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Annual Report of the Marine Mammal
Commission, Calendar Year 1976
A Report to Congress

Marine Mammal Commission, Washington, D C

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MARINE MAMMAL COMMISSION, CALENDAR YEAR 1976

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31 January 1977

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

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CHAPTER I

INTRODUCTION AND SUMMARY

Background

This is the fourth 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, 1976.

In the Marine Mammal Protection Act, Congress sets forth a national policy to encourage the development of marine mammal populations to 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 policy to insure that these objectives are attained.

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. Dr. Chapman was appointed in 1976 to replace Dr. Victor B. Scheffer, the first Chairman of the Commission, whose term had expired.

The nine-member Committee of Scientific Advisors on Marine Mammals, composed of scientists knowledgeable in marine ecology and marine mammal affairs, included (at the close of 1976): Dr. Robert L. Brownell, Jr., Smithsonian Institution; Dr. Paul K. Dayton, Scripps Institution of Oceanography; Dr. L. Lee Eberhardt, Battelle-Northwest; Dr. Francis H. Fay, University of Alaska; Mr. Karl W. Kenyon, Seattle, Washington; Mr. Ancel M. Johnson, U.S. Fish and Wildlife Service, Anchorage, Alaska; Dr. Clayton E. Ray, Smithsonian Institution, Chairman of the Committee; Dr. Sam H. Ridgway, Naval Undersea Center, San Diego; and Dr. Tim D. Smith, University of Hawaii. During 1976, Douglas G. Chapman, John J. Burns, and Richard H. Backus completed their terms of service on the Committee.

The total 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 half a year in FY 74, was appropriated \$412,000 for that year, \$750,000 for FY 75, \$900,000 for FY 76, and its authorized ceiling of \$1,000,000 for FY 77. At least two-thirds of each year's budget have been allocated to research and study activities -- the remainder has been spent on administrative costs.

Summary of Major Activities

During 1976, the Commission:

- . caused the undertaking of, participated in, and partially supported a major research cruise devoted to examining behavioral as well as other approaches to solving the tuna-porpoise problem;
- . participated in hearings related to the tuna-porpoise problem and filed briefs thereon;
- . made recommendations on research, the negotiation of international agreements, and other matters in efforts to resolve the tuna-porpoise problem;
- . made formal recommendations to the Congress and to Federal agencies on more than forty matters, other than permit applications, related to marine mammal protection, conservation, and management;
- . recommended actions to the Secretaries of Commerce and the Interior on fifty-eight permit applications to take marine mammals for purposes of scientific research or public display;
- . contributed to the development of the U.S. position in international negotiations affecting marine mammals;
- . made recommendations to the Senate concerning ratification of agreements on polar bears, Antarctic seals, and North Pacific fur seals;

- . devoted two-thirds of its budget to research and study activities designed to further protect and conserve marine mammals;
- . reviewed marine mammal research activities of other Federal agencies;
- . conducted a detailed review and evaluation of activities undertaken by Federal agencies to enforce the Marine Mammal Protection Act;
- . contributed to an international scientific consultation on marine mammals held in Norway - the largest international meeting of marine mammalogists ever held;
- . conducted and/or supported workshops on population assessment, the status of certain stocks, sea otter research, marine mammal marking and data storage, and the effect of the Nantucket oil spill on marine mammals;
- . recommended the designation of the Hawaiian monk seal as endangered; recommended the designation of parts of its habitat as critical;
- . analyzed and recommended changes in management plans affecting marine mammals in national parks;
- . analyzed and made recommendations on eight proposed actions related to outer continental shelf leasing and drilling;
- . reviewed and commented on the California Coastal Plan for coastal zone management; and
- . participated in and filed briefs in hearings related to the request by the State of Alaska for a waiver of the moratorium for certain species.

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

CHAPTER II

RESEARCH AND STUDIES PROGRAM

Congress recognized that existing knowledge of the biology and ecology of marine mammals was inadequate to provide a basis for management decisions affecting their protection and conservation. It therefore directed that research be undertaken by the Departments of Commerce and the Interior and directed that not less than two-thirds of the Commission's annual appropriation be expended on a program of research and studies to develop the necessary information. Commission supported research efforts concentrate on the development and evaluation of background information to determine and support Commission actions and recommendations, on new methodological approaches that will be broadly applicable, on the development of critical data which cannot be undertaken by other agencies, and on catalytic research activities which will start larger efforts by other agencies. The Commission, in consultation with its Committee of Scientific Advisors, identified three categories of necessary research, and designed a program to address these needs. It supports research of the following types:

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

Many species of marine mammals range over wide ocean areas and are subject to varying levels of exploitation. All are affected by human activities. Thus, many international treaties and conventions, as well as domestic laws, directly or indirectly affect the conservation of marine mammals. Continuous evaluation of the activities conducted or proposed under these authorities is necessary to assure their consistency with the Marine Mammal Protection Act.

II. Studies to Provide the Biological Data Base Necessary for Management Decisions

The Marine Mammal Protection Act delegated certain research responsibilities to the Department of Commerce, the Department of the Interior, and the Commission. While the National Marine Fisheries Service and the Fish and Wildlife Service have primary responsibility for providing the biological data needed for decision-making under the Act, the Commission supports field studies when there is urgent need for data and neither of the Services is able to initiate the necessary studies immediately.

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

The success of management practices designed to conserve marine mammals is dependent upon the quality of data used to develop the practices. Procedures employed for assessing terrestrial species are not necessarily adaptable to marine mammal populations which spend much of their time under the surface of the ocean. Therefore, there is a need to develop reliable and cost-effective methods for collecting data on the distribution, abundance and life history of marine mammals.

Summaries of studies either continued or initiated in calendar year 1976 are presented below. A list of the contracts initiated in calendar year 1976 is presented in Appendix B.

I. Studies of Domestic and International Policy Issues

Analysis of Marine Mammal Laws and Treaties and U.S. Activities
(S. E. Gaines, Environmental Law Institute)

The contractor identified existing Federal laws and international agreements relating to marine mammals, and analyzed their consistency with the Marine Mammal Protection Act. The study will help the Commission make such laws, conventions, and activities more nearly consistent with the goals and policies of the Act.

Developments in the Law of Marine Mammal Management
(J. A. R. Nafziger, University of Oregon)

This study is designed to provide a legal analysis of the relationship between the policies, provisions, and legislative histories of the Marine Mammal Protection Act and the Fisheries Conservation and Management Act of 1976. The report, due in late January 1977, will be used by the Commission in formulating recommendations to the agencies.

The Concept of Optimum Sustainable Populations of Marine Mammals
(D. B. Botkin and M. J. Sobel)

The Marine Mammal Protection Act mandates an ecosystem, rather than a single species, approach to the management of marine mammals. This approach, designed to maintain the

health and stability of marine ecosystems and the marine mammal populations therein, is embodied in the Act's definition of optimum sustainable population. Implementation of management practices based upon ecosystem considerations has been hampered by the difficulty in defining "optimum" in operational terms. In its continuing effort to refine the concept of optimum, the Commission asked the investigators to analyze and discuss the characteristics of biologically optimum populations and ecosystems with reference to ecological principles, population and ecosystem theory, and standard optimization procedures. The results should provide a process model which will facilitate and improve decision-making related to the concept of optimum sustainable populations.

Marine Mammal Species Inventory

(R. L. Brownell and C. M. Schonewald, Smithsonian Institution)

Knowledge of the status of marine mammal stocks throughout the world is critical to the conduct of negotiations for international agreements to further the purposes and policies of the Marine Mammal Protection Act. The investigators carried out an international survey of marine mammalogists in order to provide, for each species, information on distribution, stock designations (both recognized and proposed), population size, institutions conducting research, and levels of take over the past ten years. The data will be used to determine additional measures which may be needed to protect populations. The final report, to be released early in 1977, will be valuable in worldwide efforts to conserve marine mammals.

