

ANNUAL REPORT OF THE
MARINE MAMMAL COMMISSION, CALENDAR YEAR 1977

A REPORT TO CONGRESS

31 January 1978

Marine Mammal Commission
1625 I Street, N.W.
Washington, D.C. 20006

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CHAPTER I

INTRODUCTION AND SUMMARY

Background

This is the fifth Annual Report of the Marine Mammal Commission, an independent commission established under Title II of the Marine Mammal Protection Act of 1972 (P.L. 92-522, 21 October 1972). The Report covers the period from January 1st through December 31st, 1977.

In the Marine Mammal Protection Act, Congress sets forth a national policy to maintain marine mammal populations at optimum sustainable levels, while maintaining the health and stability of the marine ecosystem. Title II of the Act charges the Marine Mammal Commission with responsibility for developing and reviewing information, actions, and policies to obtain these objectives.

Personnel

The three Commissioners, appointed by the President, are: Dr. Douglas G. Chapman (Chairman), Seattle, Washington; Dr. Richard A. Cooley, Santa Cruz, California; and Dr. Donald B. Siniff, Minneapolis, Minnesota.

Title II of the Act directs the Commission to appoint a nine-member Committee of Scientific Advisors on Marine Mammals, composed of scientists knowledgeable in marine ecology and marine mammal affairs. At the close of 1977, Committee members were: Dr. Robert L. Brownell, Jr., National Fish and Wildlife Laboratory, Department of the Interior; Dr. Paul K. Dayton, Scripps Institution of Oceanography; Dr. L. Lee Eberhardt, Pacific Northwest Laboratory, Battelle Memorial Institute; Mr. Karl W. Kenyon, Seattle, Washington; Dr. Gerald L. Kooyman, Scripps Institution of Oceanography; Mr. John H. Prescott, New England Aquarium; Dr. Sam H. Ridgway (Chairman of the Committee), Naval Ocean Systems Center, San Diego; Dr. Tim D. Smith, University of Hawaii; and Dr. Robert B. Weeden, University of Alaska. During 1977, Dr. Francis H. Fay, Mr. Ancel M. Johnson, and Dr. Clayton E. Ray (Committee Chairman through October 1977) completed their terms of service on the Committee.

The Commission staff, professional and secretarial, numbers ten. Senior staff members are John R. Twiss, Jr., Executive Director; Robert Eisenbud, General Counsel; and Dr. Robert J. Hofman, Scientific Program Director.

Funding

The Commission, operational for less than six months in Fiscal Year 1974, was appropriated \$412,000 for that year, \$750,000 for FY 75, \$900,000 for FY 76, \$1,000,000 for FY 77 and \$900,000 for FY 78.

Summary of Major Activities

During 1977, the Commission:

- o made recommendations, participated in meetings, and contributed to domestic and international research and protection efforts to resolve the bowhead whale problem;
- o participated in administrative and Congressional hearings on the tuna-porpoise problem;
- o recommended that the National Marine Fisheries Service and National Science Foundation expand efforts to develop alternatives to fishing on porpoise;
- o helped to develop and entered into an agreement with the National Marine Fisheries Service and the U.S. Tuna Foundation for utilization of a dedicated research vessel, to be provided by the tuna industry, for research on the tuna-porpoise problem;
- o supported more than \$500,000 in research and studies to provide information needed to protect and conserve marine mammals;
- o conducted and/or supported workshops on tuna-porpoise research and on design and analysis of the aerial survey of porpoise populations, humpback whales in Hawaii, marine mammal strandings, historical whaling records, and marine mammal-fishery interactions;
- o reviewed marine mammal research activities of Federal agencies as a step in developing a five-year national marine mammal research plan;

- o recommended the designation of the bowhead whale as "depleted", the Caribbean monk seal as "endangered", the West African manatee as "threatened", the eastern spinner dolphin as "depleted", and made various recommendations to protect the endangered Hawaiian monk seal and West Indian manatee;
- o recommended actions concerning cooperative marine mammal research and conservation agreements with Mexico;
- o commented on actions taken or proposed relative to Alaska's request to waive the moratorium on nine marine mammal species, Alaska's first annual report on walrus management, and California's proposed program of sea otter research;
- o recommended that certain actions be taken by Federal agencies to develop an effective enforcement system under the Marine Mammal Protection Act;
- o commented on coastal zone management plans for California and the Virgin Islands; and commented on proposals to lease and extract oil from areas of the outer continental shelf;
- o made recommendations and commented on standards for marine mammal maintenance and handling proposed by the Department of Agriculture;
- o recommended actions to the Secretaries of Commerce and Interior on 54 permit applications to take marine mammals for scientific research and/or public display; and
- o recommended actions on permit applications by foreign fishermen to take marine mammals incidentally during commercial fishing within 200 miles of U.S. coasts.

These and other activities are described more fully in the body of the Report.

CHAPTER II

RESEARCH AND STUDIES PROGRAM

Introduction

In passing the Marine Mammal Protection Act, Congress acknowledged that existing knowledge of the biology and ecology of marine mammals was inadequate to provide a sound basis for management decisions affecting their conservation and protection. It therefore directed that research be undertaken by the Department of Commerce, the Department of the Interior, and the Marine Mammal Commission.

The Act also directs the Commission to conduct a continuing review of research programs conducted under the authority of the Act. Thus, the Commission annually reviews its own research programs, and those carried out by the National Marine Fisheries Service and the U.S. Fish and Wildlife Service. Although these reviews have identified no duplicative efforts, they have identified the need for better coordination and long-range planning. For this reason, the Commission recommended in 1976 that the National Marine Fisheries Service and the Fish and Wildlife Service develop five-year marine mammal research plans.

Both agencies drafted research plans which were reviewed by the Commission in 1977. Neither plan was judged adequate, and the Commission is now drafting a coordinated, interagency research plan. A preliminary draft was first reviewed with agency representatives in 1977, and a revised plan is presently being completed. The final document will be completed in the early summer of 1978.

Pending the completion and implementation of an effective interagency plan, the Commission has funded certain biological and methodological studies which may ultimately be more appropriately undertaken by one or both of the line agencies.

At present, the Commission is supporting research of the following types:

I. Studies to Provide Information Related to Domestic and International Policy Issues

The Commission has a mandated responsibility to review domestic and international activities affecting the conservation and protection of marine mammals, and, as necessary, to recommend to the Secretaries of State, Commerce, and the

Interior, or other appropriate Federal officials, such additional measures as it deems necessary or desirable to further the policies of the Act. Available information is often inadequate to indicate precisely what needs to be done. Therefore, the Commission supports workshops and studies to develop and evaluate the background information needed to formulate the strongest possible base for Commission actions and recommendations.

II. Studies to Provide the Biological-Ecological Data Needed to Make Management Decisions

Under the authority of the Act, the Departments of Commerce and the Interior are responsible for providing the biological and ecological data that are needed to achieve the goals of the Act. However, as noted above, the agencies have not yet developed marine mammal research programs to fully meet those needs. Therefore, the Commission supports biological-ecological studies to supplement and to encourage the development of agency research programs.

III. Studies to Provide More Reliable Methods of Data Acquisition and Analysis

Reliable information on movements, abundance, trophic (food-and-energy) relationships, and habitat status is needed for effective conservation. Methods used to assess the status of terrestrial species and their habitats are not always useful for assessing the status of marine species and their habitat. Therefore, the Commission supports studies to develop more reliable and more cost-effective methods for assessing the status of marine mammal populations and their habitats.

Contract studies initiated by the Commission in 1977 are discussed below. Contract reports resulting from other Commission-supported research efforts are available from the National Technical Information Service (NTIS), and a list is found in Appendix B.

I. Studies Related to Policy Issues

Comparative Population Dynamics: A Search for Management Criteria
(C. W. Fowler, Utah State University)

The Marine Mammal Protection Act mandates that management practices be designed to attain and maintain optimum sustainable populations of marine mammals. Development of management

practices consistent with the purposes and policies of the Act has been hampered by difficulties in translating the concept of optimum sustainable populations into operational terms. The contractor is to assess selected population data and management models to determine how existing management practices might be modified to better achieve management objectives set forth in the Act. The results of the study will be presented at the International Conference on the Population Dynamics of Large Mammals to be held at Utah State University in May 1978.

Life History Strategies of Long-Lived Mammals
(D. Goodman, Scripps Institution of Oceanography)

Analysis of life history strategies may provide insight into the ways in which marine mammal populations will respond to harvesting and/or environmental perturbations. Therefore, the Commission has asked the investigator to provide a summary and analysis of literature on mathematical demography and the evolution of life history strategies. The report will be reviewed in early 1978 to determine what further theoretical studies are needed.

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

Consistent with its responsibilities to continually review research carried out under authority of the Act, the Commission annually requests information from Federal agencies known to have funded marine mammal research. In his report, the contractor summarized information collected in 1975, 1976, and 1977. The report indicates that there was a general upward trend in Federally-funded marine mammal research during the period FY 70-FY 76, and that the research programs envisioned by the Act have developed as appropriations for the agencies approached the levels authorized by the Act. The report identifies no duplication of research efforts.

Estimating the Historical Abundance of Porpoise Populations
(T. D. Smith and T. Polacheck, University of Hawaii)

In July 1976, the National Marine Fisheries Service convened a workshop to assess the status of porpoise stocks affected by the yellowfin tuna fishery. Workshop participants used a simple mathematical model to estimate pre-exploitation porpoise abundance from available estimates of current abundance, net reproductive rates, and annual kills. The investigators in this study evaluated that model to determine

how estimates of pre-exploitation abundance are influenced by uncertainties in each of the model parameters. Preliminary results suggest that, given available data, the model provides the best possible estimates of the pre-exploitation abundance of the affected porpoise stocks.

Marine Mammals and Federal Legislation Concerning National Wildlife Refuges in Alaska
(C. D. Evans, Arctic Environmental Information and Data Center)

Thirty-two coastal areas in Alaska are proposed in various pieces of legislation as national wildlife refuges. The contractor has summarized available information on marine mammal populations found in or adjacent to each of the coastal areas. The Commission is evaluating the information to determine how marine mammal populations might be affected by each of the proposals.

Impact of a Proposed Clam Fishery on Walruses in the Bering Sea
(S. W. Stoker, University of Alaska)

In the spring of 1977, the Commission learned of plans to initiate a hydraulic dredge fishery for clams in the southeastern Bering Sea. Because walruses feed on clams and because a hydraulic dredge clam fishery has seriously depleted clam resources along the Atlantic coast, the contractor was asked to evaluate available data concerning the possible effects of a hydraulic dredge clam fishery on walruses and/or their habitat. The report indicated that walrus and other living resources could be affected by a large-scale clam fishery, and the Commission therefore recommended that a thorough Environmental Impact Statement be prepared and evaluated prior to initiating the fishery.

Status of the Bowhead Whale
(E. D. Mitchell)

Since 1972, the Scientific Committee of the International Whaling Commission has expressed concern about the status of the Western Arctic population of bowhead whales. In order to better assess the status of the population, the Commission contracted for a compilation and analysis of available information on world-wide populations of bowhead whales. A draft report has been received and the final report is expected in early 1978.

Killer Whales in Puget Sound

(F. H. Fay and C. O. Matkin, University of Alaska;
C. W. Fowler, Utah State University)

Since 1962, more than 50 killer whales have been taken from the waters of British Columbia and Washington for public display in oceanaria. To assess the possible effect of these removals on the killer whale population, the Commission contracted for studies to: (1) review and summarize available information on killer whales (Fay and Matkin); and (2) analyze available demographic data on the Puget Sound population (Fowler). Information provided by these studies will form an important part of the Commission's paper on killer whales to be issued in 1978.

Status of Cetaceans in Hawaiian Waters

(E. W. Shallenberger, Manta Corporation, Hawaii)

Available information on the distribution, abundance, and productivity of cetaceans in Hawaii has never been summarized. Therefore, the investigator is compiling and summarizing data from published and unpublished sources. This information will enable the Commission to determine what, if any, additional research is needed to protect these populations from the adverse effect of human activities. The investigator is also preparing a cetacean field guide and developing a plan for a whale sighting network in Hawaii.

Workshop to Assess Research Related to the Porpoise/Tuna Problem

(National Marine Fisheries Service)

The Marine Mammal Commission, the National Marine Fisheries Service, the National Science Foundation, and the tuna industry are cooperatively supporting research directed toward solving the "tuna-porpoise" problem. The objectives of this workshop, convened by the Commission and the National Marine Fisheries Service in the spring of 1977, were to:

(1) review research results; (2) seek new ideas for reducing porpoise mortality; and (3) evaluate plans for future cooperative research. As a result of the workshop, the Commission recommended that the National Marine Fisheries Service and the National Science Foundation increase their efforts to develop fishing practices which do not require porpoise capture. A workshop report was prepared and circulated by the National Marine Fisheries Service.

Workshop on Marine Mammal-Fishery Interactions in Oregon,
Washington, and Alaska
(B. R. Mate, Oregon State University)

Although the Commission has received reports that marine mammals are adversely affecting sport and commercial fisheries in some areas, the precise nature and magnitude of the problem are unknown. The purposes of this workshop were: (1) to compile and evaluate information on marine mammal-fisheries interactions in Oregon, Washington, and Alaska and (2) to determine whether additional studies are needed to resolve the possible conflicts. Participants included representatives of the scientific community, Federal agencies, State agencies, fishermen, and others. As a result of the workshop, the Commission has suggested that the States of Washington and Oregon develop a plan for a cooperative Federal/State research program. Similar workshops are being considered for New England, Florida, and Hawaii.

Workshop on Humpback Whales in Hawaii
(E. W. Shallenberger, Sea Life Park, Hawaii)

The Commission has received reports that human activities (e.g., whale-watching and pleasure boating) are having an adverse effect on humpback whales that assemble off the main Hawaiian Islands in winter to calve and breed. To better identify the nature and the magnitude of the possible effects, a workshop was held in Honolulu, Hawaii in July 1977. Participants evaluated information on human-whale interactions and concluded that more effective regulation of boat and aircraft operations was needed to protect the whales. The workshop report served as a basis for the subsequent Commission recommendations to the National Marine Fisheries Service.

Workshop on Marine Mammal Strandings
(J. R. Geraci and J. H. Prescott, New England Aquarium)

Stranded marine mammals are important sources of information on the distribution, movements, and life histories of marine mammals. Unfortunately, this data source has not been used to the fullest extent possible, primarily because methods for collecting, recording, and storing data have not been systematized. The purposes of this workshop, convened in August 1977, were to: (1) review data and theories concerning mass strandings; (2) identify how data from stranded marine mammals can be used to monitor the status of marine mammal populations and their habitats; (3) develop standard techniques for collecting, analyzing, and recording data from marine

mammal strandings; and (4) develop a plan for a nationwide marine mammal stranding network. The workshop report, scheduled for completion in early 1978, will be used to develop Commission recommendations to the National Marine Fisheries Service, the Fish and Wildlife Service, and such other Federal agencies as may be appropriate.

II. Studies to Provide the Biological-Ecological Data Needed to Make Management Decisions

Passive Behavior of Spotted Porpoise

(K. S. Norris, University of California, Santa Cruz)

In 1976, the investigator and his colleagues confirmed that spotted porpoise sometimes lie passively at the bottom of tuna purse seines. Standard backdown procedures are ineffective for removing these animals from the net, and they may be killed during sacking-up operations. The investigator hopes to determine whether this maladaptive behavior is caused by psychological and/or physiological stress. If the behavior has physiological, rather than psychological, roots, a significant number of the affected porpoises may die even if they are released from the nets' apparently unharmed. Additional studies, if necessary, will be carried out by National Marine Fisheries Service personnel.

Whale Statistics

(J. M. Breiwick, University of Washington)

Whale catch statistics are compiled by the Bureau of International Whaling Statistics (BIWS) located in Sandefjord, Norway. Analysis of the data by U.S. scientists has been difficult because the data are not readily accessible or in a format compatible with U.S. computers. The primary objective of this project is to transfer BIWS data on sperm and Antarctic baleen whales to computer tapes compatible with the University of Washington's computer. Secondary objectives are: (1) to prepare time-series tables indicating the numbers of whales taken from different management areas; and (2) to begin analyzing data to estimate mortality rates, age-specific recruitment rates, and other population parameters. The project is scheduled to be completed in the spring of 1978.

Analysis of Bowhead Whale Logbook Data

(R. C. Kugler, Old Dartmouth Historical Society Whaling Museum)

Better information on historical distribution and abundance is needed to assess the present status of the

Western Arctic population of bowhead whales. To provide this information as quickly as possible, participants in the September 1977 International Workshop on Historical Whaling Records recommended that a study of historical whaling records be undertaken immediately. Because of the immediate need for the data, the Commission provided \$10,000 to initiate the study. Funds necessary to complete the study are to be provided by the National Marine Fisheries Service.

Interaction Between Gray Whales and Boat Traffic in San Ignacio Lagoon, Baja California
(S. L. Swartz, San Diego Society of Natural History)

The increased popularity of whale-watching in the lagoons of Baja California may be adversely affecting the gray whales that calve and breed there during the winter. The purpose of this study, initiated in late January 1977, is to determine how tour boats may be affecting the distribution, movements, or behavior of the gray whales in San Ignacio Lagoon. The report of the first year's study has been translated into Spanish and will be reviewed by Mexican and U.S. scientists at their February 1978 meeting in La Paz, Mexico. A Mexican scientist was invited to participate in the follow-up studies which started in December 1977.

Humpback Whales in Hawaii
(National Marine Fisheries Service)

The number, movements, and productivity of humpback whales that winter in Hawaiian waters are poorly known. Therefore, in 1976, the National Marine Fisheries Service contracted with Dr. L. M. Herman and Dr. E. W. Shallenberger to conduct surveys and behavioral observations complementary to studies being carried out by NMFS personnel. The Service was unable to provide funds for the entire 1976-77 whale season and the Commission transferred funds to the Service so that the studies could be completed.

Hawaiian Monk Seals on Laysan Island
(B. W. and P. A. Johnson)

Although the National Marine Fisheries Service and the U. S. Fish and Wildlife Service have initiated research to determine what needs to be done to prevent the extinction of

the Hawaiian monk seal, neither agency has programmed sufficient funds to support all necessary studies. Therefore, in 1977, the Commission provided funds for the investigators to carry out an intensive study of the monk seal on Laysan Island. If the agencies still do not have sufficient funds to support the project in 1978, the Commission will consider further support of the work.

Shark Predation on Hawaiian Monk Seals
(G. L. Naftel and L. R. Taylor, Easy Rider Corporation,
Hawaii)

Since large sharks feed on Hawaiian monk seals, particularly pups, it may be possible to increase pup survival by decreasing the number of large sharks in waters adjacent to monk seal pupping areas. To determine the feasibility and the possible benefits of a shark control program, the investigators carried out a pilot study to determine the number, size, and feeding habits of sharks found near French Frigate Shoals. Twenty-three tiger sharks, three of which had monk seal remains in their stomachs, were caught in eight days of fishing, suggesting that a shark abatement program might well contribute to reducing monk seal mortality. The Commission has therefore recommended that the National Marine Fisheries Service consider establishing an experimental shark fishery to assist in the recovery of the Hawaiian monk seal.

