure, insofar as possible, that non-endangered as well as endangered species and populations of marine mammals are not adversely affected by activities and events associated with the proposed action, the Commission recommended that, if the Bureau had not already done so, it should: (1) formally consult with the National Marine Fisheries Service to identify information, lease stipulations, detection and monitoring programs, or other measures that may be needed to assure that populations of marine mammals would not be adversely affected; and (2) modify the proposed action or actions and undertake such additional research or detection and monitoring programs as may be necessary to assure that there would be no significant direct or indirect effects on marine mammal populations. The Commission also recommended that the Bureau consult with the National Marine Fisheries Service to determine whether and how ongoing and planned programs of the two agencies might be coordinated or integrated to meet data needs more effectively and at less cost.

Proposed OCS Lease Sale #78
South Atlantic

On 27 February 1981, the Bureau of Land Management's New Orleans OCS Office advised the Commission that it was initiating planning for the proposed South Atlantic OCS Lease Sale #78, which was tentatively set for January

1984. The Commission was asked to provide information on the relationship of the proposed OCS activity to its concerns and responsibilities and to identify areas of significant environmental concern and provide resource data to support these concerns.

On 22 April 1981, the Commission, in consultation with its Committee of Scientific Advisors, responded to the request, advising the Bureau's New Orleans OCS Office that: 28 species of marine mammals have been reported to occur in, or migrate through, the area under consideration; seven of these species are listed as "endangered" under the Endangered Species Act; available information is insufficient to identify sites which are essential or critical to the survival of marine mammals or to accurately predict how these species and their habitats might be affected by activities and events associated with the proposed lease sale; however, available information does provide sufficient basis to be concerned that one or more species or population of marine mammals could be adversely affected; and the species of greatest concern are the West Indian manatee (which is particularly susceptible to the effects of coastal development and vessel traffic) and the bottlenose dolphin (which may be the most common marine mammal in waters of the southeastern United States).

The Commission acknowledged that information resulting from the Gulf of Mexico and South Atlantic endangered species projects and from oil and noise effects studies might reasonably be expected to eliminate many of the uncertainties now existing about the status of marine mammals and the effects that offshore activities might have on them. To assure, insofar as possible, that marine mammals off the U.S. southeast coast are not adversely affected, the Commission recommended that the Bureau: (1) reinstitute Section 7 consultations with the National Marine Fisheries Service and the U.S. Fish and Wildlife Service if new information becomes available or if the proposed actions are modified; (2) consult with the National Marine Fisheries Service, if it had not already done so, to determine whether any non-endangered species of marine mammal (e.g., the bottlenose dolphin) may be affected adversely by the proposed action; (3) modify the proposed action and undertake such additional research or detection and monitoring programs as may be necessary to assure that there are no significant direct or indirect effects on marine mammal populations. The Commission further recommended that the Bureau consult with the National Marine Fisheries Service and the U.S. Fish and Wildlife Service to determine whether and how programs of the three agencies might be coordinated or integrated to meet information needs more effectively and at less cost.

Proposed OCS Lease Sales #67 and #69
Gulf of Mexico

Proposed OCS Lease Sales #67 and #69 have been tentatively scheduled for March and August 1982, respectively, and include 472 tracts (2,458,827 acres) of submerged lands offshore the states of Texas, Louisiana, Mississippi, Alabama, and Florida. On 14 May 1981, the Commission, in consultation with its Committee of Scientific Advisors, provided comments to the Bureau's New Orleans OCS Office on the draft environmental impact statement for these proposed sales and noted that 27 different species of marine mammals have been reported to occur in, or migrate through, the Gulf of Mexico and seven of these species are designated as "endangered" under the Endangered Species Act. Referring to results, provided in the DEIS, of the Bureau's consultations with the National Marine Fisheries Service and the U.S. Fish and Wildlife Service under Section 7 of the Endangered Species Act, the Commission noted that it concurred with the Services' determinations that the proposed action is not likely to jeopardize endangered marine mammals, provided certain conditions were met. The Commission expressed concern, however, that events associated with the action could have significant adverse effects on non-endangered marine mammals, particulaly local populations of the bottlenose dolphin. In this context, the Commission noted that, although the Bureau's DEIS on the proposed sales indicated that such adverse impacts were not likely, it did not provide the rationale for this determination, nor did it indicate whether the determination was based on consultations with the National Marine Fisheries Service. Additionally, it was not clear what steps were being taken to make the best possible use of related marine mammal studies being supported by the National Marine Fisheries Service and the U.S. Fish and Wildlife Service. The Commission therefore requested that the Bureau identify: (1) the rationale for its determination that the proposed action is not likely to affect non-endangered marine mammals; and (2) the steps being taken to coordinate and, as appropriate, integrate ongoing and planned marine mammal salvage, survey, and population studies in the Gulf of Mexico.