Reassessment of Antarctic Sei Whale Data

(D. G. Chapman, University of Washington, and M. F. Tillman, National Marine Fisheries Service)

At the June 1976 meeting of the International Whaling Commission, it was agreed that the data base and assumptions used to determine appropriate levels of catch for sei whales should be reevaluated at a special meeting in April 1977. To prepare for this meeting, the investigators are assessing various population models in order to determine whether existing data can be used to generate better population estimates. The results of the April meeting are to be reported in June at the 29th meeting of the International Whaling Commission in Canberra, Australia.

Assessment of the Canadian-Norwegian Harp Seal and Hooded Seal Fisheries
(R. R. Reeves)

Present management practices may be contributing to a decline in the North Atlantic stocks of harp and hooded seals. The investigator summarized information on the fishery in order to provide a basis for evaluating management practices. The draft report is now being studied by the Commission.

Status of Gray Seals in the Northeast United States
(J. R. Gilbert, University of Maine)

The gray seal, seldom seen in coastal New England waters, was once a significant component of local ecosystems. The investigator will attempt to determine whether or not it is advisable and feasible to reestablish gray seals. After the Argo Merchant oil spill off Nantucket, the contract study was expanded to include weekly monitoring of gray seal populations to assess the effects, if any, of oil on the seals.

Long-Range Plans for Research on the Northern Elephant Seal

The Commission had found that several studies of northern elephant seals were poorly coordinated and that they were not designed to take full advantage of the opportunity to study this species' recovery from near-extinction. The Commission therefore called a meeting of interested investigators to discuss future plans for research. As a result of the meeting, studies being supported by the Commission, the National Marine Fisheries Service, the Bureau of Land Management, and the National Science Foundation are being coordinated. Additional emphasis will be placed on documenting the population's recovery.

Ecosystem Model for the Southern Ocean
(K. A. Green, LGL Limited)

The Southern Ocean is frequented by at least thirteen marine mammal species that depend, directly or indirectly, on krill (Euphausia superba) as a food source. It has been estimated that an annual krill harvest of 100 million or more metric tons could be taken on a sustained yield basis.

By comparison, the present total world fishery equals about 70 million tons per year. Several countries, including the Soviet Union, Japan, West Germany, and Poland appear to be developing commercial fisheries for krill. The magnitude and potential yield of krill stocks are very poorly known. A substantial fishery may well have an adverse effect upon the entire Southern Ocean ecosystem, including marine mammals. This study is designed to provide a systems model which can be used to identify specific research needs, and to serve as a conceptual basis for assessing the possible effects of alternative krill harvest strategies.

Identification of Critical Habitats for Marine Mammals
(G. C. Ray, Johns Hopkins University)

The destruction or degradation of important marine mammal habitat by human activities (e.g., continental shelf and coastal zone development, environmental pollution, and commercial and sport fisheries) may lead to the reduction or extinction of populations or whole species of marine mammals. The investigator is developing standard criteria for identifying and defining habitats critical to the survival of given populations or species. Based on this work, it should be possible to recommend certain immediate protective measures and to formulate research plans for other critical habitat studies and analyses.

Determination of Critical Habitat for the Hawaiian Monk Seal
(K. W. Kenyon)

As a result of a Commission recommendation, the Hawaiian monk seal was designated endangered under the Endangered Species Act of 1973 and depleted under the Marine Mammal Protection Act of 1972. Because the decline of the species appears to have been caused by human disturbance and loss of habitat, maintenance of existing levels or recovery will depend on actions to reduce disturbance and protect the remaining habitat. The investigator, a leading authority on the monk seal, provided a detailed description of those areas which are critical to the seal's survival. The report was used in formulating the Commission's recommendations to the National Marine Fisheries Service on critical habitat designation.

Analysis of Outer Continental Shelf Activities (G. H. Waring)

Activities associated with the recovery of oil and gas from the outer continental shelf pose a threat to certain populations of marine mammals. The investigator has assessed proposed activities in order to determine their possible adverse impacts. The reports were used, in part, as the basis for Commission recommendations to the Bureau of Land Management concerning proposed oil and gas lease sales in the following areas: North Atlantic, Northern Gulf of Alaska, Gulf of Mexico, Mid-Atlantic, Lower Cook Inlet, and Southern California.

Analysis of the Coastal Zone Management Act (P. L. Baldwin)

This study will analyze the relationship between the Marine Mammal Protection Act and the Coastal Zone Management Act. The report will include: (1) a discussion of the provisions of the Coastal Zone Act; (2) an analysis of provisions and implementing regulations as they relate to the conservation of marine mammals; (3) a discussion of the National Oceanic and Atmospheric Administration's Coastal Zone Management Program and the anticipated schedule for development of management plans at the Federal and State levels; and (4) recommendations for specific actions by the Commission. The report is due early in 1977.

II. Studies to Provide the Biological Data Base Necessary for Management Decisions

The project summaries presented below are grouped according to five problem areas: (a) the incidental take of porpoise in the course of commercial yellowfin tuna fishing operations; (b) the California population of sea otters; (c) the bottlenose dolphin; (d) marine mammal-fisheries conflicts; and (e) effects of pollution, habitat destruction, and harassment.

a. Incidental Take of Porpoise in Commercial Fishing Operations (The Tuna-Porpoise Problem)

The incidental kill of porpoise in commercial yellowfin tuna fishing operations results from fishing practices which make use of the fact that yellowfin tuna frequently are found

in association with certain species of porpoise. In order to assess the impact of existing fishing practices upon porpoise and to solve the problem, careful data analysis and research leading to the development of improved fishing practices and gear modifications are critically needed. About one-third of the Commission's 1976 research budget was devoted to the following studies related to the tuna-porpoise problem.

Analysis of Tuna-Porpoise Data
(J. Breiwick, University of Washington)

This study was designed to develop improved estimates of kill and serious injury of porpoise incidental to the tuna purse seine fishery. The investigator evaluated the National Marine Fisheries Service's estimates and analyzed their observer data. He concluded that: while most sets on porpoise result in little or no porpoise mortality, a relatively small number result in large kills; large catches of yellowfin tuna are more frequently associated with high porpoise mortality than small catches; data obtained from government observers does not cover enough of the fleet, nor does it sufficiently cover fishing outside the Commission Yellowfin Regulatory Area; and the effect upon the porpoise populations cannot be adequately assessed unless age data, along with other biological information, are obtained.

Studies of Tuna-Porpoise Behavior
(K. S. Norris, University of California, Santa Cruz)

The Commission, convinced that understanding tuna and porpoise behavior would contribute to the solution of the tuna-porpoise problem, repeatedly recommended such studies to the National Marine Fisheries Service, to the Congress, and to the tuna industry. To catalyze the development of a behavioral research program, the Commission supported a study to photographically document and assess the behavior of tuna and porpoise throughout the set sequence, pre-chase through backdown. Field studies were carried out during a 54-day research cruise jointly sponsored by the Commission, the National Marine Fisheries Service, the National Science Foundation, and the Porpoise Rescue Foundation, an industry-supported group. Preliminary assessment of the research results suggests that substantial reductions in mortality and serious injury of porpoise might be realized by further modifications in gear and fishing practices. These preliminary findings will be explored more fully in research planned for calendar year 1977.

Acoustic Characteristics of Purse Seines
(W. E. Evans and J. S. Leatherwood, Naval Undersea Center)

Because sound reception and transmission play an important role in the way porpoise communicate and perceive their environment, the echo-characteristics of purse seines may influence porpoise behavior and contribute to mortality and serious injury. This study was designed to assess echo-characteristics of nets currently in use by the U.S. tuna purse seine fleet. This study was the first part of an expanded acoustic-bioacoustic research program supported by the National Science Foundation on the recommendation of the Commission.