Harbor Seals in the State of Washington
(M. L. Johnson, University of Puget Sound)

Prior to passage of the Marine Mammal Protection Act, harbor seals in areas such as the Columbia River were killed and/or harassed to minimize interference with sport and commercial fisheries. Because the control programs were often instituted without adequate knowledge of either the fish populations or the harbor seal populations, the effectiveness and the impacts of the programs are unknown. This study, being supported for the third year, is to illustrate the kind, quantity, and quality of data needed to assess the impact of control programs. Preliminary results have been published and are available from the National Technical Information Service.

Descriptive Model of the California Current Ecosystem
(K. A. Green)

Although more than thirty species of marine mammals inhabit the California Current System, available data on the ecosystem have never been completely summarized. Therefore, the investigator will: (1) compile and summarize published and unpublished reports; and (2) develop a descriptive model that can be used to identify data gaps. The model, scheduled to be completed in mid-1978, will be used to identify research opportunities that promise to yield the best information concerning interactions among marine mammals and other components of the system.

Effects of Sea Otter Foraging on Kelp Forest Communities
(M. S. Foster, San Jose State University)

Although there is a need to know how sea otters influence the structure of subtidal communities off California, neither the Fish and Wildlife Service nor the California Department of Fish and Game has had the funds or the personnel to do all needed research. Consequently, this project was funded to supplement research being carried out by those agencies. Its purpose is to compare the structure of subtidal communities inside and outside the present sea otter range in California. The Commission believes that follow-up studies, if necessary, should be supported by the Fish and Wildlife Service and/or the California Department of Fish and Game.

Marine Mammals at the Farallon Islands
(D. G. Ainley and H. R. Huber, Point Reyes Bird Observatory)

Three pinniped species (the California sea lion, the northern elephant seal, and the harbor seal) have recently established breeding populations on the Farallon Islands. Concurrently, there has been a rapid decline in a fourth species, the Steller sea lion. The purpose of this study is to document how and, if possible, why the populations are changing. Long-term support is needed and the Commission has funded the project for its fourth year. Results will be useful for determining optimal densities of these, as well as other pinniped populations.

III. Studies to Provide Better Methods for
Collecting and Analyzing Data

International Workshop on Historical Whaling Records
(M. F. Tillman, National Marine Fisheries Service)

Reliable estimates of pre-exploitation abundance, as

well as present abundance, are needed to assess the status of commercially exploited whale stocks. The purpose of this workshop, sponsored jointly by the Commission, the National Marine Fisheries Service, the Kendall Whaling Museum, and the International Whaling Commission, was to determine whether data contained in early whaling records could be used to estimate pre-exploitation stock sizes. Participants agreed that historical whaling records could provide useful information, and recommended that studies be done to extract and analyze historical data from records of commercial bowhead and sperm whaling activities in the North Pacific. The Commission has provided \$10,000 to the Old Dartmouth Historical Society Whaling Museum to begin extracting logbook data on bowhead whales.

Comparative Aerial-Shipboard Surveys of Humpback Whales on Silver and Navidad Banks, West Indies
(H. E. Winn, University of Rhode Island)

Aerial surveys are useful for providing information on the distribution and density of whales. However, because of their high speed, aircraft can easily overfly areas while whales are submerged. To estimate the probability of sighting large whales during aerial surveys, the investigator's team will simultaneously count whales from both ships and aircraft. The results should contribute to developing better survey methods for all species of cetaceans.

Photographic Identification of Humpback Whales
(S. K. Katona, College of the Atlantic)

Certain kinds of studies require the ability to recognize individual animals. This investigator is compiling and analyzing photographs of humpback whales to determine whether natural marks can be used to identify individual whales. Such photographic identification would not require taking, and would provide a less costly alternative to tagging. The report is expected to be available in 1978.

Odontocete (Toothed Whale) Aging Workshop
(W. F. Perrin, National Marine Fisheries Service)

Although teeth from toothed cetaceans contain growth layers, there is not universal agreement on how the layers correlate with age. Therefore, participants in the International Scientific Consultation on Marine Mammals (Bergen, Norway, September 1976) recommended that a workshop be held to

assess and standardize methods for aging toothed cetaceans. The National Marine Fisheries Service has agreed to convene the workshop, and the Commission has transferred \$10,000 to the Service to help defray costs.

Age Determination in Bottlenose Dolphins
(C. A. Hui, Naval Ocean Systems Center, San Diego)

Although the numbers of dentinal layers in the teeth of bottlenose dolphins increase with age, the numbers also vary with tooth position in the jaw. The investigator is trying to determine which teeth have the highest probability of providing a true index to age. Results suggest that each dentinal layer represents one year's growth and, since posterior teeth continue to grow and accumulate dentin after anterior teeth cease growing, teeth 16-19 appear best for aging this species.

Reproductive Endocrinology of Bottlenose Dolphins
(K. Benirschke, Zoological Society of San Diego)

Reliable methods for estimating age and reproductive status are necessary for effective husbandry of captive porpoises. Since blood levels of estrogen and progesterone probably vary with age, time of year, and reproductive status, it should be possible to determine the relative age and reproductive status of an individual by measuring hormonal levels in its blood. The investigator seeks to determine whether hormone levels vary seasonally, and to define estrogen and progesterone levels associated with pregnancy, induced pseudo-pregnancy, lactation, and the resting state. Results will be useful in assessing the reproductive status of wild dolphins as well as in programs to propagate captive dolphins.

Handling and Cleaning of Oil-Contaminated Sea Otters
(T. D. Williams)

If an oil spill occurs in an area inhabited by sea otters, it may be necessary to capture and clean large numbers of animals. Efforts to rehabilitate oiled otters would be greatly aided 1) if quick-acting drugs could be safely used to immobilize them during cleaning, and 2) if an effective and safe cleaning agent could be identified. The investigator sought to evaluate various immobilizing drugs, and to determine whether a surfactant cleaning agent, Polycomplex 11, would safely remove oil from contaminated animals.

Results suggest that M-99, Telazol, and Fentanyl may be safe, effective immobilizing agents, and that Polycomplex 11 holds promise for cleaning. Further experimentation is needed to determine the drug or drugs of choice, optimal dose levels, and the best method for cleaning.

Acoustic Techniques for Assessing the Size and Density
of Krill Schools
(O. A. Mathisen, University of Washington)

A reliable estimate of the standing stock of Antarctic krill (Euphausia superba) is needed to implement a conservation regime which will preclude the possibility of a commercial krill fishery impacting marine mammals or other living resources of the Southern Ocean. Methods for accurately estimating the size and density of krill schools have not been perfected, and the investigator is assessing newly developed acoustical gear to determine whether it might be useful for this purpose. The Commission believes that follow-up studies, if warranted, should be supported by the National Science Foundation.

CHAPTER III

THE BOWHEAD WHALE ISSUE

Introduction

The bowhead whale (Balaena mysticetus) of the Arctic seas has been overexploited by commercial whalers throughout its range. The Bering Sea stock was first subjected to commercial whaling in 1848 and, in the succeeding 50 years, was reduced to extremely low levels.

Although commercial exploitation did not begin until 1848, the bowhead had been hunted for subsistence purposes by the Eskimos of Alaska for centuries. In recent years, however, an apparent increase in the numbers of whales landed, killed but lost, and struck but lost by Eskimos led to increasing concern by the International Whaling Commission (IWC) and others. This concern culminated in June 1977 with a decision by the IWC to ban the taking of bowhead whales for subsistence by all its member nations' people, including Alaskan Eskimos.

The resolution of the difficult problem posed by this decision, involving complex scientific, legal, and policy questions in the domestic and international arenas, required efforts to reach an effective compromise to achieve the common goals of meeting the nutritional and cultural needs of Eskimos while protecting an endangered species. The information set forth below summarizes the Commission's activities in 1977 with respect to the bowhead issue.

Depleted Status of Bowhead Whales

Consistent with its responsibilities to review the status of marine mammal populations and to make appropriate recommendations for their protection, the Commission transmitted a letter of 28 February 1977 to the National Marine Fisheries Service, noting that the bowhead whale was listed in 1970 as "endangered" under the Endangered Species Act and that, as such, it was "depleted" under Section 3(1)(b) of the Marine Mammal Protection Act. The Commission therefore recommended that the Service proceed to designate the bowhead whale as depleted.

The National Marine Fisheries Service responded, by letter of 23 March, that it was meeting with Eskimos in Alaska to discuss the bowhead whale problem and that it was developing a plan for an expanded research effort. The Service indicated that these efforts would yield a better understanding of the necessity of designating the bowhead whale as depleted and that protection would, to a large extent, depend upon the cooperation of Eskimos involved in the hunt. The letter stated that the Service was therefore anxious to be reasonably confident that designation would not be counter-productive to obtaining that cooperation.

The Commission responded by letter of 28 March that the bowhead whale population was unquestionably depleted, and that it saw no reason not to designate it as such. The Commission stated that it would be appropriate to hold any regulatory action in abeyance until the success of the Eskimos' voluntary conservation programs could be evaluated but that it failed to see any reason why designation would impair cooperative conservation efforts and that such designation might, indeed, serve to facilitate them. The Commission therefore renewed its recommendation that the bowhead whale be designated as depleted.

The Service responded by letter of 3 May 1977 indicating that it was reluctant to take positive action until about 1 June, following its efforts to monitor the spring hunt, to conduct surveys, and to enlist the cooperation of the Eskimos. The Commission indicated, by letter of 9 May 1977, that it accepted the postponement until 1 June based upon the understanding that such a postponement was designed to avoid any potential adverse effects upon current efforts to monitor the hunt and enlist Eskimo cooperation.

On 31 May, after reviewing a National Marine Fisheries Service draft Federal Register notice proposing designation of the bowhead whale as depleted, the Commission recommended that language be added to indicate that the Service would meet in the near future with Eskimo whalers to discuss the need for and nature of any regulations necessary to ensure that future taking would not be to the disadvantage of the affected population and that, if the Service should determine that regulations were necessary, it would publish proposed regulations by 15 July 1977. The Commission indicated that such language would reflect a commitment to effectively come to grips with a problem which was the subject of increasing concern.

The National Marine Fisheries Service responded on 9 June that the Commission's recommended language would not be included in the Federal Register notice but that language would be added to state that the Director may propose regulations if the designation is adopted as a final rule. The letter also stated that, if the Service determined that regulations were necessary, it would act to ensure that regulations were in effect by the beginning of the spring 1978 hunt.

The proposal to designate the bowhead whale as depleted was published by the Service in the Federal Register on 10 June 1977. The notice included a statement that the Director might prescribe regulations if the proposed designation were adopted.

On the same day, the Commission wrote to the National Oceanic and Atmospheric Administration concerning preparations for the forthcoming IWC meeting. The Commission expressed pleasure at learning that an Eskimo would be invited to participate as a member of the U.S. delegation and expressed interest in reviewing work being considered by Sea Grant concerning socio-economic aspects of the bowhead hunt. The Commission expressed concern that the Federal Register notice had contained no date by which regulations would be published, if they were deemed necessary, and again expressed the view that a commitment to regulate, if necessary, should be announced. The Commission recommended that such an announcement be included in the final determination of depletion, if such a determination were reached. The Commission further recommended that the Service insure that the views of Eskimos be solicited and considered, and that the Service provide for such consultation before the next hunting season.

The National Oceanic and Atmospheric Administration responded by letter of 18 July, noting that the situation had changed as a result of the decision of the IWC at its June meeting (discussed below) and that the decision with respect to domestic regulations to control subsistence taking would depend upon the responses of the U.S. government to the IWC's action.

On 11 October, nearly nine months after the Commission had recommended designation of the bowhead whale as depleted, the Commission wrote to the Service asking when a final determination would be reached and requesting that the Service provide a written explanation if it had determined not to adopt the recommendation of the Commission. On 25 November the Service published a notice of final rulemaking

in the Federal Register designating the bowhead whale as depleted, noting that the best evidence indicated that the Bering Sea stock was between 6 and 10 percent of its original size -- substantially below optimum carrying capacity -- and therefore "depleted", and that any regulations relating to subsistence hunting of bowhead whales were left to the discretion of the Secretary. Regulations, proposed in a separate Federal Register notice of the same date, are discussed under The Proposed Conservation Regime.

IWC Meeting, June 1977

The Bering Sea population of bowhead whales, the subject of considerable concern to the IWC's Scientific Committee for some time, has been specifically addressed in the Committee's reports beginning in 1972. The sources of the Committee's concern were that: (1) information on the bowhead whale, generally, and on the size of the populations subjected to hunting, is inadequate; (2) the Bering Sea stock which is subjected to Alaskan Eskimo hunting is the only bowhead whale population subjected to any substantial hunting pressure; (3) the rate of loss of animals taken in the Eskimo subsistence hunt seems unnecessarily high; and (4) even when exploitation of bowhead whales has been terminated or reduced to only one or two animals per year, the populations have historically shown no sign of recovery.

At its 1976 meeting, the IWC's Scientific Committee noted that there was evidence of an increased effort to hunt bowhead whales. The Committee urged that studies be conducted, and that necessary steps be taken to limit the expansion of the hunt and to reduce the loss rate of struck whales. These recommendations were adopted in the form of a Resolution by the IWC at its 1976 meeting.

At its meeting in June 1977, the IWC's Scientific Committee reviewed the available evidence with increasing concern. It noted that the stock size may be as high as 2,000 but as low as 600 animals -- 6 to 10 percent of its estimated original size. It also noted that Eskimo hunting effort had increased and that the 1976 take was a record high, representing a threefold increase over the previous seven years. In the 1976 spring and fall hunts, 48 whales were landed, 8 others were killed but lost, and 35 others were struck but lost. The data available to the Committee on the hunt in the spring of 1977 indicated that 26 whales were landed, two others were known killed but lost, and 77 were struck but lost.

The IWC's Scientific Committee noted that at a time when the IWC has been under considerable pressure to declare a moratorium on all commercial whaling, all stocks of the endangered bowhead whale had been, for forty years, subject

to total protection from commercial whaling yet had shown no discernible increase. It expressed the view that the current rate of exploitation of the small bowhead whale stock increases the risk of extinction.

The IWC's Committee determined that any taking of bowhead whales could adversely affect the stock and contribute to preventing its recovery, if in fact recovery is still possible. The Committee expressed the view that, on biological grounds, exploitation of this species must cease. It therefore recommended to the IWC that the exemption in the Schedule of the IWC which allows bowhead whales to be taken by aboriginals for subsistence purposes be deleted so as to ban the taking of bowhead whales by aboriginals of all IWC member nations. This recommendation of the Scientific Committee was unanimously accepted by the members of the International Whaling Commission. The United States abstained from the vote because of uncertainties with respect to its legal authorities and responsibilities relating to subsistence taking by Eskimos.

Research

On 21 July 1977, following the June IWC meeting, the Commission recommended that the Service greatly intensify its efforts to census bowhead whale populations. In addition, the Commission asked that a representative of the Service join the Commission and its Committee of Scientific Advisors on Marine Mammals at their July meeting in Seattle, Washington to discuss plans for bowhead whale research. The Service responded by letter of 26 July indicating that representatives of the Service would attend the meeting and that the Service would forward a copy of its bowhead whale research program as soon as it was complete.

After reviewing the National Marine Fisheries Service bowhead whale research plan submitted in response to the Commission's request and recommendation of 21 July 1977, the Commission determined that it was inadequate and that it should be modified and strengthened. The Commission therefore convened a meeting with representatives of the Service and other experts on 2 September in Seattle, Washington, to review the National Marine Fisheries Service draft plan. Based upon the discussions at this meeting, the Commission: (1) contracted with the Old Dartmouth Historical Society Whaling Museum to begin extracting data from historical whaling records so as to contribute to the development of better estimates of bowhead whale abundance; and (2) developed a strengthened and expanded bowhead research plan which it

transmitted to the National Marine Fisheries Service on 14 September 1977 with the recommendation that it be put into effect immediately, following close consultation and review with interested Eskimos.

The Commission's recommended research plan differed in several respects from the draft National Marine Fisheries Service research plan. First, it was designed to provide information more quickly; second, it called for a major icebreaker-supported survey in the spring of 1978; third, it called for the expansion of tagging and census efforts; and fourth, it proposed to determine the feasibility of using acoustic recording and radio-telemetry to assess the movements and relative abundance of the whales. The Commission recommended that the Service immediately request that the U.S. Coast Guard provide an icebreaker to be on station in the spring of 1978 and, because the proposed aerial survey would require specialized aircraft and skilled personnel, the Commission also recommended that steps be initiated to meet those needs. The Commission recommended that the Service seek a supplemental appropriation if available funds were not going to be adequate to carry out the studies outlined. It recommended, moreover, that in order to accomplish the necessary work as quickly as possible, the Service consider taking advantage, through contractual arrangements, of the considerable expertise which already existed outside of the government.

On 11 October, the Commission wrote to the Service urging action on its 14 September recommendations. The Commission requested detailed information concerning plans to undertake the recommended research, including those specific efforts that would be undertaken in the fall of 1977. On 26 October, the Commission wrote to the Service noting its concern about the apparently high failure rate of the explosive shells used in the Eskimo hunt. The Commission suggested that the Service consult with investigators who had gained expertise in the use of remotely implantable radio tags and investigate the desirability of funding a contract study to improve the performance of the explosive charges.

The Service responded to the Commission's letter of 11 October on 2 November, stating that the research plan was being prepared by the Northwest and Alaska Fisheries Center and would be integrated into the research and management plan which would be submitted to the IWC at its December meeting. The letter indicated that draft documents would be available within one or two weeks. With respect to work in

the fall of 1977, the letter indicated that aerial surveys in September and early October had been limited by bad weather conditions and that the National Marine Fisheries Service scientists monitoring the fall whale hunt had not been able to obtain much information on the three whales that had been taken.

A revised draft of the National Marine Fisheries Service bowhead whale research plan was received by the Commission on 31 October 1977. After reviewing it, the Commission transmitted comments and recommendations for revision by letter of 4 November 1977. Among other comments, the Commission noted that the revised plan was too vague to serve its intended purpose, and that it lacked specific commitments for funding. The Commission recommended that it be revised in accordance with detailed comments which were enclosed.

The Commission received a further revised draft bowhead whale research plan from the Service on 8 November and, on 9 November, transmitted further recommendations for revision of that text in accordance with detailed comments and recommendations which were enclosed.

A final text of the National Marine Fisheries Service bowhead whale research plan was received by the Commission on 15 November 1977.

Acceptance of the IWC Decision

The IWC's action in June posed a difficult dilemma for the United States government. That action, in effect, established a zero quota on bowhead whales. According to Article V of the Convention of 1946, the amendment to the Schedule deleting the exemption would become effective with respect to the United States on 24 October 1977 -- 90 days after it was notified of the amendment -- unless the United States government presented an objection. If the U.S. government did object, the zero quota would not become effective with respect to Eskimos hunting bowhead whales in Alaska.