Proposed OCS Lease Sale #68
Southern California

Proposed OCS Lease Sale #68 is tentatively scheduled for June 1982 and includes 218 tracts of submerged lands offshore southern California. By letter of 7 August 1981 to the Pacific OCS Office, the Commission, in consultation with its Committee of Scientific Advisors, provided detailed comments on the Bureau's draft environmental impact statement

for the proposed sale. Among other things, the Commission's comments noted that: additional information should be provided in the FEIS to explain why consultations with the National Marine Fisheries Service and the U.S. Fish and Wildlife Service, pursuant to Section 7 of the Endangered Species Act, had been limited to the leasing and exploration phases of the proposed sale while the DEIS considered possible impacts of all associated activities and events, including development and production; given uncertainties concerning possible direct and indirect effects of activities associated with the sale, the need for the Bureau to consider and design environmental monitoring studies for areas which are leased is self-evident; the design of such monitoring programs should be done in consultation with other Federal and state agencies and take maximum advantage of related programs being conducted or planned by Federal or state agencies and industry/academic/private organizations; certain additional information on marine mammals which is contained in a draft final report prepared for the Bureau's Pacific OCS Office should be added to the FEIS; since the Southern California Bight is a seismically active area that would appear to include risks not found in the Gulf of Mexico where most of the past OCS experience has taken place, the validity of the fundamental assumption of the oil spill probability analysis, which states that "...realistic estimates of future oil spill frequencies can be based on past OCS experience...," should be examined and, if necessary, oil spill probabilities should be recalculated; and statements in the DEIS correlating low oil spill probabilities with low ecological losses should be corrected to note that it does not necessarily follow that spill probabilities provide a direct measure of the possible extent of impacts since any spill that does occur could have a significant adverse effect on marine mammals, seabirds, and other components of marine communities in the sale area.

Proposed OCS Lease Sale #57
Norton Sound, Alaska

Proposed OCS Lease Sale #57 is tentatively scheduled for September 1982 and consists of 429 tracts (approximately 2.4 million acres) of submerged lands in Norton Sound, Alaska. On 4 November 1981, the Commission provided comments on the draft environmental impact statement for the proposed sale to the Bureau's Alaska OCS Office. The Commission noted in its comments that the statement appeared to be based on a thorough review of available literature, but that it could be improved by: (a) identifying critical information gaps and more fully describing the implications of assumptions used to develop the oil spill risk analysis, (b) providing

additional analysis of data concerning the possible fate and effect of spilled oil which may sink to the bottom as a result of interactions with high sediment loads in the water column or become trapped under or on ice formations, and (c) modifying the assessment of possible effects to better reflect interactions between the physical and biological components of the Norton Sound ecosystem. The Commission further noted that information included in the DEIS on both endangered and non-endangered marine mammal populations was limited almost exclusively to the distribution and abundance of those species and that the reader was referred to another OCS report, not readily available, for information on population status, habitat requirements, food habits, and reproductive characteristics. Because of this, the DEIS does not provide an adequate basis for assessing the information presented or for evaluating vital life history considerations for marine mammal populations in Norton Sound. The Commission suggested that a more complete description of available life history information for marine mammals be included in the final EIS.

The Bureau of Land Management's Environmental Studies Program

As noted above, the Bureau of Land Management has been delegated responsibility by the Secretary of the Interior under the Outer Continental Shelf Lands Act, as amended, for assessing and mitigating the possible adverse effects of activities and events associated with the exploration and development of offshore oil and gas resources. To provide the biological, ecological, and technical information needed to meet this responsibility, the Bureau has established regional environmental studies programs which are administered by the Bureau's OCS Offices in New York, New Orleans, Los Angeles, and Anchorage. The Bureau has also contracted with the National Oceanic and Atmospheric Administration's Office of Marine Pollution Assessment to plan and administer the Alaska Outer Continental Shelf Environmental Assessment Program (OCSEAP).

To assist the Bureau in developing and implementing the research programs needed to assess and monitor the effects of OCS oil and gas development on marine mammals and their habitats, the Commission: reviewed and commented on relevant plans and requests for proposals developed by the Bureau; participated in meetings of Technical Proposal Evaluation Committees convened by the Bureau to review proposals; and participated in several meetings to review and coordinate relevant research programs being conducted and planned by the Bureau and the National Marine Fisheries Service.