A New Device to Reduce Porpoise Mortality
(J. T. Gonsalves, Progressive Fishing Enterprises)

A primary cause of porpoise mortality is shock, injury and suffocation resulting from entanglement in tuna purse seine nets. Any modification that reduces the possibility of entanglement also should reduce incidental mortality. The investigator developed solid, polyvinyl-coated nylon panels for use in purse seine nets, and tested the panels on a scale model. Tests on a full scale net are under consideration for 1977.

b. Studies Related to the California Population of
Sea Otters

Fur traders nearly exterminated sea otters during the late 1700s and early 1800s. A remnant of the California population was discovered in 1938. Under full protection, it increased in numbers and expanded its range so that there are now about 1,800 sea otters between Morro and Monterey Bays in central California. Competition between sea otters and fishermen for shellfish (i.e., abalones, crabs, and clams) is the source of substantial controversy. Information is inadequate to determine the sea otter's optimum population level or to implement management practices designed to achieve this level. The Commission, the State of California, and the Department of the Interior, are planning research programs that will provide the information.

Sea Otter Workshop

(C. D. Woodhouse, Jr., Santa Barbara Museum of Natural History)

In February, the Commission sponsored a workshop to determine if present and proposed research projects would provide an adequate data base for management of sea otter populations. The meeting included representatives of the Commission, the Fish and Wildlife Service, the California Department of Fish and Game, and the academic community. Participants agreed that, although most research needs are being addressed, further studies to determine the sea otter's functional role in nearshore communities are needed. The group also noted that factors affecting the sea otter's reproductive capacity are poorly known, and recommended that appropriate studies be undertaken promptly. As a result, the Commission supported studies by Dr. John Pearse (University of California, Santa Cruz) and by Dr. Paul Dayton (Scripps Institution of Oceanography).

Background Study of the California Sea Otter

(C. D. Woodhouse, Santa Barbara Museum of Natural History)

The investigator surveyed published and unpublished literature on the sea otter's biology, ecology, and interactions with man. The report will be used to help the Commission formulate recommendations on proposals to study and/or manage sea otter populations.

Natural History of the California Sea Otter

(J. E. Vandevere)

The investigator is observing feeding behavior and food preferences of sea otters in California. Data from two study areas are being compared in an attempt to discern behavioral differences which might be attributable to variations in availability of prey species and/or to the age and sex of the otters. The information should provide valuable insight into the sea otter's influence upon other components of the ecosystem.

Behavior of the California Sea Otter

(J. L. Kavanau, University of California, Los Angeles)

Through the development and use of a radio telemetry system, the investigator is studying the movements, activity patterns, and home range of sea otters near Hopkins Marine

Station, Pacific Grove, California. The first year's study demonstrated the utility of radio tracking techniques. A second year's support was provided to gather additional information on local movements, behavior, and activity patterns. Such data will assist in determining the habitat requirements of sea otters.

Assessment of Habitats Outside the Present Sea Otter Range
(J. S. Pearse, University of California, Santa Cruz)

This project was designed to identify sites that can be monitored to assess the sea otter's impact on its environment. Six sites offshore Santa Cruz County were surveyed to provide benchmark descriptions of the flora and fauna prior to the arrival of migrants from the main population. Following the arrival of the migrant front, these sites will be examined to determine how sea otters affect the diversity and abundance of species in nearshore communities.

Experimental Manipulation of Marine Communities Dominated by Sea Otters
(P. K. Dayton, University of California, San Diego)

Changes in nearshore communities, currently attributed to sea otters, may in fact be caused by human activities. Because descriptive studies of community composition, before and after the introduction of sea otters, may be inadequate to demonstrate the otters' effect upon their environment, controlled experiments are needed to determine cause-effect relationships. In this study, kelp, crevice, and intertidal communities will be manipulated to determine how each community responds to various perturbations. Study sites will be located in areas both inside and outside of the present sea otter range.

c. Bottlenose Dolphin

The bottlenose dolphin is a popular species for public display and research. At present there is no predetermined limit on the total number of animals which may be collected. The Commission is concerned that collection practices may be adversely affecting certain populations. The Commission therefore has supported several studies to develop the data base necessary to assess the possible effects of collecting.

Assessment of Information Related to the Live-Capture of
Bottlenose Dolphin
(J. M. Orr)

The investigator compiled and summarized available information on the live-capture fishery for bottlenose dolphins. Her report, delivered to the Commission in late December, is now under consideration. It will be a factor in the development of Commission recommendations concerning issuance of permits for taking these animals, in particular as such permits relate to limitations, by area, upon total numbers taken.

Bottlenose Dolphin Populations in the Florida Gulf Coast
(D. K. Odell, University of Miami)

Most bottlenose dolphins are collected from coastal waters of Florida. This study was designed to assess the reliability of aerial surveys, as well as to provide estimates of seasonal distribution and abundance of dolphins in these waters. The following survey studies represent different methodological approaches to the assessment studies.

Survey of Bottlenose Dolphins in Southwest Florida
(J. H. Kaufman and A. B. Irvine, University of Florida)

Because bottlenose dolphins may remain in local areas rather than ranging over wide geographic areas, continued live-capture and removal from certain areas may result in population depletion. To provide data on population composition and home range, the Commission has provided two years of support for a radio-tagging and marking program in southwest Florida. The results of this study suggest that at least some populations are not far ranging. The Commission therefore will recommend that the National Marine Fisheries Service undertake similar studies in areas from which animals are removed for public display and research purposes.

Bottlenose Dolphins in the Aransas Pass Area of Texas
(D. J. Schmidly, Texas A&M University)

This study is concerned with the behavior and movements of bottlenose dolphins in the Aransas Pass area of Texas, an area where only a few captures have occurred.

The results should provide useful data for comparison with studies in areas where dolphin collections are more frequent. Conventional observation techniques and photographic identification techniques, not requiring capture and handling of animals, are being used to gather data on population composition and movements.

Workshop on Breeding Bottlenose Dolphins in Captivity
(K. Benirschke, Zoological Society of San Diego)

The development of successful methods of breeding bottlenose dolphin in captivity could reduce the need to remove animals from wild populations. A workshop was convened to identify problems involved in captive breeding, and to recommend studies which would lead to self-sustaining captive breeding populations. As a result of the workshop recommendations, the Commission intends to provide support for studies of behavior, reproduction, and nutrition of captive bottlenose dolphins. The results of the workshop are to be published early in 1977.

d. Studies Related to Marine Mammal-Fisheries Conflicts

Commercial fishermen historically have regarded many marine mammal species as competitors for fish resources. Prior to the passage of the Marine Mammal Protection Act, unregulated hunting, bounty hunting, and other forms of harassment were used to control certain marine mammal species. These practices are no longer legal, and certain populations have increased and expanded their range so that the conflicts are increasing. To initiate data collection necessary for decisions on marine mammal-fisheries conflicts, the Commission has supported a number of projects, and has recommended additional projects for support by other agencies.

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

Monthly surveys are being carried out to determine the distribution, abundance, movements, herd composition, and productivity of harbor seals in Grays Harbor, Willapa Bay, and on Gertrude Island. To define the age, sex, health, and reproductive parameters of the Grays Harbor herd, a representative sample of seals is being collected each month. Stomach contents are being analyzed to determine food habits, particularly the importance of salmon in the diet. The Commission has supported this study for an additional year to allow collection and analysis of additional data.