The issue was an especially vexing one because the U.S. had led successful efforts in the IWC to reduce whaling quotas and to base all decisions upon the recommendations of the Scientific Committee. The bowhead decision, based upon the unanimous recommendation of its Scientific Committee, was the first IWC action to directly affect the U.S. since it had ceased its commercial whaling operations. Objections by other nations to the decisions of the IWC had been declared

by the United States to be a basis for invoking the sanctions of the Pelly Amendment and there was reason for concern that an objection by the U.S. to the June IWC decision would be viewed as hypocritical and would weaken the government's efforts in the IWC and in other international conservation forums.

At the same time, the U.S. government wished to protect legitimate Eskimo subsistence values, long associated with the bowhead hunting which would be affected by acceptance of the IWC decision. Concern for these values is reflected in Section 101 of the Marine Mammal Protection Act which establishes a moratorium on the taking and importation of marine mammals but also provided an exception to the moratorium to allow Alaskan natives to continue subsistence taking. The Act provides for the regulation of native taking, but only when a population is found to be depleted under Section 3(1), and only after notice and opportunity for a hearing under Section 103. The taking of whales subject to regulation by the IWC, however, is also subject to the Whaling Convention Act of 1949 (16 U.S.C. 916) which implements the International Whaling Convention of 1946. The 1949 Act directs the Secretary of Commerce to administer and enforce all of the provisions of the Convention, as well as the regulations of the IWC. The amendment to the Schedule of the IWC banning subsistence taking of bowheads was a regulation of the Commission. As such, it could be implemented pursuant to the Whaling Convention Act unless the United States presented an objection and thereby rendered the IWC action inapplicable to hunting by Alaskan Eskimos.

The decision as to whether to present an objection to the IWC action is made by the Secretary of State with the concurrence of the Secretary of Commerce, pursuant to the Whaling Convention Act of 1949. The events leading to the final decision to accept the IWC's action are summarized below.

Environmental Impact Statement

The Commission met with representatives of the National Marine Fisheries Service and other Federal agencies during the first weeks of August 1977 to provide comments and recommendations on the preliminary draft environmental impact statement prepared by the Service. The DEIS was issued by the Service on 12 August and public hearings on it were held in Washington, D.C. on 8 September; in Barrow, Alaska on 12 September; and in Kotzebue, Alaska on 16 and 17

September. The Commission provided \$10,000 to the Rural Alaska Community Action Program to make it possible for Eskimos residing in outlying Alaskan villages to attend the hearings and present information.

The Commission transmitted detailed comments to the Service on 23 September, recommending that the DEIS be modified and expanded. It recommended that the DEIS be modified to indicate that an objection by the United States would impair conservation efforts in the IWC and other international bodies. In addition, the Commission recommended that the DEIS be modified to reflect that, although the discussion at the June meeting of the IWC had indicated that special meetings of the Scientific Committee in November 1977 and of the IWC in December 1977 would be limited to a consideration of North Pacific sperm whales, the proposed agenda for that meeting included items other than the sperm whale quota and that additional items could be added to the agenda. The Commission recommended that the DEIS be expanded to discuss this opportunity for reconsideration of the bowhead whale issue at the special meeting of the IWC in December. The Commission noted that although it could not predict the response of the IWC, it believed that a detailed and convincing presentation of a comprehensive bowhead whale research and protection program would be given careful consideration at the special meeting. The Commission stated that such a program should include, at least, the following elements: (1) a full commitment by the Federal government to immediate implementation of an intensive research program such as that described in the Commission's recommendations of 14 September; (2) detailed reports on the level of retrieved and unretrieved take during the fall 1977 hunt and progress in reducing loss, limiting total kill, and collecting biological samples; and (3) a commitment by the Eskimos and Federal government to a detailed management program to control methods, numbers taken, and other aspects of any hunt so as to minimize the threat to the bowhead population. Finally, the Commission noted that the development of the details of such a course of action would require the intensive cooperative efforts of the Eskimos and Federal government so that an effective proposal could be presented by the U.S. delegation which should include Eskimo representation. The Commission expressed the view that if such a convincing package could be developed, the IWC might restore the exemption to take bowhead whales for subsistence, and the difficulties associated with a total ban on taking bowhead whales by Eskimos might thereby be avoided.

Interagency Consultation

Beginning in mid-July 1977, representatives of the Commission attended meetings with representatives of other

involved Federal agencies in an effort to reach a consensus as to whether to object to the IWC's action. The Commission's views expressed in these meetings were consistent with those transmitted to the Service as comments on the DEIS.

On 10 October, before a consensus was reached, Under Secretary of the Interior James Joseph wrote to Secretary of State Cyrus Vance recommending that the United States file an objection to the IWC decision because of the government's native trust responsibility while, at the same time, proposing a regulatory and research program to be presented to the December meeting of the IWC.

Because of the importance of the native trust issue, the Commission wrote to Under Secretary Joseph on 11 October asking for a copy of any legal or other analysis dealing with this question which might be of assistance to the Commission in understanding the Department's interpretation of its legal responsibilities with respect to native taking of bowhead whales. The response from the Solicitor of the Department of the Interior was not received until 15 November. It indicated that, although a 1932 opinion of the Solicitor had determined that the native trust responsibility was the same as that relating to Indians in the lower 48 States, the Department now recognized that the situation had changed and that there is need to clarify the nature and extent of responsibilities with respect to the native trust. The letter stated that a formal opinion was being prepared and would be sent to the Commission when completed.

Further consultation among representatives of the interested agencies resulted in a consensus that the national interest in Eskimo well-being, bowhead whale protection, and continuing international conservation programs would be best served by accepting the IWC decision and seeking a restoration of the exemption on the basis of a research and management program. A press release announcing the decision of the government was issued on 20 October by the Secretary of State, indicating that the U.S. would not file an objection to the IWC action and that it would seek restoration of the exemption at the December meeting to allow limited hunting of bowhead whales.

Judicial Action

On 21 October, the day after the announcement to accept the IWC's decision yet seek approval for limited whaling, representatives of Eskimo whalers filed suit in the U.S. District Court for the District of Columbia to compel the government to file an objection with the IWC.

The matter was heard on an expedited basis and, on 21 October, the District Court issued a temporary restraining order directing the Secretary of State to file an objection with the IWC by midnight, 24 October -- the deadline for filing objections. The order was immediately appealed by the government and was heard by the U.S. Court of Appeals for the District of Columbia on 22 October. On that day the Court of Appeals vacated the order of the District Court because of its findings -- based upon affidavits and information in the Environmental Impact Statement -- that the order would prejudice ongoing efforts of the United States to establish and implement an effective machinery for protection of marine mammals and that the government had not acted contrary to law.

On 24 October, Supreme Court Justice Burger denied the plaintiff Eskimos' request to reverse the order of the Court of Appeals and no objection was filed. The lawsuit was dismissed on 10 December 1977.

The Proposed Conservation Program

Consistent with the decision to accept the IWC action and seek approval at the December meeting of the IWC for a limited bowhead subsistence hunt, the National Marine Fisheries Service proceeded to develop a conservation regime consisting of the research plan (discussed earlier) and regulations for Eskimo hunting.

Representatives of the Commission attended several meetings with representatives of other interested agencies and parties for the purpose of developing the proposed conservation regime. The Commission expressed the view that, in light of the uncertainties about the status of the bowhead whale population and the obvious concern of the Scientific Committee and members of the IWC, the interests of all concerned would be best served by proposing to establish a conservative quota on both the number of whales that could be taken and retrieved and the total number that could be struck. The Commission suggested that these limitations, combined with provisions concerning other aspects of taking such as those controlling the use of the shoulder gun (a provision suggested by Eskimo whalers themselves), would serve to demonstrate a sincere commitment to resolving the problem while also meeting legitimate Eskimo needs. For this purpose, the Commission recommended that the U.S. seek approval of a conservation program which included quotas of no more than 12 whales retrieved or 20 struck, whichever should come first.

The Commission's views with respect to the quotas were not adopted. A proposed conservation program, dated 15 November, was transmitted to the Scientific Committee and the IWC delegates for their consideration. The proposed conservation program included a quota of up to 15 whales retrieved or 30 whales struck.

At the same time, the National Marine Fisheries Service determined that, as an alternative to the conservation program, regulations relating to subsistence whaling should be proposed for adoption pursuant to Section 103 of the Marine Mammal Protection Act. This alternative action was designed to serve as the basis for regulatory action, should further judicial action make it impossible to regulate subsistence taking pursuant to the decisions of the IWC and the authority of the Whaling Convention Act. The Commission received draft proposed regulations from the National Marine Fisheries Service on 18 November with a request that it provide comments by 20 November. The Commission responded by letter of 21 November that it was not possible to accomplish the necessary consultation with Commission and Committee members in the time provided and that the Commission would, therefore, participate and offer its comments in the hearing on the regulations, after it had opportunity for the necessary review and consultation. The Service published proposed regulations in the Federal Register on 25 November 1977 but set no date for a hearing. The proposed regulations were substantially the same as those submitted to the IWC.

Special Meeting of the IWC

Meeting of the Scientific Committee

The IWC's Scientific Committee considered the proposed research and conservation programs at its special meeting in Cronulla, Australia on 21-26 November. The Committee reviewed the available information, including an analysis of the consequences of taking bowheads at various levels and assuming various net reproductive rates. The Committee noted that, assuming one reproductive rate and an annual kill of 30 animals, the stock would rebuild from 1,000 to 10,000 animals in 99 years, but that, assuming a lower rate, an annual kill of only 15 animals would lead to extinction. It was unable, from a scientific standpoint, to select the best of these assumptions and it found that the available information was inadequate to provide any satisfactory guide to scientific management of the population with any quota other than zero. The Committee noted, however, that the members of the IWC might wish to discuss non-biological considerations such as those of subsistence and cultural needs and that these were beyond the expertise of the Scientific Committee.

Meeting of the IWC

At a special meeting on 6-7 December in Tokyo, members of the IWC considered the United States' proposal, the report of the Scientific Committee, and the Committee's statement that the members might wish to discuss other, non-biological considerations relating to subsistence hunting of bowheads. A representative of the Marine Mammal Commission served on the U.S. delegation, which included representatives of interested Federal agencies and Congress, the State of Alaska, Eskimos, and whale protection and conservation groups.

After a number of votes and discussions, the Technical Committee of the IWC agreed to recommend that the Schedule be amended to restore the exemption for aboriginal hunting of bowhead whales but limiting the take to a total of 18 whales struck in 1978. This recommendation failed to gain the necessary 3/4 majority in the plenary session. A proposal by the United States to permit 15 whales to be landed or struck also failed when it received only 5 votes in favor and 3 against, with 7 abstentions. The plenary session then adopted, by 10 votes to 3, with 2 abstentions, the proposal by Norway to allow aboriginal hunters to land 12 or strike a total of 18 whales, whichever should come first, but prohibiting striking, taking, or killing calves and whales accompanied by calves.

The IWC also passed a Resolution noting that, pursuant to undertakings by the governments of Canada and the U.S.S.R., persons under their jurisdiction would not participate in the subsistence hunt for bowheads and the quotas established by the IWC would therefore be available to Alaskan Eskimos. The Resolution called upon the United States to take all necessary measures to minimize adverse effects upon the bowhead whale population through controls on hunting techniques and equipment, size limits, seasons, and the killing or striking of calves and females accompanied by calves. The Resolution stated that the status of the bowhead whale stock would be reviewed at the June 1978 meeting of the IWC in light of the information resulting from the United States' research program. It further stated that all necessary measures should be taken to ensure that the reduction of the take of bowhead whales does not affect the take of beluga whales to any significant degree and that all necessary measures should be taken to preserve the habitat of beluga, as well as bowhead whales.

Conclusion

The bowhead whale issue has been a very difficult and challenging one at both domestic and international levels, and it has generated an unfortunate amount of conflict, misunderstanding, and delay. The December 1977 action of the IWC allows a limited number of bowhead whales to be taken by Alaskan Eskimos for subsistence in 1978 and it offers the United States an opportunity to act to resolve the problem.

Effective efforts by the United States in the immediate future are clearly critical and the Commission will therefore transmit recommendations to the National Oceanic and Atmospheric Administration in the first week of January 1978. It will call upon the National Marine Fisheries Service to convene a meeting to brief interested parties on the status of its plans and efforts, and on any problems that are anticipated. The Commission will recommend that priority be given to the following aspects of the bowhead whale issue:

Research

The Commission will request detailed information concerning exactly what activities have been and will be undertaken pursuant to the National Marine Fisheries Service bowhead whale research plan.

In addition, although the present plan seems adequate to act upon now, a good long-range research plan should be a changing document requiring review, revision, and improvement. The Commission will therefore recommend that the Service continue to develop, in close cooperation with the Eskimos, the State of Alaska, and other interested parties, detailed plans for implementation of research. In this regard, the Commission will recommend that the Service advise the Polar Research Board of the National Academy of Sciences, among others, of developments relating to the research program and solicit their advice.

Funding

The Commission will express concern about the adequacy of funds available for bowhead whale research. In its letter of 14 September, the Commission recommended that the Service seek a supplemental appropriation, if needed, to ensure that bowhead whale research was conducted and that bowhead research not be done at the expense of other programs if possible. To date, the Commission has received no word on actions either taken or contemplated to seek a supplemental appropriation for bowhead whale research.

With respect to other marine mammal research programs, the Commission has received reports that funds are not available because of the demands of bowhead whale research activities. The Commission will request information as to whether marine mammal research funds are in fact being diverted to bowhead whale research and, if so, it will ask why a supplemental appropriation was not sought.

Management

The Commission is convinced that all interested parties are now anxious to implement an effective management regime, coupled with an effective research program, that will safeguard both the bowhead whale population and Eskimo cultural values, and that such a management regime can be developed by the Service in accordance with applicable law.

The Commission will recommend that the Service recognize the interest and initiative of the Eskimo community and that it seek to develop a cooperative arrangement with those who are involved in the bowhead whale issue through an organization such as the Alaska Eskimo Whaling Commission which was established in September 1977. The Marine Mammal Commission will recommend that such an arrangement incorporate as many elements relating to the taking and allocation of bowhead whales as feasible, while preserving the ultimate decision-making functions of the Service relating to such matters as regulation and enforcement.

As a second element of the management regime, the Commission will recommend that the Service support acceptance of the December 1977 decision of the IWC. The Commission will further recommend that the amendments to the IWC Schedule be implemented pursuant to the Whaling Convention Act of 1949, in conjunction with the cooperative agreement with the Eskimos, and that the proposal to promulgate regulations pursuant to Sections 101(b) and 103 of the Marine Mammal Protection Act be withdrawn. Those proposed regulations which were published on 25 November 1977 would establish a management regime with quotas of 15 whales landed or 30 whales struck, whichever should come first. As such, they would be less protective than the regime established by the IWC and would contravene its decision. The Commission will recommend that in order to serve the best interests of all concerned, the Service withdraw the proposed rulemaking and proceed to implement the decision of the IWC without the delay and difficulties which would result from a formal hearing under Section 103 of the Act.

Obviously, the success of efforts to implement an effective research and management program will depend upon the cooperation of all interested parties. The Commission

will therefore recommend that the Service seek to develop and implement the regime in close consultation with representatives of the Eskimos, whale protection and conservation groups, the State of Alaska, Congress, and other interested Federal agencies.

CHAPTER IV

INCIDENTAL TAKING OF MARINE MAMMALS IN THE COURSE OF COMMERCIAL FISHING OPERATIONS: TUNA-PORPOISE

Introduction

Under the Act, the Secretary of Commerce must develop regulations, in consultation with the Commission, to govern the incidental taking of marine mammals in the course of commercial fishing operations.

In 1977, as in 1976, the incidental mortality and serious injury of porpoises associated with commercial yellowfin tuna fishing continued to be the major problem. Efforts to resolve the tuna-porpoise problem have, however, resulted in substantial progress which the Commission believes reflects the value and viability of efforts to achieve the goals of the Act. The Commission's activities during 1977 are discussed below. A detailed discussion of the Commission's activities and an historical summary of efforts to solve the problem are presented in the Commission's Annual Report for Calendar Year 1976.

The 1977 Fishing Season

Proposed Regulations

As discussed in its previous Annual Report, the Commission participated in formal hearings on the National Marine Fisheries Service proposed regulations in November and submitted briefs to the presiding administrative law judge in December 1976. The Commission presented testimony and evidence that the best scientific evidence available indicated that the lower bound of the optimum range is 60 percent of unexploited population levels and that the eastern spinner dolphin, at 54 percent of unexploited levels, was below the optimum range and was therefore "depleted" under the Act. After reviewing all of the record evidence, the Commission recommended that intentional taking of eastern spinner dolphins be prohibited and that a limitation of 50,158 be imposed on the intentional taking of other populations which are within optimum levels so as to continue the reduction in the level of incidental taking and to ensure that the levels of such taking are not to the disadvantage of the affected populations.

The Recommended Decision of the Administrative Law Judge

On January 17, 1977, the administrative law judge issued his recommended decision on the proposed 1977 regulations and transmitted it to the Director of the National Marine Fisheries Service. The administrative law judge found that: the lower bound of OSP is 50% of unexploited population levels; that a total limitation of 96,100 should be imposed on the taking of those porpoise populations that are within optimum levels; and that while the eastern spinner dolphin is not depleted, no fishing on pure schools of eastern spinners should be permitted, since the data indicate that it is close to the lower bound of optimum sustainable population (OSP).

Although the recommended decision dealt with all aspects of the proposed regulations, including provisions concerning the size of net mesh and other gear, and import requirements, the most critical aspects of the decision were those concerning the total porpoise quota, the quota for individual stocks or species, and the status of the eastern spinner dolphin population.

Exceptions to the recommended decision were filed with the Director of the National Marine Fisheries Service by parties on 28 January 1977, expressing arguments against various aspects of the administrative law judge's decision and recommending that the Director reach a different conclusion. The Commission took exception to the administrative law judge's decision concerning the total quota, the quotas for offshore spotted, whitebelly spinner, and eastern spinner populations, the determination that the lower bound of OSP is 50% of unexploited population size, and the finding that the eastern spinner population is not depleted. The Commission recommended that the total quota be set at 50,158, that the lower bound of OSP be set at 60%, and that a quota of zero for intentional take of eastern spinners be set because they are at only 54% of unexploited population size -- below the lower bound of OSP -- and therefore depleted under the Act.

In its replies to the exceptions of parties which were filed with the Director of the National Marine Fisheries Service on 2 February 1977, the Commission recommended that the Director deny the exceptions of the tuna industry with respect to the estimates of porpoise populations, aggregate rather than stock-by-stock quotas, and other aspects that were inconsistent with the Commission's previous recommendations.