California OCS Environmental Studies Plan

On 14 July 1981, the Commission was asked by the Bureau's Pacific OCS Office to review and comment on the draft California OCS Environmental Studies Plan for FY 83. This draft plan, which is updated annually, describes past and current marine and coastal studies funded by the Pacific OCS Office to provide information that would help predict, assess, and monitor potential impacts of OCS oil and gas development off California. It also lists study topics approved for funding in FY 82 and describes and ranks several proposed studies for FY 83.

By letter of 18 August 1981 to the Pacific OCS Office, the Commission expressed concern that the Bureau's approach to ranking study topics might tend to eliminate any proposed research, no matter now critical it might be, that could not be accomplished within the time frame of the Department of the Interior's five-year OCS oil and gas leasing schedule. The Commission pointed out that OCS sales and subsequent activities can and presumably would be delayed if it was determined that some type of research was essential to assess and manage adverse effects resulting from the lease sale and subsequent activities on human, marine, and coastal environments. It was suggested that the Bureau's studies plan be modified to reflect this.

In regard to uncertainties about possible direct and indirect impacts of OCS activities, the Commission advised the Pacific OCS Office that well-designed monitoring programs might facilitate development by providing assurance that these activities will not have a significant adverse effect on marine mammals or other components of the ecosystem of which they are a part. The Commission further noted that routine collection and necropsy of beach-cast animals, combined with periodic surveys of one or more indicator species or populations, may offer the most practical and inexpensive means of detecting and assessing possible effects. The Commission therefore suggested that, if the Bureau had not already done so, it consult with the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, and the California Department of Fish and Game to determine how these agencies might contribute to designing and supporting a program to detect and monitor the effects of OCS activities on marine mammal populations off California. Copies of the Commission's letter were sent to representatives of the National Marine Fisheries Service and the U.S. Fish and Wildlife Service to facilitate cooperative planning, and on 27 October 1981, representatives of the three agencies met in Los Angeles to discuss steps that might be taken to better coordinate programs being planned or conducted.

Bowhead Whale Research

As noted in Chapter VII of this Report, the National Marine Fisheries Service is responsible for carrying out biological studies of the bowhead whale population while the Bureau of Land Management has responsibility for developing information needed to assess and mitigate the possible adverse impacts of OCS activities on the bowhead and its habitat. During 1981, as in the past (see 1978, 1979 and 1980 Annual Reports), the Commission continued to work with the two agencies to facilitate development and implementation of a coordinated, long-range research plan for the bowhead whale. The general objectives of this plan are to assure that: (1) agency responsibilities and information needs are clearly defined; (2) there is no duplicative or wasteful research; and (3) various research tasks are designed and conducted so as to meet information needs in the most cost-effective manner possible.

Although significant progress was made in 1981, efforts to develop and implement a coordinated program plan were not completely successful and are continuing. At the same time, budget reductions affecting both the National Marine Fisheries Service and the Bureau of Land Management point out the need for better planning and coordination of research. Additionally, the International Whaling Commission will consider an aboriginal whaling scheme during 1982 and the three-year quota for subsistence hunting of bowhead whales will expire in 1983 (see Chapter VII of this Report). This serves to underscore the importance of the 1982 field season with respect to obtaining biological and other information that may be needed to provide more reliable estimates of the size, productivity, and trends of the bowhead populations in the North Pacific.