Harbor Seals in Prince William Sound, Alaska
(K. W. Pitcher, Alaska Department of Fish and Game)

Harbor seals from the various age-sex classes in Prince William Sound, Alaska, were collected to identify the age-sex structure and reproductive parameters of the population, as well as the type and abundance of prey species consumed. Analysis of stomach contents will help elucidate the interactions between seals and fish in the area. Should the moratorium be waived and management returned to Alaska, the data collected will help insure that the allowable take is within biologically safe parameters.

Food Consumption by Northern Fur Seals
(L. K. Miller, University of Alaska)

Because northern fur seals eat pollock, an expanding commercial pollock fishery within the Bering Sea may reduce the carrying capacity of the fur seal's habitat, and thereby reduce the productivity of the Pribilof fur seal herd. Food habit studies and investigations of the nutritional requirements of the fur seal are necessary to assess the possible consequences of an expanded pollock fishery. This investigator is collecting data on metabolic rates and heat budgets of fur seals under various physiological conditions to provide a basis for determining the annual caloric requirements of the North Pacific fur seal.

Food Habits of Walruses in the Bering Sea
(F. H. Fay, University of Alaska)

The walrus feeds primarily on benthic (sea floor) invertebrates, some of which are commercially valuable. Consequently, man eventually may compete with this species for the same food resources. The Commission is anxious to develop an understanding of the ecosystem relationships in order to deal sensibly with the conflict, should it arise. To determine the degree of potential competition, the investigator is examining walrus stomach contents. Sampling of benthic organisms is being carried out to determine the species composition and relative abundance. The data will be used to estimate the dependence and impact of walrus on the invertebrate fauna, and to provide reference standards for assessing the possible effects of further commercial development of fisheries as well as oil and mineral exploration and exploitation on the Bering Sea ecosystem.

e. Studies Related to the Effects of Pollution, Habitat Destruction, and Harassment

Environmental pollution, coastal zone development, and increased ship traffic are examples of factors which may result in the loss or abandonment of important breeding, feeding, or resting sites for marine mammals. To provide data for assessing the effects of human activities on marine mammals, the Commission has supported the following studies.

Pollutants in Marine Mammals

(R. W. Risebrough, Bodega Bay Institute of Pollution Ecology)

Although little is known about the effects of pollution on marine mammals, relevant information can be found in a variety of published and unpublished reports. The investigator is reviewing and summarizing available literature on pollutants in marine mammals. Study results will be used to further focus research efforts and as a basis for recommendations to appropriate Federal agencies. The work, important to the welfare of marine mammals themselves, may also shed additional light on the use of marine mammals as indicator species.

Workshop to Assess the Impact of the Argo Merchant Oil Spill on Marine Mammals Along the New England Coast
(New England Aquarium)

On 28 December 1976, the Marine Mammal Commission sponsored a workshop at the New England Aquarium to determine immediate and long-term research needs to assess the effects of the Argo Merchant oil spill on marine mammals. Participants concluded that: (1) as yet, there is no evidence of any impact; (2) potential impacts were minimized because the spill occurred during the winter when the prevailing winds were offshore; (3) number six oil is among the less toxic of the fractionated products; (4) baseline data necessary to assess long-term effects are lacking; (5) the direct and indirect effects of oil on marine mammals are essentially unknown; and (6) the critical habitat(s) of most marine mammals on the East Coast have not been identified. Because the remnant population of gray seals in the area was judged vulnerable, participants recommended that the Commission promptly contract for weekly surveys of this population during the forthcoming pupping and molting seasons. The Commission immediately modified an existing contract to include twelve weekly surveys, the work to begin in early January.

The Gulf of Maine Whale Sighting Network
(S. K. Katona, College of the Atlantic)

Recovery of oil and gas from the continental shelf adjacent to the North Atlantic states may adversely affect resident and migrating marine mammals. Data on marine mammals of this area are presently inadequate for an assessment of possible impacts. The Commission is providing support for a whale sighting network, consisting of 2,700 volunteer observers, to gather more information on abundance, seasonal distribution, and habitat utilization of cetaceans in the Gulf of Maine.

Marine Mammal Biological Data from the Stranded Cetacean Salvage Program
(J. G. Mead, Smithsonian Institution)

Studies of beached carcasses provide an important source of biological and ecological information on marine mammals. In the past, recovery programs have generally lacked sufficient organization to make full use of this important data source. Under this contract, the investigator continued development of a standard computer program for recording data obtained from beached carcasses. Supplemental information on cetaceans was obtained from surveys of existing literature and from museum collections. The final report contains data on the distribution, biology, and taxonomy of 34 species of cetaceans found along the Atlantic Coast of the U.S.

Findings from a Mass Stranding of Dolphins
(J. R. Geraci, New England Aquarium)

Mass strandings of cetaceans are fairly common. They often provide unique opportunities for collecting data on species which are difficult to study in the wild. Causes of strandings generally are unknown, and efforts to assist live-stranded animals have largely been unsuccessful. Therefore, there is a need to investigate each mass stranding to determine if it was accidental or caused by pathological behavior. An intensive investigation of a September 1974 mass stranding of Atlantic white-sided dolphins in Lingley Cove, Maine, has yielded extensive data on the anatomy, histology, reproduction, and growth of the species. Although the cause of the stranding was not ascertained, the evidence tends to refute the notion that mass strandings are related to disease or to entrapment in shallow water while feeding.

More opportunistic studies are needed to ascertain causes of strandings and ways of rescuing animals that are still alive. It is possible that pollution and/or oil contamination may increase the number of such strandings.

Marine Mammal Strandings Along the New England Coast
(J. Geraci and J. Prescott, New England Aquarium)

Under this contract, the investigators are establishing a communications network for reporting marine mammal strandings along the New England coast. A multidisciplinary research team has been organized to ensure that each recovered carcass is given a thorough post-mortem examination. Holding facilities and veterinary assistance are being provided by the New England Aquarium to rehabilitate live-stranded animals.

Cetacean Strandings on the Texas Coast
(D. J. Schmidly, Texas A&M University)

Baseline data on the distribution, abundance, food habits, and causes of death of cetaceans in the Gulf of Mexico are necessary to assess the potential effects of oil and gas recovery from this area. To begin providing the necessary data, the investigator established a program to recover and analyze marine mammals beached on the Texas coast. Twenty-two strandings were investigated, including two strandings of spinner dolphins (Stenella longirostris), a species never before reported from the Texas coast. Data on distribution, relative abundance, and biology of eighteen species were recorded. They were used as part of the Commission comments on the Draft Environmental Impact Statement for proposed outer continental shelf lease sales in the area.

Harbor Seals in San Francisco Bay
(R. W. Risebrough et al., Bodega Bay Institute of Pollution Ecology)

Harassment and/or environmental pollution may be causing a decline in the harbor seal populations in San Francisco Bay. This study is designed to assess the impact of these activities, both on the seals and their habitat. The results of the study should provide information necessary to formulate policies for the protection of the populations.

Pollutants and Sea Lion Mortality
(W. G. Gilmartin et al., Naval Undersea Center)

The high incidence of premature births of California sea lions in the Channel Islands could have a serious impact, if it continues, on this largest discrete population of California sea lions. The investigators are trying to determine if there is a cause-effect relationship between premature births and the level of PCB and DDT pollutants in sea lion tissues. Although results indicate a high correlation between premature pupping and organochlorine levels, further studies are needed to prove a cause-effect relationship. Having supported the initial catalytic stages of this research, the Commission does not intend to continue long-term support. It therefore recommended that the Naval Undersea Center provide support for such additional studies as are necessary.

Gray Whales in Their Breeding Waters
(R. Gard, University of Alaska)

Gray whales are observed from tour boats and small pleasure craft during the annual spring and fall migrations of the whales along the U.S. Pacific coast and in their breeding lagoons. Because "whale watching" may be having an adverse impact on the population, it is a cause for concern. This study was designed to provide baseline information on the relative distribution and abundance of whales and boats. The investigator conducted aerial and shore-based censuses during the 1975 and 1976 calving and mating seasons, and compared the data with those from previous censuses to establish population trends from 1952 through 1976.