Additional Judicial Actions Relating to Proposed Interim Regime

While the administrative process leading to the promulgation of final regulations and issuance of a permit was still underway, litigation continued in the Federal courts of the District of Columbia and California over whether fishing could commence under an interim regime until the 1977 regulations were promulgated and a permit was issued. After Federal courts in Washington, D.C. and California issued conflicting orders, the question was finally resolved when the Court of Appeals in the District of Columbia asserted its jurisdiction over the issue and ordered all parties to refrain from further litigation on the matter until final regulations were issued. On March 8, 1977 the Court stayed Judge Richey's earlier decision and allowed implementation of the interim regime until such time as a new permit for 1977 could be issued.

Final Regulations

Final regulations governing the 1977 fishing season were published by the Director of the National Marine Fisheries Service in the Federal Register on 1 March 1977. The regulations set a total quota of 59,050, and a quota of zero for eastern spinners, since the Director agreed with the Commission that the eastern spinner population was depleted. On 15 April 1977 a general permit was issued under the authority of these regulations to the American Tunaboat Association.

In accordance with the recommendation of the Commission, the permit contained limitations not only on the numbers of animals that could be killed, but also on the numbers of animals that could be "taken" by pursuit and encirclement. On 3 August 1977 the permit was amended to increase the allowable take and mortality of whitebelly spinner dolphins, based on revised data concerning the size of the whitebelly spinner population, resulting in a total quota of 62,429 for 1977.

Judicial Action Relating to the Regulations and Permit for the 1977 Fishing Season

Following issuance of the final regulations, the Committee for Humane Legislation filed suit in the U.S. District Court for the District of Columbia, challenging the 1977 regulations, alleging that they were defective under the Act and requesting that the Court enjoin implementation of the

regulation. After issuance of the American Tunaboat Association's general permit on April 15th, the Committee for Humane Legislation also challenged the legality of the permit.

The American Tunaboat Association and other members of the tuna industry also filed suit in the U.S. District Court for the Southern District of California, challenging the regulations and permit as too restrictive, and asking that the Court order the National Marine Fisheries Service to promulgate new regulations. This lawsuit was transferred to the District Court for the District of Columbia where it was dismissed with prejudice for failure to prosecute. On June 30, the Court upheld the validity of both the regulations and the permit against the challenge by the Committee for Humane Legislation.

Congressional Action - 1977

Prior to the issuance of the general permit on 15 April 1977, a substantial portion of the U.S. tuna fleet returned to port in protest against the restrictions imposed by the interim regime and the anticipated conditions of the permit which was to be issued. Representatives of the tuna industry testified at oversight hearings before the House Committee on Merchant Marine and Fisheries in February and before the Senate Committee on Commerce in March 1977, requesting legislative action to modify the statutory scheme so as to allow them to set on the depleted eastern spinner dolphins, and to afford them other relief from the regulations.

A number of bills were introduced in the House of Representatives in April and May, including H.R. 6970, a bill introduced by Mr. Murphy, Chairman of the House Committee on Merchant Marine and Fisheries. H.R. 6970 would have increased the total quota to 78,900, from the 59,050 level set in the permit for the 1977 fishing season, including 6,500 eastern spinner dolphins and an increase in the whitebelly spinner dolphin quota from 7,840 to 17,000. The bill also provided authorization for a government-funded 100 percent observer program on vessels of 400 tons or more and required the tuna industry to provide a dedicated vessel for use by the government in research on the tuna-porpoise problem.

The Commission testified before the House Merchant Marine and Fisheries Committee on 13 and 16 May 1977 and suggested modifications of H.R. 6970 which were subsequently incorporated in S. 1550, a bill which was introduced in the Senate by Senator Magnuson.

A principal provision of the position advocated by the Commission and contained in S. 1550 was a reduction in quotas, the so-called "ratchet", so that the total kill of porpoise would be reduced to no more than 50 percent of the 1977 level by 1980, and further reduced by another 50 percent every two years thereafter. The 1977 quota would have been increased, but only to some 69,000 animals. In addition, restrictions on transfer of U.S. tuna vessels to foreign registry would be imposed by this bill in order to obligate such vessels to comply with U.S. standards. Permit holders would be required to submit reports on the financial impact of permit terms and conditions, and the Secretaries of Commerce and State would be directed to commence negotiations with foreign nations to achieve compliance by foreign vessels fishing on porpoise with provisions of the Marine Mammal Protection Act.

An amended version of H.R. 6970, incorporating some of the provisions recommended by the Administration, was reported out of Committee and, with further amendments on the floor, was passed by the House of Representatives on June 1, 1977. In its final form, the bill increased the 1977 quota to 68,910, as suggested by the Administration, but did not contain the "ratcheting" provision for subsequent reductions. It also provided for a \$2,000,000 assessment to be paid by the industry to provide funds for a dedicated research vessel as well as an incentive program for skippers with the lowest kill rates. Other amendments penalized individual skippers with greater than average porpoise mortality records. The bill also included a 100% observer program and provisions similar to those recommended by the Administration for bilateral negotiations and restrictions on foreign transfer of vessels.

On 4 May 1977, during this period of Congressional activity relating to the tuna-porpoise problem, the National Marine Fisheries Service published notice of adoption of an enforcement policy in the Federal Register which indicated that accidental takings of eastern spinner dolphins would not be prosecuted as violations of the regulations. By the end of May most U.S. tuna purse seiners which had been in port had returned to sea to resume fishing and the crisis nature of the issue had subsided. Although the House had passed a bill, no action was taken by the Senate to amend the Act and it therefore remained unchanged with respect to the tuna-porpoise issue. The U.S. tuna fleet completed the season fishing under the 1977 regulations with a record low kill of 26,477 porpoises.

Regulations for the 1978 - 1980 Fishing Seasons

Proposed regulations governing the 1978-1980 fishing seasons were published by the National Marine Fisheries Service in the Federal Register on 20 July 1977 and hearings on the regulations were held on 22-30 August 1977 in San Diego, California and 6-8 September in Washington, D.C.

The Commission testified and filed briefs in support of the proposed regulations, the central features of which required the use of a so-called "super apron" net system and established quotas limiting the total kill of porpoise to no more than 51,930 in 1978, 41,600 in 1979, and 31,140 in 1980 -- a reduction in the 1977 total kill quota to 50 percent by 1980 as proposed by the Commission and National Marine Fisheries Service in the course of earlier legislative activity and as contained in the Senate bill, S. 1550. The proposed regulations also continued the designation of the eastern spinner porpoise population as depleted and prohibited the intentional setting on eastern spinner porpoise through 1980.

The proposed regulations were based upon the judgment that the low kill of porpoise in 1977, as compared to previous years, indicated that the skillful use of effective gear and motivation by fishermen could achieve substantial reductions in porpoise mortality and that the use of the super apron system would facilitate even further reductions.

With the exception of the prohibition against intentional setting on eastern spinner porpoise because of their depleted status, the proposed regulations were based upon the technological and economic feasibility of reducing mortality and serious injury rates to a level approaching zero, as required by the Act, and were not based only upon a determination of the "sustainable kill" of the affected populations. Estimates of the size of the affected populations were updated from those available at the 1976 hearings, however, so as to provide a basis for estimating the impact of any taking upon the populations. These updated estimates for the three major populations affected by the fishery, prepared by the National Marine Fisheries Service and accepted by the Commission pending complete analysis of the 1977 data, are set forth below:

Estimates of 1978 Porpoise Populations (Thousands)

Species/Stock	Midpoint	Approximate Confidence Limits
Offshore spotted dolphin	3,730	2,356 - 5,301
Eastern spinner dolphin	1,327	792 - 1,940
Whitebelly spinner dolphin	690	434 - 988

Ratio of 1978 Population Size
to Unexploited Population Size

Species/Stock	Midpoint Estimate	Range
Offshore spotted dolphin	.65	.49 - .88
Eastern spinner dolphin	.55	.38 - .83
Whitebelly spinner dolphin	.80	.71 - .94

For reference, figures for the estimated porpoise mortality are also set forth below:

Year	Estimated U.S. Kill	Estimated Total Kill -- U.S. & Foreign
1972	306,000	348,000
1973	175,000	217,000
1974	99,000	120,000
1975	134,000	181,000
1976	103,600	143,900
1977	26,477	Not yet available

Representatives of the tuna industry testified at the administrative hearings in opposition to the requirement of the super apron system, the progressive reduction of quota levels, the continued designation of the eastern spinner population as depleted, and other aspects of the proposed regulations. They proposed that the quotas be set, instead, at 78,100 animals for the 1978-1980 fishing seasons.

The administrative law judge issued his decision on 4 November 1977 recommending that the proposed regulations be adopted, in most respects, including the declining quotas, the use of the super apron system, and the finding that the eastern spinner population is depleted and that all intentional setting on eastern spinners was therefore prohibited through 1980.

Exceptions to the recommended decision and replies to those exceptions were filed by parties to the proceedings with the Director of the National Marine Fisheries Service on 11 and 18 November, 1977, respectively. The Commission filed

replies to the exceptions of the tuna industry recommending that the industry's exceptions with respect to the dedicated vessel, the interpretation of the Act, certain alternatives to the recommended quotas, the depleted status of eastern spinner porpoises, the accidental enforcement policy, and other aspects of the administrative law judge's decision which were inconsistent with the Commission's recommendations, be denied and that the administrative law judge's decision, as modified in certain respects, be accepted.

Final regulations governing the 1978-1980 fishing seasons were published by the National Marine Fisheries Service in the Federal Register on 23 December 1977. The final regulations accepted the recommended decision of the administrative law judge and the recommendations of the Commission in all major respects, including those relating to the use of the super apron system, designation of the eastern spinner dolphin as depleted, and the "ratcheting" declining quotas. Quotas were set at 51,945 animals in 1978, 41,610 in 1979, and 31,150 in 1980.

On 27 December 1977, a general permit was issued to the American Tunaboat Association to fish in accordance with the final regulations governing the 1978-1980 fishing seasons. It is expected that the quotas established by the regulations will serve as upper limits and that the actual porpoise mortality levels will be substantially below these upper limits.

International Efforts

The United States fleet catches a greater percentage of yellowfin tuna on porpoise than do the vessels of other nations which fish in the eastern tropical Pacific. Of the total number of porpoises killed in the course of commercial yellowfin tuna fishing, the large majority of the kill results from fishing operations of U.S. flag tuna vessels. Participation in this fishery by foreign flag vessels is, however, increasing and vessels of some nations are estimated to have a rate of kill which is higher than that of U.S. vessels.

As noted in the Commission's previous Annual Reports, the Commission expressed concern about the need to achieve international cooperation and suggested that those nations fishing on porpoise and exporting fish to the United States should be advised that Sections 101 and 102 of the Act would be invoked to embargo any fish caught in a manner inconsistent with the U.S. program for porpoise protection. In addition, the Commission recommended that the Secretary of State develop

an international observer exchange program to determine the consistency of foreign fishing operations with the U.S. standards.

As discussed in its previous Annual Reports, the Commission recommended that the Department of State pursue efforts to negotiate agreements with foreign nations both within and outside the Inter-American Tropical Tuna Commission (IATTC).

Efforts by the U.S. delegation to the 1976 meeting of the IATTC were not successful in gaining acceptance of either an effective observer program or the adoption of the U.S. fishing gear and techniques which have proven effective in reducing porpoise mortality. However, the member nations did request the IATTC staff to develop a proposed research program for consideration at the next meeting.

Late in 1976, the Commission was advised that the Department of State was preparing to undertake efforts to negotiate bilateral agreements with nations whose vessels are involved in the incidental taking of porpoise in the course of the commercial tuna fishery.

Again on 15 April, 1977 the Commission repeated its recommendation that bilateral negotiations be pursued along with a multilateral program. The Commission urged the Department of State to initiate discussions before the effective date of new regulations established by the Department of Commerce which would ban the importation of fish caught in a manner inconsistent with U.S. standards, pointing out that it would now be in the interest of nations exporting yellowfin tuna to the U.S. to negotiate bilateral agreements as quickly as possible.

The Department of State responded by letter of 2 May 1977 indicating that it would press for adoption of porpoise saving measures and establishment of an international observer and/or scientific exchange program, as a first step, at the meeting of the IATTC in June. In addition, the Department expressed agreement that bilateral negotiations should be pursued and indicated that discussions with Mexico had been initiated. Finally, the Department indicated that it had recommended that the National Oceanic and Atmospheric Administration extend the effective date of the embargo of tuna and tuna products caught in a manner inconsistent with U.S. standards from 1 June 1977 until 1 August so as not to hamper discussions of the tuna-porpoise problem.

The June 1977 meeting of the IATTC resulted in the establishment of an international tuna-porpoise research and observer program which was discussed again at the meeting of the IATTC in October 1977. On 5 October, the National Marine Fisheries Service extended the effective date of the embargo regulations until 1 January 1978 so as to provide the Service and foreign governments sufficient time to clarify the requirements of the regulations and submit and evaluate the required information. By 1 January 1978, the Service had determined that tuna vessels of Canada, Ecuador, Mexico, the Netherlands Antilles, and Nicaragua were not fishing in a manner proscribed for U.S. fishermen and the tuna caught by vessels of these nations was therefore exempted from the embargo on importation into the United States.

Finally, with respect to bilateral discussions with Mexico, the Commission recommended on 22 November that discussions be directed toward developing a basic bilateral agreement embodying sound principles of marine mammal conservation and that particular emphasis be given to the importance of cooperative efforts to resolve the tuna-porpoise problem. Similarly, the Commission recommended on 21 December that the National Marine Fisheries Service take steps to insure that the agenda for the forthcoming meeting of U.S. and Mexican marine mammal scientists provide for detailed discussions of porpoises involved in the tuna fishery. The results of preliminary meetings with representatives of the Mexican government at the end of 1977 are encouraging, and it is anticipated that further meetings leading to negotiation of an effective bilateral agreement with Mexico will be undertaken in early 1978.

Transfer of Tuna Purse Seine Vessels to Foreign Registry

Consistent with its responsibilities to recommend to Federal agencies such steps or measures as it deems necessary or desirable for the protection and conservation of marine mammals, the Commission wrote to the Maritime Administration on 3 January 1977 concerning the transfer of U.S. tuna purse seine vessels to foreign registry and the impact of such transfers upon efforts to protect and conserve porpoise populations. The Commission recommended that the Maritime Administration, which must approve transfers of U.S. vessels to foreign registry, take steps to prohibit or limit, by means of restrictions such as bond, the transfer of any U.S. vessel which would result in the taking of porpoise in excess of U.S. standards and the avoidance of the protective measures of the Act.

The Maritime Administration responded on 2 May 1977 indicating that consideration was being given to the possibility of subjecting any transfer to conditions relating to conservation of living marine resources.

Again on 3 November 1977, the Commission wrote to the Maritime Administration concerning transfers of U.S. vessels which had occurred and requesting information on: what applications to transfer had been approved; what applications had been denied; what conditions had been imposed to protect porpoises; if a bond was required as a condition, how the amount of the bond was determined; how conditions imposed on transfers would be enforced; and what agencies of the federal government were consulted before reaching the final determination. In addition, the Commission requested that the Maritime Administration keep it advised of the receipt and disposition of all applications to transfer registry in the future. The Commission has received no response from the Maritime Administration.

Research and Cooperative Efforts

During 1977, the Commission engaged in numerous meetings and extensive consultation with interested parties to plan and implement close cooperation and coordination of research and development efforts to reduce incidental porpoise mortality and serious injury and to assess the status of affected porpoise populations. Certain aspects of the cooperative research and development effort are discussed below.

Aerial Survey

The need to conduct a more comprehensive aerial census than that which was conducted in 1974 was identified in the Commission's recommendations for research transmitted to the National Marine Fisheries Service in July 1974 and has been recognized by all interested parties.

The more comprehensive aerial survey was conducted by the National Marine Fisheries Service during the first six months of 1977 and the data are being analyzed. Representatives of the Commission and Committee of Scientific Advisors participated in workshops and meetings to develop the best methods for analyzing the data and it is expected that the analysis will be completed in 1978. The Commission will recommend any modifications of the regulations that may appear to be necessary and desirable to achieve the purposes of the Act as a result of the analysis of this information.

Behavioral Research Cruise, 1976

The behavioral research cruise aboard the Elizabeth C.J. was discussed in the Commission's previous Annual Report. Aerial, shipboard, and underwater films were utilized to record tuna-porpoise behavior before, during, and after sets. Porpoise were observed to manifest "sleeping" behavior in which they lie passively on the net, below the water, and appear to be dead. These animals become entrapped and die if the net is brought in before they rise for air. The "sleeping" animals can, however, be observed from a rubber raft and, if the backdown configuration is maintained until they rise to the surface, the animals can be successfully removed from the net. The use of this technique and effective gear by a skilled captain and crew contributed to an unusually successful research cruise as well as a successful fishing operation with a porpoise kill rate far below the fleet average.

The results of the cruise were extremely encouraging, pointing out that major reductions in mortalities were possible with currently available gear and procedures. In recognition of this "sleeping" behavior documented in the course of this research, the regulations governing the 1978-1980 fishing seasons require that a life raft and face mask be used by a person in the net to ensure that all "sleeping" animals have been removed from within the net before the back-down procedure is terminated.

Alternative Fishing Techniques

In an effort to assess progress and evaluate plans for future research, the Commission and National Marine Fisheries Service co-sponsored a workshop on 28 February - 2 March 1977. The participants in the workshop agreed that although recent improvements in gear and fishing practices would probably reduce porpoise kill substantially, expanded efforts should be undertaken to develop alternative fishing practices that do not depend upon capture of porpoises.

In light of the determinations by the workshop, the Commission wrote to the National Marine Fisheries Service in late November 1977 noting that economically attractive alternatives to present fishing practices would be beneficial to both the tuna industry and the impacted porpoise populations, and that the Commission had recommended that the National Science Foundation assume lead responsibility, in conjunction with research projects it was already supporting, to assess the feasibility of developing alternatives to "setting on porpoise". The Commission recommended that the Service provide the National Science Foundation with such

technical assistance and logistic support as may be needed to undertake these feasibility studies and that the Service be prepared by 1980 to assume responsibility for conducting field trials of any promising systems that may be identified. The Commission also wrote to the National Science Foundation in late November commending the Foundation for its efforts relating to the tuna-porpoise problem and recommending that it commit additional funds, as necessary, to conduct the initial studies to assess the feasibility of alternative fishing techniques. The Commission further recommended that the Foundation develop and implement an appropriate program to pursue these studies in conjunction with the dedicated research vessel which is discussed below.

Dedicated Research Vessel

As in the case of the need for behavioral research, the Commission has repeatedly stressed the need for a tuna purse seiner with an experienced crew devoted exclusively to research efforts related to the tuna-porpoise problem.

In October 1976 the Commission wrote representatives of the tuna industry, noting that research efforts had been delayed or precluded because of the lack of a dedicated research vessel from which to conduct research and testing, and suggesting a preliminary research plan for consideration. Subsequently, representatives of the tuna industry pledged in the course of public hearings to make such a dedicated vessel and crew available at the industry's expense, for cooperative research to begin in 1977.