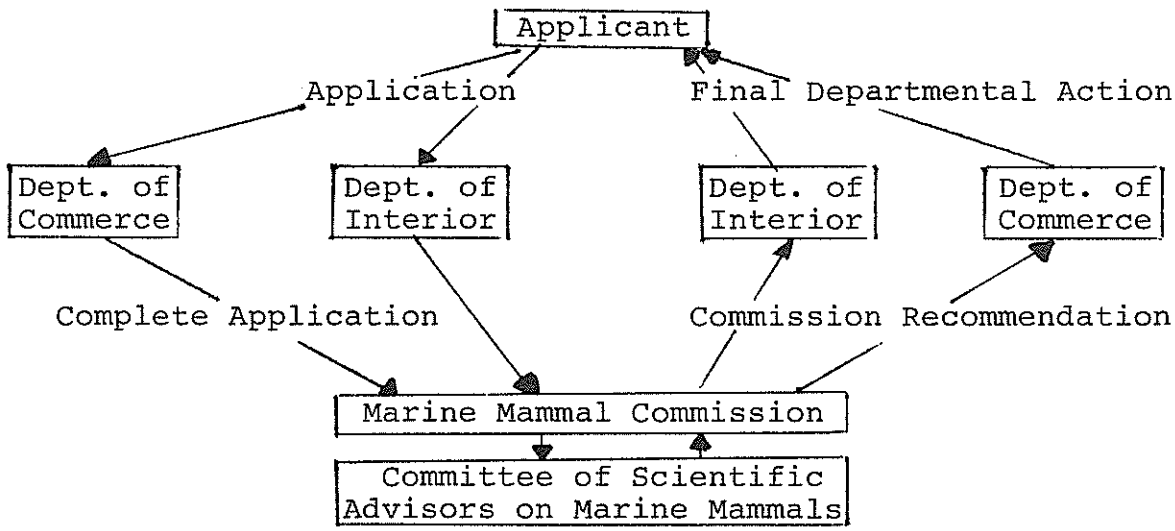
The State of Alaska, the Alaska Eskimo Whaling Commission, and the oil and gas industry, as well as the National Marine Fisheries Service and the Bureau of Land Management, have interests and responsibilities relative to the protection and conservation of bowhead whales. The National Marine Fisheries Service has lead-agency responsibility, under both the Marine Mammal Protection Act and the Endangered Species Act and, in early 1982, the Commission will recommend that the Service convene a meeting of representatives of these groups, no later than the end of February 1982, to identify and, as possible, agree on: (1) any additional data needed to assess and monitor the size, productivity, and trends of the North Pacific bowhead whale population and to predict and mitigate possible direct and indirect effects of offshore oil and gas development; (2) the types of research needed

to meet the identified data needs; (3) the personnel, logistic support, special equipment, and funds needed to conduct that research; (4) target initiation and completion dates for each identified research task; and (5) the agency or group which will be responsible for conducting and/or supporting each task. The Commission will offer to help organize the meeting and will review the results to determine whether additional action may be needed to further improve planning and coordination of bowhead whale research.

CHAPTER IX

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, the application is reviewed by the Commission in consultation with its Committee of Scientific Advisors on Marine Mammals. The following is a schematic representation of this permit review process.



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 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 inspecting an applicant's marine mammal holding facilities, that may be warranted before reaching a decision; and the efficiency and thoroughness of those responsible for the review.

During 1981 the Commission made recommendations on 41 applications submitted to the Department of Commerce and two applications submitted to the Department of the Interior. The Commission's average review time for complete applications was 28 days (median, 27 days). Not included in the preceding statistics are recommendations on two applications which were still awaiting final action by the Department of Commerce at the end of 1981, five applications which were under Commission review at year's end, and three applications which were awaiting final action by the Service and the Commission pending the results of inspections by the Animal and Plant Health Inspection Service of the Department of Agriculture to determine the adequacy of the applicants' facilities and arrangements for care of marine mammals in captivity. The Commission, in consultation with its Committee of Scientific Advisors, also made recommendations on 14 requests to modify permits during 1981. The average time required for Commission review of these matters was 23 days.

For the 41 applications processed by the Department of Commerce during 1981, it took an average of 90 days (median, 72 days) from the date the application was received by the Department until final action was taken. The two permit applications submitted to the Department of the Interior were processed in an average of 112 days (median, 111.5 days). If calculated from the date of receipt of a complete application at the Services, the average processing times for the Departments of Commerce and the Interior were 60 and 86 days, respectively, compared to 87 and 65 days, respectively, in 1980.

The Commission also made recommendations on six applications in 1980 which were acted on by the Department of Commerce in 1981. The Commission's average review time for these applications was 28 days. Total processing time by the Department of Commerce averaged 342 days and, if calculated from the date the applications were received complete at the Service, averaged 295 days. The longer processing times for these applications resulted from lengthy delays in obtaining necessary additional information and clarification from the permit applicants, both foreign and domestic.

APPENDIX A

COMMISSION RECOMMENDATIONS: CALENDAR YEAR 1981

7 January	Commerce, scientific research permit application, National Museum of Natural History.
19 January	Commerce, commenting on actions by the National Marine Fisheries Service to prepare for the next renegotiation of the Interim Convention for the Conservation of North Pacific Fur Seals, requesting additional information on the status of actions undertaken by the Service relative to the Commission's recommendations of 14 May 1980 and providing additional recommendations with respect to: (1) the preparation of a paper on "optimum sustainable population" which could be considered at an April 1981 meeting of the Fur Seal Commission; (2) the analysis of (a) probable effects from pelagic sealing on the fur seal population, (b) the possibility of negotiating agreements with Canada, Japan, and/or the Soviet Union to prohibit pelagic sealing if the Convention was terminated, and (c) the effect of terminating the Convention on other efforts to conserve marine mammals, seabirds, and fish in the Bering Sea and elsewhere; and (3) the development of a comprehensive three-year research plan which identifies the costs and likely utility of planned fur seal research efforts.
21 January	Western Pacific Fishery Management Council, commenting on the "Combined Fishery Management Plan, Environmental Impact Statement and Regulatory Analysis for the Spiny Lobster Fisheries of the Western Pacific Region" as it relates to protection of the Hawaiian monk seal and recommending that: (1) the Council consider (a) increasing the minimum size limit on harvestable lobsters, (b) prohibiting fishing in the U.S. Fishery Conservation Zone in waters less than 20 fathoms deep, and (c) requiring observers on all vessels fishing for lobsters offshore of the Hawaiian Islands National Wildlife Refuge; (2) the proposed management system be expanded to include an orientation program which will ensure that fishermen are aware of provisions of the Endangered Species Act, the Marine Mammal Protection Act, and the