Gray Whale Harassment
(R. R. Reeves)

The investigator surveyed literature and interviewed persons in the United States and Mexico to provide the Commission with background information necessary to assess the adequacy of existing guidelines promulgated by the National Marine Fisheries Service to regulate whale watching activities along the Pacific coast of the U.S. His results, and those of R. Gard, are being made available to U.S. and Mexican scientists for their use in examining this issue at a meeting in La Paz, Mexico, in February 1977. This is being done as a part of the Commission's attempts to foster international conservation efforts.

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

The Farallon Islands, off the California coast, provide a unique opportunity for observing cetaceans and for making comparative studies of colonization by pinnipeds. Five species each of cetaceans and pinnipeds were observed and counted in 1976. The Commission is providing continued support to enable the investigator to monitor trends in the abundance, productivity, and distribution of harbor seals, sea lions, and northern elephant seals. Data of this kind are necessary to assess species interactions and determine optimal densities. This project is typical of several supported by the Commission in which small amounts of money invested yield substantial data.

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

Standard Methods for Censusing Marine Mammals
(D. G. Chapman et al., University of Washington)

Conservation of marine mammals is highly dependent upon the quality of data upon which management decisions are based. This study assessed the utility and reliability of various methods for censusing marine mammals. An annotated bibliography of papers on census techniques has been prepared and is available from the principal investigator. The investigators have become actively involved in a number of field projects and will recommend studies that are needed to validate certain techniques.

Bottlenose Dolphins in Louisiana and Mississippi
(J. S. Leatherwood, Naval Undersea Center)

The investigator compared the utility and reliability of line transect, strip, and square unit sampling methods for assessing the abundance of bottlenose dolphins. The study indicated that strip census methods are preferred over line transect or quadrant sampling methods. Line transect methods were found to violate several necessary assumptions and quadrant samples are difficult to census and locate accurately. Variation among observers had a significant effect on census counts, highlighting the importance of observer training and experience. The results of this study contributed to the design of the aerial survey being used to estimate the abundance of porpoise impacted by the yellowfin purse seine fishery.

Aerial Counts of Pinnipeds Along the U.S. Pacific Coast
(B. R. Mate, Oregon State University)

In this study, data were collected on the distribution and abundance of pinnipeds along the Pacific Coast of the contiguous United States and nearby waters. Previously unknown rookeries and hauling-out areas were discovered and, although total population sizes could not be estimated, the data do provide a basis for identifying changes in distribution patterns and relative abundance of Pacific Coast pinnipeds. These baseline data are important in that they are necessary for determining the impact of future coastal activities upon marine mammals.

Assessment of Harbor Seals and Gray Seals Along the Maine Coast
(D. T. Richardson, Maine Department of Marine Resources)

To determine whether a stratified sample design would be adequate to monitor the status of harbor seals and gray seals in the waters of Maine, the investigator divided haul-out sites into three groups according to the numbers of seals at each site. Census counts of selected haul-out sites were highly variable, suggesting that stratified sampling techniques are inadequate to detect subtle differences in either distribution or abundance. Larger sampling units, as well as a better understanding of environmental and behavioral factors affecting haul-out, are therefore needed to provide data to reliably assess trends in either distribution or abundance of the seal populations.

Hauling-Out Behavior of the Pacific Walrus
(G. C. Ray, Johns Hopkins University)

The walrus, like other pinnipeds, can be counted only when out of water. Counts can be converted to abundance estimates only if the percentage of animals in the water is known. If the numbers of animals hauled out can be correlated with variables such as time of day, season of year, weather, and sea ice conditions, then it should be possible to design censuses which will provide more accurate population estimates. It is hoped that a determination as to the feasibility of this approach can be made as a result of this work.

Management Implications of Harbor Seal Behavior
(S. C. Wilson, Smithsonian Institution)

The investigator has observed and photographed the behavior of harbor seals in Maine before, during, and after the 1976 pupping season. Data are being analyzed to determine if certain aspects of social behavior might affect the species' ability to breed, pup, and raise pups in captivity.

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

Knowledge of the migratory routes of large whales is necessary for effective decisions to ensure their conservation and protection. Techniques for monitoring movements of individual whales, however, must be developed. The objective of this study was to develop and test an expandable harness to hold recoverable tracking and data gathering equipment. The equipment was successfully tested in 1975 on a suckling gray whale, which was tracked for 63 hours and more than 213 kilometers before the instrument package was jettisoned. The study provided information on duration of dives as well as speed and direction of travel. The final report on this work was written and received in 1976.

Killer Whales in Puget Sound
(A. W. Erickson, University of Washington)

The investigator's objectives were to develop and test safe and effective methods for attaching radio-tracking devices to killer whales. Two whales were fitted with radio tags and closely observed for a period of thirty days prior to release. Tag attachment and assessment of the effects of the tags on the whales were accomplished by an orthopedic surgeon and veterinarian under the supervision of the principal investigator. Because the radio pack has a transmission life of about one year, attachments were made with corrosible nuts so that the packages would fall off the whales at about the same time the radios ceased to function. In the nine days following release, the whales traveled more than 626 nautical miles at an average speed of approximately 3 knots. Subsequent observations and radio contacts not only provided additional information on the movements of the whales, but also showed that the radios were functioning for at least five months. The research appears to have had no adverse effects on the whales.

Development of a Dive Recorder
(G. L. Kooyman, University of California, San Diego)

The investigator is developing a recoverable instrument package that automatically records the diving behavior (time of day, depth and duration) of the animal to which it is attached. The device has been tested successfully on the northern fur seal; tests with other pinnipeds are being conducted. Dive data can be used to infer when, where, and how frequently the animals are feeding. Understanding feeding behavior is necessary to an understanding of ecosystem relationships.

Individual Recognition and Assessment of Right Whales
(R. S. Payne, New York Zoological Society)

The primary objective of this project is to determine if individual right whales can be identified and measured from photographs. If photographic assessment proves reliable, the investigator will be able to analyze photographs from a five-year study of the southern right whale to determine individual growth rates, population size, production rates and mortality rates. Accurate estimates of these parameters are needed to assess the status of the stock. Such photographic identification would provide a less costly alternative to tagging and would not involve any taking.

A Plan for a Centralized Marine Mammal Marking and Data Recovery Program
(G. H. Waring)

In May, the Commission contracted for the development of a plan to establish a centralized marine mammal marking and data recovery program. The lack of such a system has, in the past, meant that there has been poor coordination of mark-and-recovery activities. This has led to the loss of data which would have been of value in furthering the protection and conservation of marine mammals. The completed plan was forwarded to the Department of the Interior with the recommendation that it, in cooperation with the National Marine Fisheries Service, establish a centralized system for storing, archiving, and retrieving marine mammal tagging and marking data. To help implement the development of such a program, the Commission made funds available to the Fish

and Wildlife Service to convene a workshop of scientists to discuss, amend, and strengthen the proposed plan. Recommendations of workshop participants are now under consideration by the Commission, the Fish and Wildlife Service, and the National Marine Fisheries Service.

Freeze Branding of Marine Mammals
(L. H. Cornell and E. O. Asper, Sea World, Inc.)

Although some marine mammals have natural marks, others can be positively identified only by artificially marking them. These investigators designed, developed, and tested cryogenic branding techniques for marking a variety of marine mammal species. Three prototype marking tools have been tested on cetaceans, pinnipeds, and sirenians. Further testing of pressure and exposure time is being conducted. The investigators hope to establish species-specific guidelines for consistent production of distinct and durable cryogenic marks.