Efforts to proceed with plans to obtain and utilize the dedicated vessel were, however, impaired by difficulties relating to the proposed regulations and amendments to the Act. Consequently, the research program was not initiated in 1977. In July, when it appeared that most of the pressing difficulties relating to the regulations had been resolved, the Commission again contacted representatives of the tuna industry, and was subsequently advised that the industry would honor the commitment to provide a dedicated vessel.

On 30 December 1977, the Commission entered into an Agreement with the National Marine Fisheries Service and the United States Tuna Foundation concerning the utilization of a dedicated research vessel. Under the terms of the Agreement, the United States Tuna Foundation, representing all segments of the U.S. tuna industry, will make the MV Queen Mary available during calendar year 1978, at its expense, for purposes

of conducting research on the relationships and behavior of tuna and porpoise involved in the yellowfin tuna fishery, to assess the status of affected porpoise populations, and to further the objectives of the Act with respect to incidental taking of those porpoise.

The Commission is engaged with representatives of the National Marine Fisheries Service, the tuna industry, and other interested parties in efforts to accomplish the necessary planning and other arrangements relating to the utilization of the dedicated vessel which is expected to begin the first research cruise in January 1978. As a part of its contribution to this effort, the Commission has provided funds for a program manager who will coordinate and manage the conduct of the dedicated vessel research program under the supervision of a Program Board composed of representatives of the three parties to the Agreement.

Conclusion

Despite the difficulties which have been experienced in the course of efforts to resolve the tuna-porpoise problem, substantial progress has been made. With the completion of the more comprehensive aerial survey in 1977 and the availability of a dedicated vessel for intensive research and development efforts at sea, most of the Commission's recommendations first made in 1974 have been adopted. The record low kill this year and the promising results of the super apron system which will be employed by the fleet in the future suggest that these developments, in conjunction with additional cooperative efforts, will contribute to further resolution of the problem.

CHAPTER V

ENDANGERED, THREATENED, AND DEPLETED SPECIES

The Commission reviews the status of marine mammal populations and makes recommendations for appropriate designations under the Marine Mammal Protection Act and the Endangered Species Act. Commission actions in 1977 are discussed below.

Bowhead whale (Balaena mysticetus)

On 28 February and on 28 March 1977, the Commission recommended to the National Marine Fisheries Service that it designate this species as "depleted" pursuant to the provisions of Section 3 of the Marine Mammal Protection Act. On 25 November, the Service published notice of its determination that the bowhead whale was depleted and designating it as such.

A full discussion of the recommendations and other aspects of the bowhead whale issue is found in Chapter III of this Report.

Hawaiian monk seal (Monachus schauinslandi)

Following its 1975 review of the status of the Hawaiian monk seal, the Commission recommended to the National Marine Fisheries Service in December 1975 that the species be designated as "depleted" under Sections 3(1)(A) and (B) of the Marine Mammal Protection Act and as "endangered" under Section 4 of the Endangered Species Act of 1973. A review of new data collected in 1976 convinced the Commission that the problem was more acute than had been supposed, and it again recommended that the Service take immediate action.

Noting the Act's prerequisites for the designation of a species as depleted and its belief that the Hawaiian monk seal was depleted, the National Marine Fisheries Service published its notice of proposed rulemaking in June 1976 and, in July, designated the Hawaiian monk seal as "depleted" under the Marine Mammal Protection Act. This action banned the taking of Hawaiian monk seals for any purpose other than for scientific research.

In August, the National Marine Fisheries Service and the Fish and Wildlife Service jointly published a notice of proposed rulemaking to designate the Hawaiian monk seal as an endangered species. The agencies cited, in support of the action, such factors as habitat destruction, overutilization, disease, predation, and the inadequacy of existing regulations. On 23 November 1976, the species was designated as "endangered" under the Endangered Species Act.

To further its understanding of the monk seal and to identify actions which may lead to its recovery, the Commission, in 1977, supported a major field study to assess the abundance, movements, and productivity of the population on Laysan Island. The Commission also supported an experimental shark fishing program off French Frigate Shoals to determine the feasibility of a shark abatement program and its potential benefit to monk seals.

Commission efforts in 1977 to further protect the monk seal through designation of critical habitat are discussed in Chapter XII.

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 coastal waters of the United States. The population in Florida is thought to number less than a thousand, and evidence suggests that it continues to decline. Factors lessening its chances for survival include accidental injury by boats, entrapment in water-level control gates, thermal shock due to sudden cooling of water near electric generating plants (when the warm-water discharges which attract manatees in winter are interrupted), and loss of habitat due to coastal development.

The West Indian manatee is one of only four remaining representatives of the order Sirenia. The range and abundance of the other sirenians -- the dugong (Dugong dugon), the West African manatee (Trichechus senegalensis), and the Amazon manatee (Trichechus inunguis) -- have shrunk dramatically in recent years. The Steller sea cow (Hydrodamalis gigas) became extinct in 1768. Vigorous efforts to save the West Indian manatee are critical. If successful, not only will the manatees in the United States be saved, but other nations will be encouraged to undertake similar efforts to protect sirenians under their jurisdiction.

In recognition of the need for effective research and protection, the Commission recommended in late 1976 that the Fish and Wildlife Service seek additional funds to expand its domestic and international sirenian program and that a workshop be convened as soon as possible.

As part of its efforts to generate the necessary research and protection, the Commission asked representatives of the Fish and Wildlife Service to attend the Commission's January meeting to discuss the Service's sirenian program. Representatives of the Service and others involved in manatee research and conservation in Florida identified needs for research and protection which warranted immediate attention.

Subsequently, the Commission received a proposal for the development of a manatee conservation program with the request that it provide funds to support development of the program. The Commission transmitted the proposal to the Fish and Wildlife Service, noting that the Commission felt that such work should be undertaken or supported by the Service as part of its responsibilities to develop and implement an overall recovery plan. The Commission recommended that the Service undertake the work if it had not already initiated studies comparable to those described in the proposal. In addition, the Commission asked the Service to describe its efforts to enlist the help of interested non-governmental conservation groups and to describe its immediate and long-term objectives and plans for manatee research and protection.

Finally, as discussed in Chapter XIII, the Commission transmitted a letter and supporting memorandum to the Fish and Wildlife Service on 4 November in an effort to resolve uncertainties about the legal authority of the Service to protect manatees in Florida.

The Commission believes that the Florida manatee problem is a grave one and that protective actions taken to date have been inadequate. It hopes that the Fish and Wildlife Service's recent verbal assurance that the workshop, first recommended by the Commission in late 1976, will be convened in March 1978, and will be the first of many steps that the agency will take in 1978 to protect and foster the recovery of this species.

Caribbean monk seal (Monachus tropicalis)

The last reliable sighting of the Caribbean monk seal was in 1952, and an extensive aerial survey in 1973 failed to produce evidence of its continued existence.

The rumored, recent sighting of several seals (perhaps escaped sea lions) by fishermen in the Caribbean, however, prompted the Commission to recommend formal designation of the species as "endangered" pursuant to Section 4 of the Endangered Species Act and as "depleted" pursuant to Section 3 of the Marine Mammal Protection Act. These actions will insure that, should any living remnant of the population be discovered, the safeguards that can be provided under these Acts can be immediately implemented. In February 1977, the Services proposed rulemaking to designate the species as "endangered".

West African manatee (Trichechus senegalensis)

After reviewing available information on the status of the West African manatee, the Commission recommended in November that the species be listed as "threatened" under the Endangered Species Act.

Although West African manatees are protected by law in many countries in which they occur, subsistence hunting continues throughout their range and river damming, increased pollution, and increased boat and ship traffic are likely to have a further detrimental effect upon the species. In recommending designation of the West African manatee as "threatened," the Commission urged the Department of the Interior to work with the Department of State to take such steps as may be possible to encourage West African nations to protect remaining habitat and to undertake necessary research.

Gulf of California harbor porpoise (Phocoena sinus)

The status of the Gulf of California harbor porpoise, which breeds only in Mexican waters, was reviewed by the Commission's Committee of Scientific Advisors on Marine Mammals. It recommended that efforts be undertaken to secure the designation of Phocoena sinus as a threatened species.

Because the Commission felt that additional supporting data would be valuable, it provided support for Mexican scientists to conduct a field survey. The survey was completed and the results were reviewed with Mexican scientists in

February 1977. As a result, Mexican scientists, on behalf of themselves and the U.S. participants at the meeting, submitted a recommendation to the International Union for the Conservation of Nature and Natural Resources (IUCN) that Phocoena sinus be entered in the Red Data Book of the IUCN as a "vulnerable" species. In early 1978, the Commission will transmit its recommendation to the National Marine Fisheries Service that Phocoena sinus be designated as a threatened species.

Eastern spinner dolphin (Stenella longirostris)

The Commission has been concerned for several years about the status of the eastern spinner dolphin population, members of which are incidentally taken by commercial yellowfin tuna fishermen in the eastern tropical Pacific.

In 1976, after reviewing the population data, the Commission recommended that the tuna-porpoise regulations for the 1977 fishing season designate the eastern spinner dolphin as "depleted" and that all intentional taking be prohibited. The National Marine Fisheries Service accepted this recommendation and made it effective in regulations for the 1977 fishing season, issued on 1 March 1977.

During the proceedings in 1977 relating to the tuna-porpoise regulations for the 1978-80 fishing seasons, the Commission determined that the population would remain below optimum sustainable levels through 1980. It therefore renewed its recommendation that the population be designated as "depleted". This recommendation was accepted by the National Marine Fisheries Service and included in the final regulations issued on 23 December 1977.

The Commission's activities with respect to this and other aspects of the tuna-porpoise problem are discussed in Chapter IV.

California sea otter (Enhydra lutris)

As discussed in an earlier Annual Report, the Commission had recommended that the California sea otter population be listed as "threatened" under the Endangered Species Act of 1973. On 14 January 1977, the Fish and Wildlife Service published a notice of its determination that the California sea otter population was threatened and designating it as such.

CHAPTER VI

PERMIT PROCESS

The Marine Mammal Protection Act calls for a moratorium on the taking and importing of marine mammals or marine mammal products except by certain Indians, Aleuts, and Eskimos for subsistence or native handicrafts and clothing. However, the Act does provide for the issuance of permits during the moratorium by either the Secretary of Commerce or the Secretary of the Interior, depending upon the species of animal involved, to allow taking for scientific research or public display, provided that the permit application is first reviewed by the Marine Mammal Commission and found to be consistent with the Act. Commission review is carried out in consultation with the full Committee of Scientific Advisors on Marine Mammals.

The permit application and review process involves three stages: (1) receipt and initial review of the application at the Department, publication in the Federal Register, and transmittal to the Commission; (2) review of the application by the Commission and transmittal of its recommendations to the Department; (3) final processing by the Department, including consideration of all comments and the recommendations of the Commission and the public, resulting in approval or denial of the application. Each stage of the process must be carried out quickly and thoroughly for the system to operate efficiently.

In 1977, 51 permit applications were received for review by the Commission -- 43 from Commerce and 8 from Interior. The Commission transmitted recommendations on 43 of the 51 applications received; 8 were still under review by the Commission at the end of the year. In addition, the Commission transmitted recommendations in 1977 on 11 applications received at the end of 1976. The entire permit process in 1977 (initial receipt to issuance or rejection) took between 46 and 257 days with an average of 99 days for permits submitted to the Department of Commerce and between 97 and 211 days with an average of 149 days for permits submitted to the Department of the Interior.

Following an intensive review of the permit system during late 1976, the Commission convened an interagency meeting in

January 1977 to address problems of permit processing. In brief, the issues included:

- (1) the need for flexibility in handling different kinds of applications;
- (2) the need for a concise, standard application form covering both endangered species and marine mammal permits;
- (3) the need for a "plain English" brochure explaining the system to applicants;
- (4) the need for clarification as to what activities do and do not require a permit, particularly with respect to taking by "harassment" and activities in foreign countries;
- (5) the question of how to care for and dispose of live stranded animals;
- (6) the need to resolve inconsistencies between the agencies in judging the adequacy of applications, in the formal publication of application summaries, in the imposition of terms and conditions on permit holders, and in permit modification procedures;
- (7) the need for clarification as to the jurisdictional extent of the Act's coverage;
- (8) the need for a uniform permit policy concerning export of marine mammals to foreign facilities; and
- (9) consideration of the need to amend permit processing procedures should the Department of Agriculture eventually publish standards and guidelines for the maintenance of captive marine mammals.

The discussions at the meeting reaffirmed Commission convictions that many of the problems, although serious in impact, could be resolved by appropriate regulatory and procedural changes. In its letter of 3 March 1977 to both agencies, the Commission summarized the results of the meeting, and recommended immediate establishment of a joint Commerce/Interior task force to work toward resolving identified problems.

Although it was hoped that the Task Force would make significant progress by the end of the summer, work has gone more slowly than anticipated and the Task Force has determined that it is not necessary to address all of the issues identified by the Commission. Progress on a number of the identified issues has, however, been made, and the Task Force has

recently submitted reports to the Commission on the status of these problems and its efforts to resolve them. The Commission will review this information and transmit its recommendations in the hope that the efforts of the Task Force, in conjunction with the issuance of the Department of Agriculture's final regulations for marine mammal maintenance (discussed in Chapter XIV), will contribute to further improvement of the permit process.

CHAPTER VII

INTERNATIONAL ASPECTS OF MARINE MAMMAL PROTECTION AND CONSERVATION

Section 108 of the Marine Mammal Protection Act directs the Departments of Commerce, Interior, and State, in consultation with the Commission, to seek to further the protection and conservation of marine mammals under existing international agreements and mandates various initiatives by the agencies to negotiate bilateral and multilateral agreements to achieve the purposes of the Act.

The Commission's activities in 1977 with respect to international aspects of the tuna-porpoise problem, bowhead whales, and certain other issues are discussed elsewhere in this Report. Its activities with respect to Antarctic marine life, the International Whaling Commission, and cooperative arrangements with Mexico are discussed below.

Antarctic Marine Life

Since 1975, the Commission has been encouraging, through letters of recommendation and interagency consultations, the Department of State and the National Science Foundation to develop, adopt, and pursue policies that would lead to international cooperation to protect the Antarctic marine ecosystem. This has been done with particular reference to the likelihood, in the Commission's view, of a substantial krill fishery developing in the Southern Ocean.

In its comments and recommendations to the National Science Foundation, the Commission has noted, starting in 1975, that: krill management should be approached from an ecosystem perspective; distribution, abundance, life history, and population parameters of affected species, including krill, are poorly understood and therefore do not now provide a reliable basis for management decisions; any krill harvest should not be of such intensity as to cause the depletion of species higher in the food web; research in the area of "ecosystem response" should be given high priority; the distribution, abundance, and life histories of species that feed on krill should be fully described as quickly as possible; attention should be paid to the principle of establishing management regulations prior to exploitation; steps should

be taken to identify research needs and priorities as well as to carry out needed research; and such other steps as may be needed to conclude an effective international agreement governing any krill fishery should be undertaken.

In the fall of 1976 and in subsequent supportive exchanges that year and in 1977, the Commission recommended to the Department of State that it: (1) promptly undertake a review and reevaluation 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.

The Commission is pleased to note that progress has been made and that efforts to negotiate a convention on the conservation of living resources of the Southern Ocean will begin in 1978. With reference to the environmental impact statement, the Department of State will publish the draft environmental impact statement in early 1978.

International Whaling Commission (IWC)

The Marine Mammal Commission consulted with the U.S. Commissioner to the IWC and others in preparation for the 29th meeting of the IWC (Canberra, June 1977) and its special meeting in Tokyo (December 1977). Representatives of the Commission participated in both meetings of the IWC and its Scientific Committee during 1977. A detailed discussion of the Commission's activities relating to IWC and the bowhead whale issue is contained in Chapter III. A summary of the Commission's activities relating to other IWC actions in 1977 are set forth below.

June 1977 Meeting

The United States delegation expressed continued strong support for the ten-year moratorium in a message to the meeting from President Carter.

Application of the New Management Procedures, first set forth in 1974 and based upon the recommendations of the IWC's Scientific Committee, resulted in the establishment of quotas for whales in all oceans that were approximately 10,000 animals below those for 1976. Sei whales in four of the six areas of the Southern Ocean were totally protected and the

quota for the remaining two areas was set at 771 animals, a reduction by nearly 60% from last year's quotas. Quotas on minke whales in the southern hemisphere, Bryde's whales in the north Pacific Ocean, and one stock of sei whales in the North Atlantic were also substantially reduced.

In addition to these quotas and the bowhead whale issue, quotas for North Pacific sperm whales were the subject of special attention at the meeting. In response to the recommendations of its Scientific Committee, the IWC established a zero quota for male sperm whales and a quota of 763 for females in the North Pacific. These quotas were based upon the results of the Committee's analysis of whaling effort and efficiency and were a substantial reduction from the previous year's quotas of 4,320 males and 2,880 females. The Scientific Committee agreed to convene a special meeting in November to study the data further and the IWC members agreed to hold a special meeting in December 1977 if the results of the Scientific Committee's meeting warranted further consideration of the North Pacific sperm whale quotas.

The members of the IWC also agreed to hold a meeting in 1978 in preparation for the Conference of Plenipotentiaries to negotiate a revised and, hopefully, expanded Convention for cetacean conservation.

Finally, the IWC adopted resolutions against member nations transferring equipment, vessels, or expertise to non-member nations, against member nations importing whale products from non-member nations, and calling on non-member nations to join the IWC and to cooperate in the conservation of whales.

December 1977 Meeting

The special meeting of the IWC in Tokyo was primarily devoted to a consideration of the quotas for North Pacific sperm whales and the bowhead whale issue (discussed in Chapter III).

Based upon the recommendation of its Scientific Committee, the IWC established two management divisions for North Pacific sperm whales and set separate quotas for each division. Quotas were set at 2,987 males and 784 females for the western division, and 2,118 males and 555 females for the eastern division -- a reduction from the quotas set in 1976, but a substantial increase over those established at the June meeting. The change in quotas resulted from a reconsideration of data concerning whaling effort or efficiency factors leading to a

determination that the current size of the North Pacific sperm whale population is larger, relative to its original size, than had been determined in June. The Marine Mammal Commission will cooperate with interested agencies and organizations in early 1978 to conduct further analyses of North Pacific sperm whale data in preparation for the next IWC meeting in June.

In addition to action on the bowhead and North Pacific sperm whales, the IWC agreed to convene a meeting in July 1978 to prepare for the Conference of Plenipotentiaries and adopted resolutions proposed by the U.S. delegation concerning whaling activities of Chile and Peru.

Pelly Amendment

In its 1976 Annual Report the Commission indicated that it would review the whaling activities of nations which are not members of the IWC in light of the provisions of the Pelly Amendment to the Fishermen's Protective Act of 1967. The Pelly Amendment authorizes the President, based upon a certification by the Secretary of Commerce, to ban the importation into the United States of fish products from nations whose nationals fish in a manner that diminishes the effectiveness of an international conservation program such as that of the IWC.