	Fishery Management Plan; (3) draft regulations be revised to ensure that all necessary information will be recorded in required logbooks; and (4) supportive recommendations concerning biological research and monitoring be expanded to specify the precise programs needed to detect and monitor possible adverse impacts on lobster stocks, Hawaiian monk seals, other endangered species, and the ecosystems of which they are a part.
26 January	Commerce, modification of scientific research permit, Barbara J. Kuljis.
4 February	Commerce, scientific research permit application, National Zoological Park.
12 February	Commerce, modification of scientific research permit, Daniel P. Costa.
26 February	Commerce, scientific research permit application, Paul Gleeson.
27 February	Commerce, commenting to the National Marine Fisheries Service on "Proposed Regulations on the Taking of Bowhead Whales by Indians, Aleuts, or Eskimos for Subsistence Purposes," and recommending that they be adopted with certain modifications.
2 March	Commerce, modification of scientific research permit, Washington Department of Game.
3 March	Commerce, commenting to the National Marine Fisheries Service on its study of marine mammal-fisheries interactions in the Columbia River and adjacent waters, expressing the view that this study is essential for defining and resolving fishery conflicts and recommending that the Service: (1) evaluate the Columbia River project to assure that it is designed to provide the specific kinds and quality of information needed for decision-making; (2) provide the funding needed to complete the major program elements by the end of 1982; and (3) if adequate funding cannot be provided to complete the project by the end of 1982, consult with the Commission to determine how available funds can be used to the best possible advantage.

4 March	Commerce, public display permit application, Marine World Africa, USA.
10 March	Commerce, public display permit application, Knie's Kinderzoo.
12 March	Commerce, scientific research permit application, John and Jan Straley.
13 March	State, commenting on a revised Memorandum of Understanding between the Governments of the United States and Japan regarding marine mammal research to be conducted in connection with the Japanese salmon fishing operations within the U.S. Fishery Conservation Zone and recommending that the Department of State request the National Marine Fisheries Service to provide specific and detailed proposed provisions, language and rationale for review.
1 April	Commerce, public display permit applications, Marine Animal Productions and Canada's Wonderland Ltd.
6 April	Interior, commenting on the activities of the Bureau of Land Management to prepare and plan for OCS Oil and Gas Lease Sale #76 off the northeast coast of the U.S. and recommending that, if the Bureau had not already done so, it: (1) initiate consultations with the National Marine Fisheries Service under Section 7 of the Endangered Species Act to identify information, lease stipulations, detection and monitoring programs, or other measures needed to protect endangered marine mammal populations and that consultations also be conducted with the Service concerning similar provisions needed to protect non-endangered marine mammal populations; (2) modify the proposed action(s) and undertake such additional research as may be necessary to assure that there would be no significant direct or indirect effects on marine mammal populations; and (3) consult with the Service to determine whether and how ongoing marine mammal research and monitoring programs might be integrated to meet data needs more effectively and at less cost.

7 April	Commerce, public display permit application, Auckland Zoological Park, and scientific research permit application, Carnegie Museum of Natural History.
8 April	Commerce, public display permit applications, Theatre of the Sea and Marine Life Aquarium, and scientific research permit applications, National Museum of Natural History and the Southwest Fisheries Center.
20 April	Commerce, scientific research permit application, Sarah Hinckley.
21 April	Commerce, scientific research permit application, Richard H. Lambertsen, and public display permit application, 454802 Ontario Ltd.
22 April	Interior, commenting on the plans and activities of the Bureau of Land Management to prepare for the OCS Lease Sale #78 off the southeast coast of the U.S., providing information on the effects of noise and oil on marine mammals, and recommending that the Bureau: (1) reinitiate consultations with the National Marine Fisheries Service under Section 7 of the Endangered Species Act if new information becomes available on possible adverse impacts on endangered marine mammals or if the proposed actions are modified; (2) consult with the Service to determine if non-endangered marine mammals may be affected by the proposed action; (3) modify the proposed action and undertake additional research and monitoring as may be necessary so that there would be no adverse effects on marine mammal populations; and (4) consult with the Service to determine whether and how programs might be coordinated or integrated to meet information needs more effectively and at less cost.
27 April	Commerce, scientific research permit application, LGL Ltd., Environmental Research Associates.
28 April	Commerce, scientific research permit application, James R. Gilbert.
29 April	Commerce, modification of scientific research permit, Brian and Patricia Johnson.
30 April	Commerce, public display permit application, Ocean World, Inc.