Laser Marking of Marine Mammals
(T. P. Dohl, University of California, Santa Cruz)

Because artificial marking of marine mammals usually requires capture and restraint, it is often not practical. The investigator proposed to develop a laser that would rapidly, painlessly, and silently make a permanent identifying mark on unrestrained animals. Having developed the prototype instrument, the investigator is to test it under field conditions.

Methods to Study Trophic (Food) Relations of Marine Mammals
(K. S. Norris, University of California, Santa Cruz)

Knowledge of the relationship between marine mammals and their habitat is essential to conserve them. To assess the food habits and requirements of marine mammals, the investigator has developed: (1) equipment for pumping stomachs to determine the diet of small marine mammals (thus eliminating the need to kill them to assess stomach contents); (2) freeze branding equipment; (3) a recoverable depth-of-dive transmitter which releases itself to enable a species' food source to be located and sampled; and (4) an apparatus for monitoring the metabolic rate of free-swimming marine mammals.

Humane Taking of Certain Marine Mammals
(S. H. Ridgway, et al., Naval Undersea Center)

This project is designed to test the feasibility of adapting the "gas injection shark dart" to provide a more humane and less wasteful method of killing certain marine mammals. The dart, which injects carbon dioxide into sharks, causes a quick death and inflates the carcass so that it floats. Preliminary tests on domestic pigs indicate that the technique has promise. Laboratory tests on pinnipeds are being planned. If the technique proves to be more humane than methods now used, a delivery system will be designed and the system tested on free-ranging animals. Successful development of this method would insure more rapid and humane death, and would reduce total kill by decreasing the numbers of carcasses lost through sinking.

CHAPTER III

THE CONCEPT OF OPTIMUM

The Marine Mammal Protection Act recognizes that marine mammals are resources of great international significance, and legislatively sets forth new principles for the management of marine mammal populations. The Act focuses upon the attainment of optimum population levels rather than an optimum yield as the management goal. It proposes management within biologically determined parameters to insure a complex of values and not just a yield measured by harvest alone. However, the Act does not provide a basis for determining the optimum level with reference to readily available, objective, biological criteria.

A distinguishing feature of the optimum concept is the consideration, in management objectives, of values other than yield. The recognition of other values often leads to direct conflict among interested groups, simply because management plans with multi-valued objectives often require compromises which are not the "desired" goal of any single group. Although the intent of the Marine Mammal Protection Act in dealing with a multi-valued management scheme is not completely clear, it is clear that certain biological considerations are paramount and that the level at which a population is maintained must be consistent with both the well-being of that population and the health and stability of the marine ecosystem. It appears that the desired population level is within a range which insures the biological values of population well-being and the "health and stability of the marine ecosystem" and which also serves to optimize other values of significance.

In attempting to analyze the impact of management actions, it should be noted that almost no ecosystem exists in a pristine condition, and that natural states of "equilibrium conditions", free from human interference, seldom occur. The term "optimum sustainable population" suggests an attempt to "optimize" the value of marine mammals in the ecosystem in some manner to give the "best" return in terms of those values considered most important. In general, optimization procedures set forth priorities for management and assign weights to given values. It is clear that optimization requires more sophisticated management decisions and that revamping of many current management decision processes may eventually be required to provide the needed flexibility.

In 1976 progress was made in efforts to implement the management concepts embodied in the Marine Mammal Protection Act in an operationally useful form. As mentioned elsewhere in this Report, the National Marine Fisheries Service held a workshop to determine the optimum population levels for certain species of porpoise impacted by the commercial yellowfin tuna fishery in the eastern tropical Pacific. The Commission prepared a paper on the concept which was made available to participants at the International Scientific Consultation on Marine Mammals held in Bergen, Norway, in September. Based upon all that has been learned in attempting to apply the principles of the Act to immediate management problems which are being faced, upon the work that is being done by the Commission's special subcommittee on the concept of optimum, and upon the work that has been done by the National Marine Fisheries Service and others on this subject, the Commission contracted for further review and analysis of the applicability of the concept of optimum sustainable populations in late 1976. A project summary of the study appears in the research section of this Annual Report. The final report of the investigators is due in the spring of 1977. It is the Commission's belief that their work will further clarify the concept of optimum sustainable populations as the principle upon which all wildlife management practices would eventually be based.

CHAPTER IV

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

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. In 1976, as in 1975, the incidental mortality and serious injury of porpoise associated with commercial yellowfin tuna fishing continued to be the major problem. Although this subject was discussed in the Commission's previous Annual Reports, a summary of the major aspects of this complex problem may be helpful in understanding the discussion of the Commission's activities in 1976 which is set forth below.

Background

The tuna-porpoise problem results from fishing practices which make use of the fact that certain porpoise associate with yellowfin tuna. Commercial tuna purse seiners herd porpoise, enclose them with nets, and thereby catch the yellowfin tuna which swim beneath and behind them. Thousands of porpoise, "incidentally" taken in order to catch the tuna, die each year from shock, injury, and suffocation when they become entangled in the nets.

Congress addressed the subject in the Marine Mammal Protection Act of 1972. It directed the Secretary of Commerce to conduct research to develop fishing gear and practices that would allow porpoise to escape from the nets unharmed and thereby reduce incidental take to insignificant levels approaching a zero mortality and serious injury rate. Under Section 101(a)(2) of the Act, commercial fishermen are required to obtain permits to take porpoise in the course of commercial fishing operations. They are also required to fish in accordance with regulations promulgated by the Director of the National Marine Fisheries Service, to whom the Secretary of Commerce has delegated responsibility for administering and enforcing these provisions of the Act.

The Marine Mammal Commission was charged by the Act with responsibility for the review of activities affecting the conservation and protection of marine mammals and with responsibility to recommend to appropriate federal officials such actions as it deems necessary to further the policies of the Act.

Since February 1974, the Commission, in consultation with its Committee of Scientific Advisors, has repeatedly stressed, for a number of reasons, the inadequacies of data with which levels of kill and impact are estimated: porpoise mortality and serious injury rate caused by foreign tuna vessels may be much higher than that caused by our own vessels; porpoise mortality and serious injury resulting from vessels without National Marine Fisheries Service observers may be higher than from those carrying observers; porpoise that are chased, captured, injured, and released may subsequently die of shock or other causes; disruption of social groups resulting from setting on porpoise may cause additional mortality, especially among young animals; and population estimates are based upon incomplete surveys.

A Commission study estimated a total porpoise mortality in the U.S. tuna fishery of 387,378 in 1972 and 192,982 in 1973. The Commission transmitted the report to the National Marine Fisheries Service on 5 November 1974. The Commission noted that the numerous and fundamental inadequacies of the data discussed in the report and the consequent lack of confidence in the estimates emphasized the need for continued and expanded research efforts.

By the end of 1974, there were indications that certain affected populations were being stressed or were declining under the pressure of this incidental mortality and serious injury. The gravity of the potential impact of incidental taking upon the affected porpoise populations and the inadequacy of the available data were reflected in a preliminary report by National Marine Fisheries Service staff, The Porpoise-Tuna Problem; Review of Research Progress, which was the subject of public hearings in December 1974. The statement which was presented at the hearings on behalf of the Commission and its Committee of Scientific Advisors again stressed the urgent and critical need for an effective National Marine Fisheries Service research program, and concluded that even the most conservative estimate of incidental take represents an unacceptably high level of mortality. It was emphasized that this level must be further reduced to comply with the specific goal of the Marine Mammal Protection Act to reduce incidental take to insignificant levels approaching a zero mortality rate, and the overall goal of the Act to maintain optimum sustainable populations of marine mammals.