The Commission completed its evaluation early in 1977. By letter of 11 February, the Commission advised the Secretary of Commerce that the whaling activities of Peru and the Republic of Korea, neither of which had responded to repeated efforts to enlist their membership in the IWC, had diminished the effectiveness of the IWC conservation program so as to warrant application of the Pelly Amendment to all their fish products. The Commission recommended, for reasons set forth in its letter, that the Secretary certify these findings to the President for his consideration and potential prohibition of importation of Peruvian and Korean fish products.

The Secretary of Commerce responded by letter of 18 April 1977 indicating that the National Marine Fisheries Service was gathering background information, for her consideration, on the whaling activities of Peru and Korea as well as on the possible impact of a trade embargo. No further response to the Commission's recommendation has been received in 1977.

Cooperative Arrangements with Mexico

A number of marine mammals are of mutual concern to the United States and Mexico. Among these are the gray whale, those species of porpoise affected by the commercial yellowfin tuna fishery, the manatee, the Gulf of California harbor porpoise, and the pinnipeds found along routes of whale-watching tour boats.

Earlier Annual Reports have discussed meetings in La Paz, Mexico between U.S. and Mexican scientists. Although a useful forum for exchange of scientific information and ideas, the meetings were not designed to lead to substantive conservation agreements on marine mammals. Therefore, in 1976, the Commission recommended that efforts be undertaken to conclude a bilateral agreement or agreements with Mexico.

Considering the number of problems and species suitable for inclusion in a conservation convention, the Commission believes that efforts should be directed toward concluding a basic agreement, embodying sound conservation principles, under which specific species or problems might be subsequently addressed in sub-agreements or schedules. On 22 November 1977, a recommendation to this effect was transmitted by letter to the Department of State. The letter also recommended that certain problems be afforded priority status in such sub-agreements as might be developed.

In addition to its recommendation to the Department of State, the Commission, on 21 December 1977, recommended to the National Marine Fisheries Service that: in cooperation with the Fish and Wildlife Service, and through the Department of State, the National Marine Fisheries Service vigorously pursue efforts to conclude a basic agreement embodying sound principles of marine mammal conservation under which specific species or problems may be addressed in sub-agreements; gray whale conservation be immediately addressed under the agreement as a primary issue of concern; the National Marine Fisheries Service discuss with Mexican scientists specific proposals for research on gray whales and pinnipeds found along tour boat routes; counts of gray whales from shore stations in southern California be continued on an annual basis; data collection methods and shore station site selection be modified to improve extrapolations of population size and our understanding of the impact of boat traffic on migratory behavior; formal agreement be sought with Mexican authorities to limit access by tourists to the islands of Guadalupe, San Benito del Este, and San Benito del Centro; a cooperative team of scientists be stationed on San Martin Island to

observe and record instances of pinniped harassment; and gray whales and pinnipeds subject to disturbance by tour boats in the lagoons and along migration paths be a primary focus of scientific discussions at La Paz in February 1978.

The Commission is pleased to note that the Department of State, the National Marine Fisheries Service, and the Fish and Wildlife Service have made effective efforts in 1977 to enter into negotiations with the Mexicans, and the Commission is hopeful that an agreement may be concluded in 1978.

CHAPTER VIII

LIVE CAPTURE OF KILLER WHALES AND BOTTLENOSE DOLPHINS

The Commission, with benefit of carefully considered presentations from its Committee of Scientific Advisors, is developing papers on the live capture fisheries for bottlenose dolphins (Tursiops truncatus) and killer whales (Orcinus orca), two cetaceans of special interest to display and research institutions. In reviewing applications for permits to take these animals, the Commission has had to weigh the impact of the proposed takings upon the populations and the ecosystems of which they are a part. For bottlenose dolphins, particular concern exists about populations in Florida, while the killer whale population of concern is that in Puget Sound and adjacent waters.

At the end of 1977, both documents were in the final stages of review. They will be available in 1978.

Bottlenose Dolphins

Immediately prior to passage of the Marine Mammal Protection Act (1970 through 1972), at least 600 bottlenose dolphins were removed from Florida waters for display and/or research. Although the rate of taking subsequently declined to an annual average of less than 50 in all areas combined, the highly localized character of the fishery is of concern because each local area may contain a small, discrete population susceptible to overexploitation at even low levels of taking.

Since 1974, the Commission has funded a variety of investigations that bear directly on problems associated with live-capture of Tursiops. These include: a literature survey; tagging and telemetry studies of dolphins in the Sarasota-Bradenton area of Florida; aerial surveys of dolphins in Biscayne Bay and along the Gulf Coast of Florida and Louisiana; a beach survey and behavior study in Texas; and two workshops, one on population assessment and one on captive breeding. Information to be summarized in the paper is based, in part, on the results of these projects.

In addition to summarizing information on the species' life history and behavior, the paper will recommend research priorities and set forth management guidelines designed to safeguard the welfare of individual populations.

Killer Whales

The Commission has long been concerned about the status of the killer whale population in the Pacific Northwest and, since 1975, has supported and encouraged efforts to assess the status of the population.

In 1977, the Committee was asked to evaluate all available data, and to advise the Commission as to what policy would be best to insure the continued viability of the population. To assist in developing the most useful body of information, the Commission also let contracts to provide: (1) a summary and analysis of data on worldwide killer whale stocks, including, but not limited to, the population in the Pacific Northwest; and (2) an assessment of the effects that live-capture removals may have had on the population in the inland waters of Washington and British Columbia.

The Commission's paper, based upon the advice of its Committee and the results of all studies, should be available in the spring of 1978.

CHAPTER IX

OUTER CONTINENTAL SHELF EXPLORATION AND EXPLOITATION

Activities associated with the discovery, recovery, and transport of oil and gas reserves from the outer continental shelf (OCS) may have direct or indirect effects on marine mammals and/or the ecosystems of which they are a part. Oil spills, for example, may result in direct mortality, or adversely affect organisms lower in the food web, thereby reducing the carrying capacity of marine mammal habitats. In 1977, pursuant to its responsibilities under the Act, the Commission, in consultation with its Committee of Scientific Advisors, reviewed and commented on the following OCS proposals and issues.

Crude Oil Transportation System: Valdez, Alaska to Midland, Texas

The SOHIO Transportation Company proposed a transportation system for delivering Alaskan crude oil from the Trans-Alaska pipeline terminal at Valdez, Alaska, to Midland, Texas.

Following review of the Draft Environmental Impact Statement (DEIS) on the proposal, the Commission advised the Bureau of Land Management that the DEIS did not contain sufficient information to evaluate the possible impacts on marine mammals, and that the proposed biological monitoring program in Port Valdez, Prince William Sound, and the Copper River delta should be expanded to include monitoring of marine mammal populations. The Commission also noted that the proposed action would increase the possibility of a major oil spill along the California coast, and that such an oil spill could threaten the viability of the California sea otter population.

Proposed OCS Sale in the South Atlantic

The Bureau of Land Management proposed leasing 1,280,966 acres located off South Carolina, Georgia, and Florida.

The DEIS on the proposed lease sale provided neither an accurate nor an adequate assessment of the potential impacts on marine mammals or the ecosystem of which they are a part. Therefore, by letter of 2 May 1977, the Commission

recommended that the Bureau of Land Management: (1) revise the DEIS following consultation with persons having expert knowledge concerning marine mammals in the proposed sale area; (2) delay the sale if there are insufficient data to conclude that the proposed action will not be to the disadvantage of marine mammal populations; and (3) undertake additional studies, as necessary, if available data are judged inadequate to predict or to monitor the impact of the proposed action on marine mammals or the ecosystem of which they are a part.

Proposed OCS Sale Off Texas and Louisiana

The Bureau of Land Management has proposed leasing an additional 120 tracts (582,856 acres) off Texas and Louisiana.

The distribution and abundance of marine mammals in this area are poorly known and the DEIS prepared by the Bureau does not provide an impartial assessment of the potential impact of the proposed sale on marine mammals or their habitats. Therefore, in a letter dated 16 June 1977, the Commission recommended that the Bureau: (1) revise the DEIS following consultation with scientists knowledgeable about the distribution, abundance, and productivity of marine mammals in the Gulf of Mexico; (2) delay the sale if there are insufficient data to conclude that the proposed action will not be to the disadvantage of marine mammal populations or the ecosystems of which they are a part; and (3) as necessary, initiate baseline and/or special studies needed to predict and monitor the impact of the proposed action on marine mammals and their habitats.

To date, the Bureau of Land Management has not yet responded to these recommendations of the Commission.

Argo Merchant Oil Spill

The Commission's previous Annual Report discusses a Commission-sponsored workshop (and other activities) to assess and focus attention on the potential impact of the Argo Merchant oil spill on marine mammals.

As one result of the workshop, a marine mammal observer was included as a member of the National Oceanic and Atmospheric Administration-Spilled Oil Research Team that was assessing the impact of the spill. In addition, on 28 January 1977, the National Oceanic and Atmospheric Administration convened a follow-up meeting at the New England Aquarium to: (1) identify research needed to assess the long-term effects of the Argo Merchant spill on marine

mammals; (2) develop a preparedness plan in the event of future spills; (3) identify data gaps that precluded effective assessment of the effects of the Argo Merchant spill on marine mammals; and (4) outline research that should be undertaken to provide the baseline information needed to predict and assess the effects of future oil spills on marine mammals.

Reports of both the Commission-sponsored workshop and the NOAA-sponsored meeting are available from the New England Aquarium, Central Wharf, Boston, Massachusetts 02110.

CHAPTER X

COASTAL ZONE MANAGEMENT

The Coastal Zone Management Act of 1972 (CZMA) established a national policy to preserve and protect the coastal waters, adjacent lands, and living resources of the coastal zone, and to encourage and assist the States to develop and implement Coastal Zone Management programs to achieve wise use of coastal resources. For this purpose, the CZMA established a Federal granting program under which the Office of Coastal Zone Management (OCZM) of the National Oceanic and Atmospheric Administration could make funds available to states for purposes of developing and implementing approved Coastal Zone Management programs.

The policy of the CZMA complements those of the Marine Mammal Protection Act which recognize the need to protect the rookeries, mating grounds, and areas of similar significance for marine mammals. Approximately 20 species of marine mammals, including six on the endangered species list, are substantially dependent upon the resources of the coastal zone of the United States. The development of effective coastal zone management programs is therefore particularly important for effective marine mammal conservation.

As discussed in its previous Annual Report, the Commission supported a study of the California Coastal Plan in 1976 and suggested by letter of 21 December 1976 that the State strengthen the Plan, as it pertained to marine mammals, in accordance with detailed comments and recommendations. The Commission offered to provide the California Coastal Commission funds to convene an advisory group to assist it in accomplishing the recommended changes but received no response to the offer.

The State's Plan was modified and submitted as the California Coastal Management Program to the OCZM for approval under the CZMA. In a letter of 19 July 1977 to the OCZM, the Commission transmitted comments and recommendations on the Program and Draft Environmental Impact Statement (DEIS) that may be summarized as follows: (1) the DEIS should be expanded to discuss the impacts of the Program on marine mammals and its consistency with the Act; (2) neither the Program nor the DEIS contained enough information to determine whether the Program is consistent with the Act; (3) in light of the uncertainties about the Federal consistency provisions of the CZMA and the lack of specific information, any approval

of the Program should be subject to the understanding that the Marine Mammal Protection Act continues to apply in full force and effect; (4) the Program and DEIS should be supplemented to remedy these inadequacies; (5) approval of the Program should be deferred until they are so supplemented; (6) an advisory group should be designated and convened; (7) the Commission would be pleased to assist in organizing or financing a meeting of the group; and (8) the Commission is anxious to establish and maintain an effective consultative mechanism with the OCZM and the California Coastal Commission.

After reviewing the Final Environmental Impact Statement on the Program, the Commission submitted additional comments and recommendations to the OCZM on 16 September. The Commission stated that the difficulties it had noted concerning the DEIS had not been resolved by the discussion in the FEIS. The Commission noted that it did not wish to delay efforts to proceed with the development of the Program, but renewed its recommendation that any approval of the Program expressly provide that the Marine Mammal Protection Act continues to apply, in all respects, to marine mammals within the coastal zone of California.

The OCZM responded by a letter of 22 September indicating that it felt it was not necessary to refer to the Marine Mammal Protection Act as the Commission had recommended, although it recognized that activities relating to marine mammal protection and conservation might be affected by approval of the Program. In addition, it indicated that it considered the discussion of marine mammals in the FEIS to be adequate and suggested that the Commission consult with the California Coastal Commission concerning the relationship between the Marine Mammal Protection Act and the Program. The OCZM approved the California Coastal Management Program on 7 November 1977, but the Federal consistency provisions of the CZMA were stayed pending a final decision of the U.S. District Court for the Central District of California in litigation relating to the Program. The effect of this approval is that activities affecting marine mammals remain subject to the Marine Mammal Protection Act, as the Commission had recommended, until uncertainties about the effects of approval of the State's Program upon Federal activities are resolved.

The Commission is concerned that the Coastal Zone Management Act is not being implemented in a manner so as to maximize the opportunities to coordinate and integrate protection of marine mammals with development of effective coastal zone management programs. The Commission has not found it possible to evaluate the effects of proposed approval of programs upon marine mammals on the basis of general statements in programs and environmental impact statements.

Uncertainties about the extent to which approval of State programs will serve to approve proposed State activities that would affect marine mammals led the Commission to recommend that the OCZM simply state that the Marine Mammal Protection Act will continue to apply, but this recommendation has not been adopted. Instead, OCZM has suggested consultation with the individual States rather than establishing a uniform policy to resolve the uncertainties.

The Commission is anxious to proceed with efforts to resolve the issues discussed above and develop appropriate mechanisms for coordinating the development of State marine mammal and coastal zone management programs. It will therefore recommend, early in 1978, that an effort be undertaken to integrate the elements of the Federal-State scheme relating to marine mammals under the Marine Mammal Protection Act into the Federal-State programs that are developed under the Coastal Zone Management Act so that State marine mammal programs are developed in conjunction with Coastal Zone Management programs and the relationship between the two is clear and complementary. The Commission will recommend that the Fish and Wildlife Service and the National Marine Fisheries Service which have responsibility with respect to State marine mammal programs coordinate their efforts with the Office of Coastal Zone Management to accomplish an effective mechanism for this purpose.

CHAPTER XI

GENERAL PERMITS TO FOREIGN FISHERMEN FOR MARINE MAMMALS TAKEN INCIDENTALLY WITHIN THE 200-MILE LIMIT

As of 1 March 1977, the Fishery Conservation and Management Act of 1976 amended the Marine Mammal Protection Act by extending its provisions to all waters within 200 miles of U.S. coasts. As a result, foreign fishermen who take marine mammals in the course of commercial fishing operations within the 200 mile Fishery Conservation Zone must now obtain general permits under Section 104 of the Marine Mammal Protection Act.

This truly accidental taking of marine mammals (as against taking which results from deliberately "setting on porpoises") has received little attention as compared to the efforts that have been expended in resolving the tuna-porpoise problem, discussed in Chapter IV. In contrast to the detailed regulations and quotas governing fishing activities associated with the tuna-porpoise problem, regulations governing other forms of fishing have remained essentially unchanged since they were first issued in 1974. The regulations contain no quotas, provide that the fisherman may take steps short of causing injury or death of the marine mammal to protect his gear, catch, or person from damage, and provide that he may injure or kill the animal if the use of non-injurious methods fails to prevent substantial and immediate damage.

During 1977, in an effort to develop recommendations to the National Marine Fisheries Service, the Commission concentrated its attention on three applications from foreign fishermen for general permits to incidentally take marine mammals within 200 miles of the United States.

The first was that of the Federation of Japan Salmon Fisheries Cooperative Association to incidentally take Dall's porpoises (Phocoenoides dalli) in the Bering Sea. The Commission concluded that information on the status of Dall's porpoise and the expected impact of the proposed taking were not adequate to satisfy the requirements of the Act. It therefore recommended to the National Marine Fisheries Service by letter of 12 July that the application be denied. The Commission recommended that the applicant be advised of the desirability of a vigorous research program on the status of the affected population and extent of the kill, as well as

on changes in fishing gear and methods that might reduce incidental kill. For this purpose, the Commission referred to the Report of the Scientific Consultation on Marine Mammals in Bergen, Norway (1976) which outlined a desirable research program. The Commission indicated that it would be pleased to reconsider the application if the requisite information should become available. On 27 July, the Service issued a permit to the Japan Salmon Fisheries Cooperative Association but denied the request to incidentally take Dall's porpoises.

The Commission also reviewed application by fishermen of Bulgaria and the German Democratic Republic and transmitted recommendations to the Service on 13 October. The Commission stated that, while it did not believe the proposed activities would result in a significant adverse impact upon the affected populations, it was concerned about the continuing lack of data relating to these applications. The Commission indicated that it would not support issuance of such permits in the future unless substantial additional information was provided as the basis for a reliable scientific judgment concerning the impact of proposed taking. It therefore recommended that the Service take immediate steps to acquire and assess the necessary information, including exactly what marine mammal populations were affected, the size and distribution of the affected populations, and the extent of incidental taking. The Commission recommended that the Service convene a workshop in order to determine the specific needs for information and the strategy to acquire it. In addition, the Commission recommended that any permits that are issued to foreign fishermen include requirements to report incidental taking of marine mammals and that these requirements be enforced. Finally, the Commission recommended that any permits that are issued include, as an express condition, authorization to place U.S. observers on the applicant's vessels to obtain necessary information and that the Service implement such a program immediately. On 20 October the Service issued a permit to Bulgaria and the German Democratic Republic to allow the incidental take of marine mammals.

Representatives of the Commission will attend a workshop on Dall's porpoises to be convened by the Service in January 1978. The Commission looks forward to reviewing and contributing to additional plans and efforts by the Service to deal with this problem.

CHAPTER XII

PROTECTED AREAS AND CRITICAL HABITATS

Both the Marine Mammal Protection Act and the Endangered Species Act recognize the importance of protecting habitat. The Marine Mammal Protection Act 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." Section 7 of the Endangered Species Act prohibits the Federal government from authorizing, funding, or carrying out activities that may result in the destruction or modification of critical habitat for endangered species.

Most Commission activities that relate to coastal zone management and outer continental shelf exploration and exploitation involve habitat protection. Other actions, as described below, have also been taken to protect habitat.

Hawaiian monk seal habitat

The Hawaiian monk seal (Monachus schauinslandi) is in grave danger of extinction. Furthermore, it may be the only member of the genus Monachus with a chance for surviving the 20th century. Of its congeners, the Caribbean species (Monachus tropicalis) is in all probability extinct, and the few remaining members of the Mediterranean species (Monachus monachus) live in areas subject to increasing disturbance and pollution. Thus, the fate of the genus may depend upon the ability of the United States to protect the habitat of the Hawaiian species.