6 May	Commerce, commenting to the National Marine Fisheries Service on actions needed to identify and minimize potential adverse effects on humpback whales from a proposed inter-island hovercraft transportation service in Hawaii and recommending that the Service: (1) discuss with the operator the potential effects of hovercraft operations on humpback whales; (2) gather and evaluate available information on hovercraft noise characteristics to (a) assess the potential magnitude of adverse effects on humpback whales and (b) identify possible mitigating measures; and (3) make cooperative arrangements with the operator to detect, monitor, and mitigate possible adverse effects of hovercraft operations on humpback whales.
15 May	Interior, public display permit application, Point Defiance Zoo and Aquarium.
15 May	Commerce, scientific research permit application, Louis Rigley.
20 May	Commerce, scientific research permit application, Brent S. Stewart.
28 May	Commerce, scientific research permit application, Maine Department of Marine Resources.
3 June	Commerce, public display permit application, Zoo La Palmyre.
5 June	Commerce, modification of scientific research permit, Randall Davis.
9 June	Commerce, scientific research permit application, S. Jonathan Stern.
9 June	Interior, modifications of scientific research permits, National Fish and Wildlife Laboratory (two) and Donald B. Siniff and John R. Tester.
11 June	Agriculture, commenting and providing recommendations on proposed measures developed by the Animal and Plant Health Inspection Service to bring certain public display facilities into compliance with the requirements of applicable marine mammal maintenance regulations.

15 June	Commerce, providing the Office of Coastal Zone Management with a sample research and data management plan and recommending that the format be used as a model for developing individual marine sanctuary research plans and be incorporated into each sanctuary management plan.
16 June	Commerce, modification of public display permit, Knie's Kinderzoo.
17 June	Commerce, scientific research permit application, Thomas Albert.
18 June	Commerce, scientific research permit application, National Zoological Park.
29 June	Commerce, modification of scientific research permit, U.S. Air Force, HQ Space Division.
6 July	Commerce, scientific research permit application, National Zoological Park.
6 July	Interior, recommending that the U.S. Geological Survey, if it had not already done so, request information from the Polar Research Board of the National Academy of Sciences relative to the Survey's assessment of the mission, facilities, and administration of the Naval Arctic Research Laboratory.
6 July	Defense, Corps of Engineers, providing comments on a permit application to allow certain dredge and fill activities in waters designated as critical habitat for the endangered West Indian manatee and recommending that, if the Corps had not already done so, it initiate consultations with the U.S. Fish and Wildlife Service pursuant to Section 7 of the Endangered Species Act to identify mitigating measures needed to ensure that manatees will not be adversely affected if the proposed activities are conducted.
14 July	Commerce, scientific research permit application, Southwest Fisheries Center.
23 July	Commerce, public display permit application, Parque Zoologico, and scientific research permit application, National Museum of Natural History.

27 July	Defense, Corps of Engineers, providing comments on a permit application to allow certain dredge and fill activities in waters designated as critical habitat for the endangered West Indian manatee and recommending that, if the Corps had not already done so, it consult with the U.S. Fish and Wildlife Service pursuant to Section 7 of the Endangered Species Act to identify mitigating measures needed to protect the manatee and that it also consult with the Service on the cumulative effects of authorizing separate dredge and fill activities within contiguous manatee habitat.
29 July	Commerce, scientific research permit application, Alaska Department of Fish and Game.
3 August	Interior, commenting to the U.S. Fish and Wildlife Service on a proposed redefinition of the term "harm" under Section 9 of the Endangered Species Act and recommending that the Service either withdraw or modify the proposed definition.
5 August	Commerce, modification of scientific research permit, Richard H. Lambertsen.
10 August	Commerce, public display permit application, Natura Artis Magistra-Artiszoo.
12 August	Commerce, scientific research permit applications, California Department of Fish and Game and Marine Mammal Recovery Foundation.
14 August	Commerce, modification of scientific research permit, Southeast Fisheries Center.
10 September	Interior, modification of scientific research permit, National Fish and Wildlife Laboratory.
15 September	Interior, recommending that the U.S. Fish and Wildlife Service consult on a continuing basis with the Commission at each phase in the completion of the manatee research and management plan for Crystal River, Florida.
15 September	Commerce, scientific research permit application, Jennifer Buchwald and Carl Shipley.
24 September	Commerce, public display permit application, Sea World, Inc.