In May 1975, prior to its July meeting, the Commission wrote the National Marine Fisheries Service to advise them that it was actively considering the possibly depleted status

of certain porpoise populations and to request any information developed since the public hearings in December 1974. Upon being informed that no new information was available, the Commission and Committee considered the matter on the basis of the best available data. As a result, the Committee of Scientific Advisors concluded that the eastern spinner dolphin population (Stenella longirostris), and possibly the spotted dolphin population (Stenella attenuata), were in decline. The Committee recommended that the eastern spinner dolphin be designated as "depleted" while the trends in the spotted dolphin population be carefully monitored in view of its apparently precarious state. The Committee also noted the immediate need to refine and continue analysis of the status of the various impacted populations, to study the behavioral patterns of fish and porpoise in the seining operation in order to gain an understanding of the tuna-porpoise bond, the circumstances of kill, and other behavioral factors that might be used to lessen incidental kill. Finally, the Committee noted that international efforts to reduce incidental taking of porpoise were needed.

Shortly after its review in July, the Commission received a draft report from the National Marine Fisheries Service entitled "Progress Report of Research on Porpoise Mortality" dated 8 August 1975. In light of substantial differences between the data contained in this Report and data previously available to the Commission and Committee, the Tuna-Porpoise Subcommittee immediately reviewed the material. As a result of its preliminary review, the Subcommittee requested that its recommendation on the status of the spinner dolphin population be withdrawn from active consideration by the Commission pending a detailed study of the Report and the data on which it was based. The Subcommittee noted that the new estimates of the size of the eastern spinner dolphin population, roughly twice the old estimates, and the more detailed life history data, required such a withdrawal pending further study. It also noted with concern that only some of the factors identified in its previous statement had been addressed in the Report, and that it was not possible to evaluate fully the data inasmuch as the new Report contained only point figures without confidence limits. The Subcommittee also expressed concern about the influence of factors such as a change in fishing conditions that had apparently resulted in an increased total incidental porpoise mortality in 1975.

The Subcommittee noted that certain troubling questions remained unanswered. These included: doubts as to the validity of the assumption that the performance by non-U.S.

flag vessels is equal to that of the U.S. fleet; concern about the lack of confidence intervals for the figures upon which estimates are based; the lack of sensitivity of the population analysis to the possibility that incidental take is selective of immature rather than mature animals or is sex selective; the total uncertainty about what fractions the present populations are of those present prior to the onset of purse seining on porpoises; and concern about the impact of chase, capture, injury, and social disruption upon the populations. The Subcommittee noted that in 1975, 45 porpoise were caught for each one killed and that an estimated seven million porpoise would be set upon in 1975. Thus, either each porpoise would be caught an average of 1.5 times per year or a smaller number would be set upon much more frequently. Finally, the Subcommittee concluded that there was no adequate information concerning the dynamics of the affected porpoise populations that assured that the present kill rate was not causing continuing reductions in the size of those populations.

A Commission-sponsored study of the levels of incidental porpoise mortality in the yellowfin tuna fishery conducted by William Clark, University of Washington, analyzed all available data. He gave estimates of the number of porpoise killed in 1972-1975, and recommended studies to assess the extent of incidental injury and indirect mortality and to investigate difference with age and the rate of direct mortality of netted porpoise. He concluded that there was no way to estimate accurately the total kill from the observed kill and other available data because of the incomplete nature of those data and difficulties associated with statistical analysis of the information. A subsequent Commission-sponsored study of the levels of incidental porpoise mortality was concluded in October 1976 by Jeffrey Breiwick, University of Washington. He concluded that: most sets on porpoise resulted in little or no porpoise mortality, while a relatively small number of sets resulted in large kills; that large catches of yellowfin tuna were more frequently associated with high porpoise mortality than small catches; that the available data obtained from government observers did not extend to a sufficiently large fraction of the fleet, nor did it sufficiently cover fishing outside the Commission Yellowfin Regulatory Area (CYRA); and that the effect upon the porpoise populations could not be assessed adequately unless age data, along with other biological information, was obtained. Figures for the total estimated incidental kill of porpoise, subject to those uncertainties, are set forth below.

| <u>Year</u> | <u>Estimated U.S. Kill</u> | <u>Estimated Total Kill</u> <u>-- U. S. & Foreign</u> |
|-------------|----------------------------|--|
| 1972 | 306,000 | 348,000 |
| 1973 | 175,000 | 217,000 |
| 1974 | 99,000 | 120,000 |
| 1975 | 134,000 | 181,000 |
| 1976 | 84,000-112,500 | Not yet available |

The 1976 Fishing Season

In preparation for the yellowfin tuna fishing season which was to begin on January 1, 1976, the National Marine Fisheries Service held public hearings in October 1975 on changes in the regulations governing incidental taking and on the application by tuna fishermen to take porpoise. Following these hearings, the Commission transmitted recommendations by letter of 6 November 1975 that the general permit to be issued to tuna fishermen be limited to authorize the killing of no more than 85,060 porpoise, subject to adjustment during the term of the permit as appropriate, based upon information concerning the status and trends of the affected populations. The Commission noted that it found no basis for confidence that any quota above zero would provide the basis for absolute assurance that the principal stocks of porpoises would increase in size and, consistent with its previous recommendations, again noted the importance of developing and implementing an intensive research program to assess and monitor population status and trends.

Final regulations published by the National Marine Fisheries Service on 5 December 1975 announced that a quota would be imposed during 1976 to prohibit any setting on porpoise if the projected total kill in 1976 exceeded 70 percent of the total kill in 1975. The Commission wrote the National Marine Fisheries Service on 8 December 1975 indicating that it had recommended a numerical limitation of 85,060 on the permissible level of take as a prudent measure to minimize the potential jeopardy of the affected populations, and suggesting that this approach was preferable to the mechanism announced in the preamble to the final regulations which was confusing and fraught with potential difficulties.

Commission questions about the quota and how it would be determined, as well as questions about the observer program, gear testing, and other subjects, were raised again in letters to the National Marine Fisheries Service on 17 December 1975, 28 January 1976, and 8 March 1976, and in meetings with

representatives of the National Marine Fisheries Service, industry, and environmental groups on 12 December 1975, 8 January 1976, and 26 February 1976. The Commission's letter of 8 March summarized its continuing concerns relating to the approach which the National Marine Fisheries Service had adopted and its increasing anxiety about the perils of proceeding without a resolution of certain policy questions.

Subsequent meetings with National Marine Fisheries Service personnel and others served to resolve some of these questions and to identify others which remained to be resolved.

The Methods for Comparing Porpoise Mortality in 1975 and 1976

The regulatory approach developed by the National Marine Fisheries Service for the 1976 fishing season called for three distinct determinations: a comparison of the kill as of 14 April 1976 with the kill as of 14 April 1975 to determine whether there had been a 30 percent reduction in kill; a determination of the level of a quota to be imposed during the 1976 season, if there had not been a reduction; and a determination of the date after which no setting on porpoise would be permitted, so as to ensure that the quota level would not be exceeded. The Commission's Subcommittee on the Tuna-Porpoise Problem consulted with the National Marine Fisheries Service to develop the methodology for comparing the level of kill during the first months of 1976 with the first months of 1975. That computation was made with reference to the reports of kill from government observers.

Judicial Action

Analysis of the total kill during the first months of 1976 indicated that the required 30 percent reduction had been achieved and no quota was required under the National Marine Fisheries Service scheme at that time. The decision of the U.S. District Court for the District of Columbia and subsequent judicial action discussed in the following sections, however, significantly influenced the National Marine Fisheries Service scheme and subsequent actions.