Because the Hawaiian species is endangered throughout its range, the Commission recommended in 1975 that the National Marine Fisheries Service designate the species as "endangered" and "depleted" under the provisions of the Endangered Species Act of 1973 and the Marine Mammal Protection Act of 1972. As discussed in its previous Annual Report, the Commission further recommended in December 1976 that: all areas used for breeding and pupping, as well as adjacent waters out to a distance of three miles, be designated as "critical habitat"; breeding and pupping areas within the Hawaiian Islands National Wildlife Refuge (HINWR) be closed to all human use, including commercial and sport fishing; activities of military personnel on Eastern Island and French Frigate Shoals be restricted; and additional studies be conducted to better determine why the population is continuing to decline.

The National Marine Fisheries Service, by letter of 22 August 1977, indicated "preliminary agreement" that all breeding, pupping, and hauling-out grounds, including the coral sand beaches and vegetation immediately adjacent to such areas, including all inner-reef waters, should be proposed as critical habitat for the Hawaiian monk seal. Noting, however, that there is "no indication that the development of off-shore fisheries outside the HINWR will compromise the protection and/or recovery of the monk seals," the Service expressed its unwillingness to exclude commercial fisheries from the Leeward Islands outside the Refuge.

Having carefully reviewed the Service's response and considered the available information, the Commission will write to the Service in January 1978 transmitting the following comments and recommendations:

- (1) there are two distinct determinations to be made concerning critical habitat for Hawaiian monk seals: (a) what is critical habitat; and (b) what human activities may be permitted within critical habitats;
- (2) although there is no documented evidence for choosing a three mile zone of water as opposed to a two or five mile zone, for example, the habitat of monk seals obviously includes more than the haul-out areas and immediately adjacent waters;
- (3) The results of recent studies suggest that the seals travel great distances and that their habitat includes far more than the narrow zone around haul-out areas;
- (4) given the gravely endangered status of the monk seal, all or nearly all of its habitat could be "critical" to its survival;
- (5) designation of a three mile buffer zone as critical habitat is warranted by the available information and the serious consequences of making the wrong decision;
- (6) there is no biological basis for distinguishing critical habitat for seals within and outside the Refuge;

- (7) the Service has expressed no opposition to the Commission's recommendation that a three mile zone around islands within the Refuge be designated as critical habitat;
- (8) the Service should designate a three mile buffer zone around all island complexes utilized by monk seals as critical habitat until there is adequate information to determine that a lesser or larger area is more appropriate;
- (9) with respect to what human activities may be permitted within the critical habitat of monk seals, the results of recent studies in 1977 indicate that the overall population is continuing to decline and that it is essential to undertake every effort to avoid disturbance of the seals and their habitat;
- (10) there is evidence that monk seals, like northern fur seals, will entangle themselves in fishing gear and some incidental mortality can be expected to occur if fishing gear is deployed;
- (11) the conduct of fishing activities would increase the probability of disturbance of monk seals in their critical habitat;
- (12) fishing activities within the Refuge have been prohibited until the probable effects of such activities can be determined;
- (13) development of fishing activities within three miles of the island complexes utilized by monk seals could adversely affect monk seals;
- (14) Section 7 of the Endangered Species Act requires the Service and all other Federal agencies to refrain from such action until there is sufficient evidence that monk seals will not be adversely affected;
- (15) the Service should review its funding and other activities to determine whether it is supporting or conducting any such activities that could adversely affect monk seals;
- (16) an experimental fishing program to determine the impact of fishing activities on the seals can and should be conducted;

- (17) the Service should insure that any such experimental fishing program be designed to answer questions about critical habitat, with minimal impact upon the seals, and include efforts to preclude incidental mortality, and determine whether shark control is an economic method of increasing survival of young seals; and
- (18) the Service should convene a group of experts, including representatives of the Fish and Wildlife Service, the National Marine Fisheries Service, the State of Hawaii, and others to develop and assign responsibility to implement a detailed and vigorous recovery plan for this critically endangered species.

Humpback whales in Hawaii

Public interest in whale-watching has led to increased numbers of people concentrating in the inshore waters of Hawaii where whales assemble.

Concerned by reports that these activities might be having adverse impacts on the whales, the Commission convened a workshop in Hawaii in July 1977 to consider the problem. Its goals were to: (1) identify human activities that might constitute harassment; (2) assess habitat requirements for humpback whales wintering in Hawaii; and (3) identify additional data and research needed to protect humpback whales and/or their habitat. Workshop participants addressed the potential effects of harassment, described the behavior of harassed whales, and identified five types of human activities which may influence whale distribution, habitat use, and/or reproduction. These include: boating and shipping; aircraft operation; pollution; marine construction; and dredging and dumping of dredge spoils. Of the five types of disturbance, the first three were considered most likely to adversely affect the whale population.

The participants at the workshop recommended that: (1) hydrofoils refrain from unnecessary high-speed maneuvers and be routed to avoid concentrations of whales; (2) boat operators be advised of the potential threats to whales, and of acceptable procedures and regulations governing approaches to and observations of whales; (3) military personnel be advised of potential threats to whales, and of regulations governing ship and aircraft operations near whales; (4) commercial and private aircraft pilots be advised of potential threats to whales, and of relevant regulations; and (5) a strong Federal enforcement presence be maintained during the winter whale season.

On 19 December 1977, the Commission recommended that the National Marine Fisheries Service immediately: (1) take necessary action to reroute hydrofoils around whale areas during the winter whale season; and (2) expand existing education to inform military and civilian boat and aircraft operators of the potential harm of certain activities, and the requirements of current regulations. Since workshop participants felt that data were inadequate to specify activities which constitute harassment, and were unable to say precisely what actions should be taken to identify and protect critical habitats, the Commission further recommended that the National Marine Fisheries Service either conduct or contract for studies to identify: (1) areas of special biological significance to the humpback whales that winter in Hawaii; and (2) criteria for determining what human activities constitute harassment.

Bering Sea clam fishery

Although neither a protected area nor legally designated critical habitat pursuant to existing statute, certain portions of the Bering Sea are essential to the maintenance of a healthy walrus population. It was, therefore, of interest to the Marine Mammal Commission when concerned Alaskan scientists informed the Commission in the spring of 1977 that an experimental hydraulic dredge clam fishery was planned for July 1977. The scientists were made uneasy by the dramatic decrease in Atlantic clam stocks fished by hydraulic dredging and by the apparent lack of data concerning potential adverse impacts, not only upon clams, but upon other marine organisms as well. They were particularly concerned that even though available information seemed inadequate to assess the possible impact upon walrus or other ecosystem components, the resource assessment plan seemed to make no provision for getting the information needed to do so.

In April, the Commission contracted for a summary and assessment of available information concerning the proposed clam fishery and its possible impacts upon the North Pacific walrus population. The contractor concluded that: the walrus population may already be stressing its food resources in the southeastern Bering Sea; additional studies are needed to estimate distribution, density, and productivity of clam resources in the area; the food requirements of crabs, benthic feeding fishes, and walrus should be studied to better evaluate dependence upon clams; the short- and long-term effects of hydraulic dredging on community composition and/or productivity should be determined prior to initiating a large scale fishery; a large scale fishery should be prohibited until there are sufficient data to conclude that the fishery would not be to the disadvantage of walrus or

other living resources in the area; a block leasing plan should be developed to control fishery access; and that the fishery should be initially limited to an area north and east of 60°N 168°W to minimize potential impacts upon the walrus population.

The Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, reviewed the report and agreed that there was cause for serious concern. On 22 July 1977, the Commission formally recommended to the National Marine Fisheries Service that: (1) no commercial clam fishery be established prior to the preparation and critical evaluation of a thorough environmental impact statement; (2) that because of analogies that might be drawn, the Service undertake an intensive review and evaluation of data concerning the environmental impacts of hydraulic dredging in the Atlantic clam fishery; and (3) that, to the maximum extent feasible, the Service follow the recommendations contained in the contract report.

Several letters of response were received from the National Marine Fisheries Service. The Service's 12 August letter: (1) acknowledged the validity of Commission concerns; (2) indicated that the Service would comply with the requirements of the National Environmental Policy Act with regard to future Federal actions; (3) outlined several ongoing projects related to the Atlantic Coast clam fishery; (4) expressed the belief that ongoing surveys were applicable to many of the contractor's concerns; and (5) indicated that the recommendations would be taken under advisement pending development of information concerning the feasibility of a commercial clam fishery.

In early 1978, the Commission will seek clarification of the Service's proposed actions. The Commission will also recommend that the Service solicit the views of the Alaska Department of Fish and Game and the U. S. Fish and Wildlife Service, and, if necessary, request their assistance in collecting data needed to assess and monitor the impact of the proposed fishery.

CHAPTER XIII

ENFORCEMENT ACTIVITIES

Review of Enforcement Programs

In its previous Annual Reports, the Commission discussed its efforts to evaluate the effectiveness of enforcement programs under the Act. These efforts led to the Commission's letters of 11 January 1977 to the National Marine Fisheries Service, the Fish and Wildlife Service, the Coast Guard, and the Customs Service concerning perceived problems and recommended actions to improve enforcement efforts.

A detailed memorandum transmitted with the letters, concentrated on the enforcement programs of the National Marine Fisheries Service and the Fish and Wildlife Service, and stressed the need for: (1) interagency coordination; (2) Federal-State cooperation; (3) articulation of consistent enforcement policies and procedures; (4) better use of the Marine Mammal Protection Act as a statutory authority; and (5) a more meaningful system of evaluating the results of enforcement efforts. It emphasized the agencies' failure to plan effectively, allocate enforcement resources responsibly, and gather empirical data with which to evaluate their enforcement programs.

In its letters transmitting the memorandum, the Commission recommended that the National Marine Fisheries Service and the Fish and Wildlife Service take certain actions to strengthen their enforcement programs, including:

- (1) development, articulation, dissemination, and implementation of consistent Federal enforcement policies and strategies, as well as guidelines for State and Federal personnel, regarding the initiation, investigation, and processing of civil or criminal cases under the Act;
- (2) review of the Marine Mammal Protection Act, the Endangered Species Act, and other wildlife statutes and development of specific recommendations, where necessary, for legislative action to remedy any inadequacies that impaired their enforcement efforts;

- (3) negotiation and conclusion of cooperative enforcement agreements among the National Marine Fisheries Service, the Fish and Wildlife Service, the Customs Service, and the Coast Guard;
- (4) establishment of a comprehensive evaluation mechanism for State and regional enforcement programs; and
- (5) development and implementation of a uniform Federal approach toward efficient use of State enforcement resources.

The Coast Guard responded to the Commission's letter on 7 March 1977, indicating that although it did not have lead responsibility for enforcement of the Act, it would be pleased to respond to requests by the National Marine Fisheries Service and Fish and Wildlife Service whenever Coast Guard resources were available and to coordinate its efforts with those of other agencies. No response has been received from the Customs Service.

The National Marine Fisheries Service and Fish and Wildlife Service responded to the Commission's recommendation by establishing a joint task force in March 1977.

After reviewing the agenda for the task force's efforts, the Commission wrote to the chairman of the task force on 17 June 1977 stating that it did not promise effective action in response to the Commission's recommendations which were developed after considerable time and effort. The Commission therefore requested that the task force provide a written response to each of the Commission's recommendations pursuant to Section 202(d) of the Act.

No detailed written explanation in response to all of the Commission's recommendations, as required by Section 202(d), has been received from the Services in 1977. A letter dated 30 August indicated that the task force had completed its work on two of the five issues on its agenda and that work on the remaining issues would be completed by 15 November, but no further reports were received.

The letter from the task force addressing some of the issues raised by the Commission confirmed the validity of the Commission's concerns and the need for remedial action. The letter stated, among other things that: no attempt has been made to statistically measure the effectiveness of the

Fish and Wildlife Service/State cooperative enforcement program; the National Marine Fisheries Service probably is not achieving impressive results through contracts with States for enforcement efforts; neither Service has been able to measure the value of the law enforcement they receive from the States; it is virtually impossible to determine which of the two approaches employed by the Services is the most effective; a valid measurement of the effect of enforcement efforts is virtually impossible at the present time and neither agency possesses the resources to develop a valid and reliable system for evaluating efforts; and most decisions on allocation of resources must be based on past experience, intuition, and wishful thinking.

Although the Commission recognizes that enforcement efforts often involve difficult issues, it does not feel that responses to date have been adequate to resolve the problems identified in its letters of 11 January 1977.

Manatees in Florida

On 4 November 1977, in response to an inquiry by the Fish and Wildlife Service, the Commission transmitted a letter and supporting memorandum to the Service concerning jurisdiction to protect manatees (Trichechus manatus) in the inland waters of Florida.

The Commission indicated that the legislative history of the Act and a reasonable interpretation of its provisions supported assertion of jurisdiction and enforcement of the Act by the Service to protect manatees in the inland waters of Florida. The Commission requested that the Service notify it immediately if the Service determined that it did not have jurisdiction to secure the necessary protection of this endangered species so that the Commission could advise Congress of any inadequacies in the Act. No response has been received from the Service.

CHAPTER XIV

MARINE MAMMAL MAINTENANCE STANDARDS AND GUIDELINES

As discussed in its previous Annual Report, the Commission was disappointed by the Department of Agriculture's failure to publish during 1976 proposed standards and guidelines for the maintenance of live marine mammals. The Commission had transmitted recommended Marine Mammal Maintenance Standards and Guidelines to the Department of Agriculture on 20 October 1975 with a recommendation that they be adopted so as to improve the health of captive marine mammals, ensure humane treatment, and reduce the need to continuously remove marine mammals from wild populations.

Repeated letters and discussions in 1976 failed to yield results. On 11 February 1977, 15 months after the Commission's recommended Standards and Guidelines had been transmitted, the Commission wrote to the Secretary of Agriculture asking that he promptly review and publish proposed standards and guidelines.

Finally, on 19 August 1977, Proposed Standards and Regulations for Humane Handling, Care, Treatment, and Transportation of Marine Mammals were published in the Federal Register by the Department of Agriculture and informal hearings were held in Los Angeles, Miami, and Washington, D. C. to solicit comments from interested persons.

The Commission transmitted detailed comments and recommendations to the Department of Agriculture on 20 October 1977. The Commission noted that the Department's Standards and Regulations departed substantially from its original recommendations and it recommended revision of the Proposed Standards and Regulations. In light of the major inconsistencies between the Department's Proposed Standards and Regulations and the Commission's original recommendations, the Commission also requested that the Department provide a written detailed explanation, as required by Section 202(d) of the Act, of its response to each of the recommended Standards and Guidelines which had been transmitted on 20 October 1975. By the end of 1977 no written response had been received from the Department of Agriculture and final regulations relating to marine mammal maintenance have yet to be issued.

CHAPTER XV

REQUESTS FOR WAIVERS OF THE MORATORIUM AND STATE MANAGEMENT AND RESEARCH PROGRAMS

Under the authority granted in Section 101(a)(3)(A) of the Marine Mammal Protection Act, the Secretaries of Commerce and the Interior, in consultation with the Commission, may waive the moratorium on the taking and importing of marine mammals or marine mammal products, promulgate regulations, and return management to a state if such a waiver or return is determined to be consistent with the goals and policies of the Act. The Commission acted on three matters involving waivers and return of management during 1977.

Application by the State of Alaska for a Waiver and Return of Management of Certain Marine Mammal Populations

The Commission's activities in 1976 with respect to this request were discussed in the 1976 Annual Report. The Commission had recommended and presented testimony in formal hearings before an administrative law judge in support of the proposed waiver and return of management, subject to the conditions that the proposed waivers be limited to more conservative levels of take for five of nine species and that a workshop of marine mammal scientists be convened to analyze the population data and to assess research needs.

The Commission submitted initial and reply briefs to the administrative law judge on 1 January and 1 March 1977, respectively, in support of its testimony during the hearings. It recommended that the administrative law judge require, among other things, that: the waivers be limited to more conservative levels of take; the waivers be granted subject to the convening of a workshop to assess data and data needs; the regulations articulate optimum sustainable populations as a management goal; "subsistence users" be defined in the regulations; subsistence users, both native and non-native, be given preference over non-subsistence users to insure that legitimate subsistence needs are met; quotas and bag limits be established; regulations require that all taking be humane; regulations require that marine mammal specimens be provided by commercial users for scientific study; regulations ban the taking of polar bears in dens; and certain actions be undertaken to improve cooperative enforcement efforts.

The recommended decision of the administrative law judge which was transmitted to the National Marine Fisheries Service and Fish and Wildlife Service on 30 June 1977 was consistent with most but not all of the Commission's recommendations. The Commission therefore filed exceptions to the administrative law judge's recommended decision with the Services on 22 August recommending that the administrative law judge's decision be accepted on condition that: a workshop be convened to evaluate data on affected marine mammal populations; the uncertainties about the relationship between State and Federal enforcement efforts be resolved; an appropriate permit system be developed; the State's regulations be modified in several respects; and certain clarifications of statements in the judge's decision be made.

By the end of 1977, neither the National Marine Fisheries Service nor the Fish and Wildlife Service had acted on the application by the State of Alaska. The Commission therefore wrote to both Services on 22 December noting that the formal proceedings had been completed and the matter had been pending before them for decision since 22 August. The Commission requested an explanation for the delay and, if a decision were not reached in early January 1978, a detailed explanation, pursuant to Section 202(d), of reasons why its recommendations had not been adopted.

Management of Walrus by the State of Alaska

The moratorium on taking walrus was waived by the Director of the Fish and Wildlife Service in December 1975 and management of that species was returned to the State of Alaska in April 1976.

In April 1977 the State of Alaska proposed to the Fish and Wildlife Service, for approval and implementation, modifications of regulations governing walrus hunting during the spring 1977 hunting season. The intent of the modifications was to stabilize the walrus kill at a level well below the numbers taken during previous years. Quotas, by areas, were proposed where the kill was thought to be excessive.

On 6 May 1977, after reviewing the proposed modifications, the Commission recommended that the Service approve the regulations pending a review of information which the Commission requested and which was to be provided by the State in conjunction with the annual review by the Service of the State's walrus management program. The requested modifications were approved and the additional information was requested by letter from the Director of the Service to the State on 25 May 1977.

The State's first annual report on its walrus management program was submitted to the Service for review, in consultation with the Commission, pursuant to Section 109 of the Act and applicable regulations. The report, entitled "A Status Report Pertaining to Management of Pacific Walrus during Calendar Year 1976," was received by the Service on 6 June 1977. On 21 September, after reviewing the Report, the Commission transmitted a letter to the Service noting that it considered the annual review process to be extremely important because it is a basis for constructive Federal-State relationships and provides an indication of problems that warrant cooperative action. In order to facilitate an effective review of the pertinent aspects of the State's management program, the Commission recommended that the Service request additional information from the State concerning scientific, regulatory, enforcement, and other aspects of the program for its consideration. The Service requested this additional information from the State by letter of 13 October and will proceed with the review when the additional information is received.

Request by the State of California for Return of
Management of Sea Otters and for a Scientific
Research Permit

The Commission's activities with respect to the request by the State of California to resume management of sea otters without a waiver of the moratorium, and to conduct scientific research activities on sea otters, were discussed in its 1976 Annual Report.