2 October	Commerce, public display permit application, Donald B. Siniff.
6 October	Commerce, public display permit application, Zoological Center Tel-Aviv Ramat Gan.
8 October	Commerce, modification of scientific research permit, Washington Department of Game.
13 October	Commerce, public display permit application, Point Defiance Zoo and Aquarium.
19 October	Interior, scientific research permit application, National Fish and Wildlife Laboratory.
20 October	Commerce, modification of scientific research permit, Brent S. Stewart.
21 October	Commerce, scientific research permit application, Daniel P. Costa.
13 November	Commerce, scientific research permit application, John L. Bengtson.
18 November	Commerce, modification of scientific research permit, Gregory Dean Kaufman.
20 November	Interior, modification of public display permit, Sea World, Inc.
1 December	Commerce, modification of scientific research permit, California Department of Fish and Game.
2 December	Commerce, commenting on the possible restructuring of the National Marine Fisheries Service and its effect on the Office of Marine Mammals and Endangered Species and recommending that there be full consultation between the Service and the Commission prior to any effort to reorganize that office.
4 December	Commerce, public display permit application, Mystic Marinelife Aquarium.
7 December	Commerce, scientific research permit application, William M. Hamner.
7 December	Commerce, scientific research permit application, John D. Hall.
7 December	Commerce, scientific research permit application, Jennifer Buchwald and Carl Shipley.
29 December	Commerce, scientific research permit application, Brent S. Stewart.

APPENDIX B

REPORTS ON COMMISSION-SPONSORED RESEARCH ACTIVITIES AVAILABLE FROM THE NATIONAL TECHNICAL INFORMATION SERVICE (NTIS)*/

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)

_____, 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)

_____, H.R. Huber, R.R. LeValley, and S.H. Morrell. 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)

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)

Bockstoce, 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. Schonewald, and R.R. Reeves. 1979. Report on world catches of marine mammals: 1965-1976. Final report for MMC contract MM6AC002. NTIS PB-290 713. 353 pp. (A16)

*/ Price codes for reports, either printed or on microfiche, as well as ordering information, are found on the last page of this Report.

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)

Cornell, L.H., E.D. Asper, K. Osborn, and M.J. White, Jr. 1977. 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 contract s MMC6AC026 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 PB81-213449. 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 PB81-207516. 52 pp. (A05)

Foster, M.S., C.R. Agegian, R.K. Cowen, R.F. Van Waggenen, 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)

Fower, 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)

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)

_____ 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. St. Aubin. 1979. The biology of marine mammals: insights through strandings. Final report for MMC contract MM7AC020. NTIS PB-293 890. 343 pp. (A16)

_____, 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. 165 pp. (A08)

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)

Gold, J. 1981. Marine mammals: A selected bibliography. NTIS PB82-104282. pp 91. (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-275 088. 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 PB82-123563 36 pp. (A03)

Herman, L.M., P.H. Forestell, and R.C. Antinoja. 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 and 9 December 1975, at the University of California, Santa Cruz. NTIS PB-290 158. 17 pp. (A02)

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)

_____, 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)

_____, 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 PB81-167082. 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 MM15337014. NTIS PB82-109398. 79 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 PB82-109661. 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)

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 PB81-171357. 31 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)

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. *

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-269 709. 14 pp. (A03)

_____ 1975. Annual Report of the Marine Mammal Commission, Calendar Year 1974. Report to Congress. NTIS PB-269 710. 27 pp. (A04)

_____ 1976. Annual Report of the Marine Mammal Commission, Calen- Year 1975. Report to Congress. NTIS PB-269 711. 50 pp. (A04)

_____ 1977. Annual Report of the Marine Mammal Commission, Calendar Year 1976. Report to Congress. NTIS PB-269 713. 71 pp. (A06)

_____ 1978. Annual Report of the Marine Mammal Commission, Calendar Year 1977. Report to Congress. NTIS PB-281 564. 101 pp. (A06)

_____ 1979. Annual Report of the Marine Mammal Commission, Calendar Year 1978. Report to Congress. NTIS PB-106 784. 108 pp. (A06)

_____ 1980. Humpback whales in Glacier Bay National Monument, Alaska.
Final report for an interagency review meeting. NTIS PB80-141 559. 44 pp. (A03)

_____ 1981. Annual report of the Marine Mammal Commission. Calendar Year 1979. NTIS PB81-247892. 100 pp. (A06)

* Available from the Naval Ocean Systems Center, San Diego, California 92152.

_____ 1981. Annual report of the Marine Mammal Commission, Calendar Year 1980. NTIS PB81-247884. 114 pp. (A06).

Mate, B.R. 1977. Aerial censusing of pinnipeds in the eastern Pacific for assessment of population numbers, migratory distributions, rookery stability, breeding effort, and recruitment. Final report for MMC contract MM5AC001. NTIS PB-265 859. 67 pp. (A04)

_____ 1980. Workshop on marine mammal-fisheries interactions in the northeastern Pacific. Final report for MMC contract MM8AC003. NTIS PB80-175 144. 48 pp. (A04)

Mathisen, O.A. 1980. Methods for the estimation of krill abundance in the Antarctic. Final report for MMC contract MM7AC032. NTIS PB80-175 151. 26 pp. (A03)

Matkin, C.O. and F.H. Fay. 1980. Marine mammal-fishery interactions on the Copper River and in Prince William Sound, Alaska, 1978. Final report for MMC contract MM8AC013. NTIS PB80-159 536. 71 pp. (A05)

Miller, L.K. 1978. Energetics of the northern fur seal in relation to climate and food resources of the Bering Sea. Final report for MMC contract MM5AC025. NTIS PB-275 296. 27 pp. (A03)

Nolan, R.S. 1981. Shark control and the Hawaiian monk seal. Final report for MMC contract MM1801065-5. NTIS PB81-201808. 45 pp. (A03)

Norris, K.S. and J.D. Hall. 1979. Development of techniques for estimating trophic impact of marine mammals. Final report for MMC contract MM4AC013. NTIS PB-290 399. 16 pp. (A02)

_____, and R.R. Reeves (Editors). 1978. Report on a workshop on problems related to humpback whales (Megaptera novaeangliae) in Hawaii. Final report for MMC contract MM7AC018. NTIS PB-280 794. 90 pp. (A05)

_____, W.E. Stuntz, and W. Rogers. 1978. The behavior of porpoises and tuna in the Eastern Tropical Pacific yellowfin tuna fishery: preliminary studies. Final report for MMC contract MM6AC022. NTIS PB-283 970. 86 pp. (A05)

Odell, D.K. 1979. A preliminary study of the ecology and population biology of the bottlenose dolphin in southeast Florida. Final report for MMC contract MM4AC003. NTIS PB-294 336. 26 pp. (A03)

_____, and J.E. Reynolds, III. 1980. Abundance of the bottlenose dolphin, Tursiops truncatus. Final report for MMC contract MM5AC026. NTIS PB80-197 650. 47 pp. (A04)

_____, D.B. Siniff, and G.H. Waring. 1979. Tursiops truncatus assessment workshop. Final report for MMC contract MM5AC021. NTIS PB-291 161. 141 pp. (A07)

Payne, R., O. Brazier, E. Dorsey, J. Perkins, V. Rowntree, and A. Titus. 1981. External features in southern right whales (Eubalaena australis) and their use in identifying individuals. Final report of MMC contract MM6AC017. NTIS PB81-161093. 77 pp. (A05)

Pitcher, K.W. 1977. Population productivity and food habits of harbor seals in the Prince William Sound-Copper River Delta area, Alaska. Final report for MMC contract MM5AC011. NTIS PB-266 935. 36 pp. (A03)

Prescott, J.H. and P.M. Fiorelli. 1980. Review of the harbor porpoise (Phocoena phocoena) in the U.S. northwest Atlantic. Final report for MMC contract MM8AC016. NTIS PB80-176 928. 64 pp. (A04)

_____, S.D. Kraus, and J.R. Gilbert. 1980. East Coast/Gulf Coast cetacean and pinniped workshop. Final report for MMC contract MM1533558-2. NTIS PB80-160 104. 142 pp. (A07)

Ralston, F. (Editor). 1977. A workshop to assess research related to the porpoise/tuna problem, February 28 and March 1-2. Southwest Fisheries Center Administrative Report LJ-77-15. Final report for MMC contract MM7AC022. 119 pp., 6 appendices.*

Ray, G.C., R.V. Salm, and J.A. Dobbin. 1979. Systems analysis mapping: An approach towards identifying critical habitats of marine mammals. Final report for MMC contract MM6AC011. NTIS PB80-111 594. 27 pp. (A03)

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