Members of the Commission and Committee of Scientific Advisors met with representatives of the State's Department of Fish and Game in February 1977 to discuss the State's request. On 4 March 1977, in response to the Commission's letter of 17 December 1976, the Fish and Wildlife Service wrote to the State requesting additional information on the State's laws, regulations, and other aspects of the sea otter management program which it had submitted to the Service for approval. The Commission will review the additional information when it is received.

The State's application to conduct scientific research on sea otters was originally submitted to the Fish and Wildlife Service in September 1976 and was amended several times during the succeeding months. In its final form, received by the Commission in July 1977, the application by the State sought authorization to tag 100 sea otters and to conduct translocation experiments with 40 animals from various portions of the sea otter's range in California. These research efforts were designed to generate information on the status and trends

of the sea otter population and its relationship with abalone and other components of the ecosystem. The State's earlier proposal to translocate sea otters in order to contain the population and prevent its southward expansion was withdrawn. The application included a statement of intent to examine, in cooperation with the Departments of Commerce and the Interior, the feasibility and desirability of establishing one or more new sea otter populations along the Pacific coast.

On 1 August 1977 the Commission transmitted its recommendation to the Service that the State's permit application be approved and, on 26 August, the Service issued a permit in accordance with the Commission's recommendations.

APPENDIX A

COMMISSION RECOMMENDATIONS: CALENDAR YEAR 1977

Copies of recommendations are available from the Commission.

- 3 January Commerce (Maritime Administration), that transfer of tuna purse seine vessels to foreign registry for purposes of avoiding compliance with U.S. porpoise conservation regulations be prohibited.
- 11 January Commerce, Treasury, Coast Guard, Interior, that policies, strategies, and guidelines for enforcement of the Marine Mammal Protection Act be developed and disseminated; that the need for amendments to the Act be evaluated in light of enforcement problems; that cooperative agreements be reached among agencies; that a uniform Federal approach to utilization of State enforcement agencies be pursued; that a data processing and retrieval framework be developed for handling investigations; and that an evaluation system be applied to enforcement activities.
- 14 January Commerce, that additional support for participation of experts in discussions with Mexican marine mammal scientists be sought.
- 18 January Commerce, modification of scientific research permit application, Carleton Ray/Douglas Wartzok.
- 19 January Commerce, scientific research permit application, Northwest and Alaska Fisheries Center.
- 26 January Commerce, that the Caribbean monk seal be designated as "endangered" under the Endangered Species Act and as "depleted" under the Marine Mammal Protection Act.
- 28 January Commerce, that the Eastern spinner dolphin population in the Eastern tropical Pacific be declared "depleted" under the Marine Mammal Protection Act.

- 28 January Commerce, that exception be taken to certain points in Administrative Law Judge's decision on tuna-porpoise regulations, with respect to the lower and upper bounds of "optimum sustainable population," the status of the Eastern spinner dolphin, quotas for various stocks and total take, permissibility of sets on porpoise after dark, use of rescue devices, and the notice period for closure of the fishery.
- 2 February Commerce, that tuna industry exceptions to the Administrative Law Judge's recommended decision be denied, with respect to porpoise population estimates, aggregate rather than stock-by-stock quotas, and other aspects that are inconsistent with previous recommendations.
- 4 February Interior, amendments to scientific research permit, Howard Campbell/Blair Irvine.
- 4 February Commerce, scientific research permit application, Edward Shallenberger.
- 4 February Commerce, public display permit applications, Aquatic Mammal Enterprises, Six Flags Over Texas, and Sealand of Cape Cod.
- 7 February Commerce, public display permit applications, Aquarium of Cape Cod and Ocean Wonderworld.
- 8 February Bureau of Land Management, that substantial revisions be made in the Draft Environmental Impact Statement for Crude Oil Transportation System: Valdez, Alaska to Midland, Texas, after consultation with specified experts.
- 11 February Commerce, that Peru and the Republic of Korea be viewed as "offending" nations under the terms of the Pelly Amendment to the Fisherman's Protective Act of 1967 and that, because of their failure to abide by catch quotas set by the IWC, consideration be given to a prohibition of importation of their fish products.
- 28 February Commerce, that the bowhead whale be designated as "depleted" under the Marine Mammal Protection Act.
- 1 March Interior, Commerce, restating recommendations concerning Alaska's request for a waiver of the moratorium.

- 3 March Commerce, Interior, that one or two inter-agency task forces be convened to develop solutions to permit and enforcement problems.
- 3 March Commerce, public display permit applications, City of Oakland and Mystic Marinelife Aquarium; scientific research application, Roger Payne.
- 16 March Commerce, scientific research permit application, Northwest and Alaska Fisheries Center.
- 28 March Commerce, restating recommendation of 28 February that the bowhead whale be designated as "depleted".
- 30 March Commerce, scientific research permit application, Northwest and Alaska Fisheries Center.
- 1 April Commerce, public display permit applications, Tulsa Zoological Park, Zoological Society of San Diego, and Aquarium of Niagara Falls.
- 8 April Commerce, that the American Tunaboat Association application to take porpoises in excess of the numbers allowed under NMFS regulations be denied; that permits hereafter include limits on pursuit and encirclement as well as killing; and that no fishing on porpoise be authorized in the Atlantic and Indian Oceans.
- 13 April Interior, public display permit application, Vancouver Public Aquarium.
- 14 April Commerce, that replacement aircraft and funds be sought to insure completion of the porpoise aerial survey in the Eastern tropical Pacific.
- 15 April State, that a draft protocol be developed for bilateral and multilateral agreements under which porpoise-saving techniques could be exported and exchanges of tunaboat observers undertaken.
- 25 April Interior, scientific research permit application, Jack Lentfer.
- 25 April National Park Service (Point Reyes National Seashore), restating the need for measures to protect harbor seals from harassment.

- 26 April Commerce, public display permit applications, Hogle Zoological Garden and Black Hills Marineland.
- 2 May Bureau of Land Management, that substantial revision be made in the Draft Environmental Impact Statement for OCS Oil and Gas Lease Sale in the South Atlantic, OCS Sale No. 43, after consultation with specified experts and review of more relevant information; that the sale be delayed if data prove inadequate to show that the proposed action will not be to the disadvantage of marine mammals; and that additional baseline studies of marine mammals in the sale area be undertaken.
- 2 May Commerce, public display permit application, Louis Scarpuzzi.
- 6 May Interior, that Alaska's proposed walrus regulations be approved, provided that certain information on the number, age, and sex of walrus taken, on the type of taking which has occurred, on where and why taking has been excessive, on whether the quotas will be adequate to meet subsistence needs, on the definition of subsistence utilized by the State, and on allocation of walrus resources between subsistence and non-subsistence hunters be provided in conjunction with the annual review of the State's walrus management program.
- 12 May Commerce, that hiring of an additional staff scientist to work on the North Pacific Fur Seal Program be postponed pending review of the agency's long-range research plans.
- 25 May Commerce, public display permit applications, Mystic Marinelife Aquarium and St. Paul Como Zoo.
- 31 May Commerce, that language referring to the need for and nature of regulations on taking of bowhead whales, as well as an anticipated date for the publication of proposed regulations, be included in a Federal Register notice concerning a final determination that the species is "depleted" under the MMPA.

- 3 June Commerce, amendments to scientific research permits, William Watkins/William Schevill and Northwest and Alaska Fisheries Center.
- 10 June Commerce, that a commitment to publish proposed regulations governing the take of bowhead whales be included in a Federal Register notice concerning a final determination that the species is "depleted".
- 13 June Commerce, that a policy be developed to confer jurisdiction on foreign governments for enforcing the terms of the permits issued to foreign applicants to take and export marine mammals from the U.S.
- 16 June Bureau of Land Management, that substantial revisions be made in the Draft Environmental Impact Statement for OCS Oil and Gas lease sale in the Gulf of Mexico, OCS Sale No. 45, after consultation with specified experts and review of more relevant information; that the sale be delayed if data show that the proposed action will not be to the disadvantage of marine mammals; and that additional baseline studies of marine mammals in the study area be undertaken.
- 17 June Commerce, that the NMFS/FWS permit task force expedite its efforts to develop proposed regulatory changes and schedule a public hearing on these as soon as possible.
- 17 June Army Corps of Engineers, suggesting that serious consideration be given to denying permit applications for dock and access ramp construction in Richardson Bay, Marin County, California, in order to protect harbor seals in the area from harassment.
- 23 June Commerce, public display permit applications, Sea Life Park and Milwaukee Zoo; scientific research permit application, State of Alaska.
- 1 July Commerce, public display permit applications, 20th Century Fox-Marineland and St. Louis Zoo.
- 7 July Commerce, public display permit applications, Gulf World, Overton Park Zoo, and Exhibits, Inc.

- 12 July Commerce, that an application by the Federation of Japan Salmon Fisheries Cooperative Association for a general permit to take marine mammals (primarily Dall's porpoises) incidental to commercial fishing operations be denied.
- 19 July Coastal Zone Management, that the California Coastal Management Program and Revised Draft Environmental Impact Statement be revised to include discussions of marine mammal conservation measures and an evaluation of the consistency of such measures with the Marine Mammal Protection Act and other federal legislation; that approval of the program be deferred pending said revisions and consultation with the Commission; and that a panel of experts be designated and convened to advise the Office of Coastal Zone Management and/or the California Coastal Commission on marine mammal matters.
- 20 July Commerce, scientific research permit application, Naval Ocean Systems Center.
- 21 July Commerce, that the NMFS intensify research efforts on the bowhead whale.
- 22 July Commerce, that a Bering Sea commercial clam fishery not be established prior to publication of an adequate environmental impact statement, that hydraulic clam dredging be evaluated for its effect on the benthos, and that appropriate recommendations in the Commission's contract report on the problem be followed.
- 29 July Commerce, public display permit application, Minnesota Zoological Gardens.
- 1 August Interior, scientific research permit application, California Department of Fish and Game.
- 5 August Commerce, scientific research permit application, Donald Siniff.

- 17 August Commerce, public display permit application, John Slater.
- 17 August Interior, amendment to scientific research permit, Daniel Costa.
- 19 August Commerce, public display and scientific opportunistic research permit application, Sea World.
- 22 August Interior, Commerce, that the Administrative Law Judge's recommended approval of the Alaska request for a waiver of the moratorium be accepted on condition: that a workshop be convened to evaluate data on marine mammal populations, that the relationship between State and Federal enforcement efforts be clarified, that an appropriate permit system be developed, that the State's proposed regulations be modified in several respects, and that various other comments be taken into account.
- 24 August Interior, public display permit application, San Antonio Zoological Gardens.
- 24 August Commerce, public display permit application, Sparkey's School of Seals.
- 26 August State, guidance on renegotiation of the Inter-American Tropical Tuna Commission Convention.
- 31 August Commerce, scientific research permit application, Albert W. Erickson.
- 7 September Commerce, that long-range planning be undertaken with regard to projected international activities relating to marine mammal conservation and that the Commission be informed of the details of such plans.
- 13 September Commerce, scientific research permit application, Ocean Research and Education Society.
- 13 September Interior, scientific research permit application, National Fish and Wildlife Laboratory.

- 14 September Commerce, that the Commission's bowhead whale research plan be adopted and implemented in conjunction with close consultation with involved Eskimos; that steps be taken immediately to secure the use of an icebreaker and to marshal appropriate aircraft and personnel; that a supplemental appropriation be sought, if needed, to finance the recommended research on bowheads.
- 16 September Coastal Zone Management, restating recommendations of 19 July on the California Coastal Management Program and, in this instance, the Draft Environmental Impact Statement.
- 16 September Interior, that studies directed toward establishment of an effective management and conservation program for manatees in Florida be undertaken as soon as possible.
- 19 September Commerce, scientific research permit application (for incidental take of marine mammals during experimental fishing operations), State of Maine.
- 21 September Interior, that information be requested of the State of Alaska to supplement its annual report pertaining to management of Pacific walrus, concerning catch and loss statistics, definition of "subsistence," importance of walrus to Alaskan natives and other subsistence hunters, protected areas, allocation between subsistence and non-subsistence hunters, regulation of the ivory trade, value to natives of non-native sport-hunting, enforcement, lawsuits involving walrus taking, the State's role in permit issuance, and other aspects of the State's walrus management program.
- 23 September Commerce, that the Draft Environmental Impact Statement on the International Whaling Commission's bowhead whale decision be revised in various ways to articulate more fully the biological and other implications of filing an objection and to encourage the presentation of an alternate management and research plan at the December International Whaling Commission meeting in Tokyo.

- 4 October Commerce, scientific research permit application, Hubbs-Sea World Research Institute.
- 7 October Air Force, that information be provided in addition to that contained in the Draft Environmental Impact Statement on the Vandenberg Space Shuttle Program, and that an alternative launch site be used if the likely adverse impact on pinnipeds is expected to be major, or that monitoring studies be undertaken if the likely impact is expected to be minor.
- 13 October Commerce, that applications by foreign parties to take marine mammals incidental to commercial fishing operations be supported with better information on the size, distribution, and status of affected species and populations as well as on the likely impact of proposed takings; that a workshop be organized to develop a strategy for acquiring such information; that adequate reporting be a condition of these permits; and that observers be placed on vessels to monitor compliance with permits and gather information.
- 20 October Agriculture, that an explanation, under Sec. 202(d) of the Act, be forthcoming concerning the Department's failure to adopt the Commission's recommendations on Proposed Standards and Regulations for Humane Handling, Care, Treatment, and Transportation of Marine Mammals, transmitted to the Department on 20 October, 1975.
- 25 October Commerce, public display permit application, Zoological Society of London.
- 4 November Interior, that the Fish and Wildlife Service has jurisdiction to protect manatees in the inland waters of Florida, that their protection is critically important, and that the Commission be notified immediately if the Service determines that it does not have jurisdiction or that the Marine Mammal Protection Act is otherwise inadequate to secure the necessary protection so that the Commission may advise Congress.

- 11 November Commerce, that the draft bowhead whale research plan is inadequate to serve the desired purpose; that it lacks precision and specific commitments for funding; and that it should be revised in accordance with detailed recommendations which were enclosed.
- 11 November Commerce, that the revised draft bowhead whale research plan should be further revised in accordance with detailed recommendations which were enclosed.
- 17 November Commerce, scientific research permit application, Louis Herman.
- 18 November Commerce, that the exceptions of the tuna industry to the recommended decision of the Administrative Law Judge, with respect to the dedicated vessel, the interpretation of the Marine Mammal Protection Act, certain alternatives to the recommended quotas, the depleted status of Eastern spinner dolphins, the accidental enforcement policy, and other aspects inconsistent with the Commission's recommendations be denied.
- 18 November Commerce, scientific research permit application, Southwest Fisheries Center.
- 18 November Interior, that the West African manatee be designated as "threatened" under the Endangered Species Act and that the Department, with the assistance of State, encourage such conservation measures and research efforts by appropriate countries as may be possible.
- 21 November Commerce, National Science Foundation, that a cooperative plan be developed for testing and demonstrating alternative methods for catching tuna without setting on porpoise and that such a plan be implemented as soon as possible.
- 22 November State, that a basic bilateral agreement with Mexico be sought embodying sound principles of marine mammal conservation and that gray whales and porpoises associated with tuna be addressed as primary issues of concern in U. S.-Mexico bilateral negotiations.

- 29 November Commerce, that technical assistance and logistic support be given to the National Science Foundation to assist studies of alternative tuna fishing techniques and that the Service be prepared to support feasibility studies of new technologies beginning about 1980.
- 30 November National Science Foundation, that additional funds be committed to research on alternative tuna fishing methods to spare porpoise and that a revised plan for research utilizing the "dedicated" research vessel be developed and implemented.
- 5 December Commerce, public display permit application, Minnesota Zoological Garden.
- 19 December Commerce, that necessary action be taken to reroute hydrofoils in Hawaii during winter to ensure their avoidance of areas used intensively by humpback whales; and that efforts to inform boaters and aircraft operators in Hawaii of the potentially adverse impact of their activities on humpback whales and of relevant regulations be expanded.
- 20 December Commerce, that an appropriate representative of either the Fish and Wildlife Service or the National Marine Fisheries Service meet with Mexican officials to discuss the agenda for the upcoming U. S.-Mexico Marine Mammal Meeting; that the agenda be ordered so as to allow for concentrated discussion of certain issues such as gray whales, pinnipeds subject to harassment, porpoises involved in the tuna fishery, and manatees; and that background information be provided to both U. S. and Mexican participants.
- 21 December Commerce, that a bilateral agreement with Mexico concerning conservation of marine mammals be vigorously pursued, particularly with respect to gray whales; that cooperative research projects be developed to address problems associated with U. S. tourboat activity in Mexico; that support be sought for Mexican students to study under marine mammal scientists in the U. S.; that shore station counts of gray whales be continued on an annual basis and modified in certain ways; that formal agreement be sought with Mexico limiting tourist access to certain pinniped

- 21 December
con't rookeries; that research on harassment of pinnipeds be undertaken on San Martin Island; and that, as a separate matter, U. S.-Mexico scientific discussions concentrate, among other points, on gray whales and pinnipeds subject to disturbance by U. S. tourists.
- 22 December Commerce, Interior, concerning the delay in response to Commission recommendations on Alaska waiver request.
- 23 December Commerce, scientific research permit application, Murray Johnson/Steven Jeffries.
- 27 December Commerce, scientific research permit application, Bruce Mate.
- 30 December Commerce, scientific research permit application, Kenneth Norris.

APPENDIX B

The following reports on Commission-sponsored research are available from the National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, Virginia 22161.^{1/}

- Ainley, D. G., H. R. Huber, R. P. Henderson, and T. J. Lewis. 1977. Studies of marine mammals at the Farallon Islands, California, 1970-75. Final report for MMC contract MM4AC002. NTIS pub. PB-274046. 42 pp. (\$4.50).
- Ainley, D. G., H. R. Huber, R. P. Henderson, T. J. Lewis, and S. H. Morrell. 1977. Studies of marine mammals at the Farallon Islands, California, 1975-76. Final report for MMC contract MM5AC020. NTIS pub. PB-266249. 32 pp. (\$4.50).
- 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 pub. PB-265547. 55 pp. (\$5.25).
- 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 contract MM4AC006 and MM5AC024. NTIS pub. PB-273505. 38 pp. (\$4.50).
- Gard, R. 1977. 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 pub. PB-275295. 24 pp. (\$4.00).
- Gard, R. 1977. Aerial census and population dynamics study of gray whales in Baja California during the 1976 calving and mating season. Final report for MMC contact MM6AC014. NTIS pub. PB-275297. 25 pp. (\$4.50).
- 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 pub. PB-274088. 28 pp. (\$4.50).

^{1/} Prices shown are for printed reports and include postage within the U.S. Microfiche copies are \$3.00 each. When ordering, include the NTIS accession number, e.g., PB-27406. Make checks payable to the National Technical Information Service.

- 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 pub. PB-270375. 111 pp. (\$6.50).
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- The following reports on Commission-sponsored research activities will be available from the National Technical Information Service in early 1978.
- Ainley, D. G. In prep. Studies of marine mammals at the Farallon Islands, California, 1976-1977. Final report for MMC contract MM6AC027.
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