On May 11, 1976 Judge Charles R. Richey of the U.S. District Court for the District of Columbia issued an opinion and Order, in litigation brought by environmental groups against the National Marine Fisheries Service, declaring the National Marine Fisheries Service regulations, general permit,

and certificates of inclusion issued to tuna fishermen void as contrary to the provisions of the Marine Mammal Protection Act. (Committee for Humane Legislation, Inc. v. Elliot L. Richardson, et al. (C.A. No. 74-1465) and Fund for Animals, et al. v. Elliot L. Richardson, et al., 414 F. Supp. 296 (D.D.C. 1976); (C.A. No. 75-0277))

The Court found that the National Marine Fisheries Service had granted the tuna industry an unrestricted general permit, without limitation as to the number or kind of porpoise which might be killed, in contravention of the Act, and that it had failed to comply with the provisions of the Act which require the agency to determine and publish reasonable estimates of the existing population levels of each species affected by the regulations, the optimum sustainable population of each of those species, and the expected impact of those regulations on the effort to achieve an optimum sustainable population level for each species. The Court determined that "Congress enacted the Marine Mammal Protection Act for one basic purpose: to provide marine mammals, especially porpoise, with necessary and extensive protection against man's activities" (Slip Opinion, p. 16) and that "interests of the marine mammals come first under the statutory scheme, and the interests of the industry, important as they are, must be served only after protection of the animals is assured." (Slip Opinion, p. 22) It concluded that "[t]herefore, in light of the agency's continued failure to follow the mandate of Congress, the Court feels that the only appropriate relief at this time is to stop completely the incidental killing of porpoise unless and until the Federal defendants are able to determine, as the Act plainly requires, that such killing is not to the disadvantage of the porpoise and is otherwise consistent with the intent of the MMPA." (Slip Opinion, p. 33) Judge Richey delayed the effective date of his Order declaring the regulations, permits, and certificates of inclusion void, until 31 May 1976 to provide time for its implementation.

The National Marine Fisheries Service and representatives of the tuna industry appealed the Order of the District Court and requested an additional stay of the effective date of the Order pending disposition of the appeal. This request was denied by the District Court but the U.S. Court of Appeals for the District of Columbia granted the request until further order after reviewing arguments of the parties. On 6 August 1976, the Court of Appeals affirmed the decision of the District Court, but stayed the effective date of the District Court's Order until 1 January 1977, in recognition of the fact that the immediate impact of the decision would be

disastrous to the commercial fishermen operating under the general permit, and in order to provide an opportunity for the National Marine Fisheries Service to comply with the Order and to continue research efforts already underway. 540 F.2d 1141 (D.C. Cir. 1976)

Establishment of a Quota of 78,000 Porpoises

As part of the request to the Court of Appeals for a stay of the District Court's Order, and in view of the District Court's ruling that the National Marine Fisheries Service had acted improperly in issuing a general permit without limitation at the time of issuance, the Director of the National Marine Fisheries Service, by affidavit submitted to the Court of Appeals on 28 May 1976, stated that the Service would impose a quota for the 1976 fishing season of 78,000 porpoise. By notice published in the Federal Register on 11 June 1976, the Director announced that the Service was initiating efforts to increase the number of scientific observers placed aboard tuna vessels and to maintain the ongoing cooperative gear testing program on commercial vessels during the period in which the stay remains in effect, and amended the regulations governing incidental taking to limit the number of porpoises which could be incidentally killed to 78,000.

Methods for determining when the 78,000 limit would be reached and further setting on porpoise would be prohibited were developed by the National Marine Fisheries Service in consultation with the Commission's Subcommittee on the Tuna-Porpoise Problem. They were published in the Federal Register on 4 October 1976, and observer reports and other information were evaluated with reference to the agreed methods. The rate of kill during the latter months of 1976 increased substantially over that of the first months of the year as the fishery moved offshore, and because fishing on porpoise during the month of September was unusually heavy. On 15 October 1976, the National Marine Fisheries Service published notice in the Federal Register that, based upon the available information and agreed methods, the 78,000 limit would be reached by 19 October. Consistent with the 7-day notice requirement of the methods and regulations, the notice announced that further setting on porpoise after 22 October 1976 would be prohibited, and also that importation of yellowfin tuna caught by foreign flag vessels in association with porpoise would be prohibited. The Commission's letter to the National Marine Fisheries Service of 15 October expressed its concurrence, based upon communication with National Marine Fisheries Service personnel, that the 78,000 limit would be

reached or exceeded in the near future, that further setting on porpoise should be prohibited, and that importation of yellowfin tuna caught in association with porpoise should be banned. The Commission noted that observers presently aboard fishing vessels could continue to gather useful information and recommended that the National Marine Fisheries Service attempt to arrange for their continued presence. In addition, the Commission recommended that research efforts directed toward a solution to the tuna-porpoise problem be permitted to continue.

The prohibition against setting on porpoise after 22 October was immediately challenged in litigation brought by five tunaboat owners against the National Marine Fisheries Service. On 21 October 1976, one day before the ban was to go into effect, Judge William B. Enright of the U.S. District Court for the Southern District of California, issued a Temporary Restraining Order enjoining the National Marine Fisheries Service from implementing the ban until 1 November 1976, pending further consideration of the merits of the challenge. On 2 November 1976, after reviewing the matter, Judge Enright refused to issue a permanent injunction but continued the Temporary Restraining Order in effect to provide time for appeal of his ruling by the tunaboat owners. On 10 November 1976, on appeal, the U.S. Court of Appeals for the Ninth Circuit upheld the District Court's denial of injunctive relief and sustained the legality of the ban. U.S. Supreme Court Justice Rehnquist refused to intervene on 12 November 1976. He refused a second appeal by the boat owners on 15 November 1976 and the prohibition against setting on porpoise went into effect after a delay of some 3 weeks.

Total Porpoise Mortality Caused by U.S. Vessels in 1976

Although all the relevant data are not yet available, the total kill by U.S. vessels in 1976 is estimated to be between 84,000 and 112,500, a level that is in excess of the limit of 78,000 animals which was established for the 1976 fishing season.

The La Jolla Workshop Report

Following Judge Richey's decision holding the National Marine Fisheries Service regulations and general permit void for failure to comply with the requirements of the Act, the Service convened a group of twelve experts, including the Chairman of the Commission, to conduct a workshop on porpoise stock assessment.

The Report of the workshop identified 11 species of porpoise, composed of 21 population stocks, which are involved in the yellowfin tuna fishery. Of these, the populations of offshore spotted dolphins, the eastern spinner, and the white-bellied spinner dolphins are most deeply involved and most significantly affected by the fishery. The estimates of population sizes of these stocks, as updated with the most recent information available, are as follows:

Estimates of 1977 Porpoise Populations (Thousands)

| Species/Stock | Midpoint | Approximate Confidence Limits |
|-----------------------------|----------|-------------------------------|
| Offshore spotted dolphin | 3,674 | 2,398 - 5,008 |
| Eastern spinner dolphin | 1,292 | 793 - 1,846 |
| White-belly spinner dolphin | 549 | 379 - 730 |

The workshop, using various assumptions, also calculated the size of stocks prior to the commencement of significant exploitation in 1959 and, using these estimates, calculated the ratio of present size to original as unexploited population size. These ratios are:

Ratio of 1977 Population Size
to Unexploited Population Size

| Species/Stock | Midpoint Estimate | Range |
|-----------------------------|-------------------|-----------|
| Offshore spotted dolphin | .64 | .49 - .85 |
| Eastern spinner dolphin | .54 | .38 - .80 |
| White-belly spinner dolphin | .76 | .70 - .87 |

In addition, participants at the workshop estimated the net reproductive rate of these populations and, by multiplying the estimated population level by the estimated net reproductive rate, calculated the estimated size of the annual increase which a population might be expected to achieve if it were not subject to reductions from incidental taking or other exploitation. With reference to this calculation, the Report then provided estimates of the expected impact of various levels of taking on the ability of a population to increase each year, and provided evaluations of the impact of various levels of taking, based upon the degree of statistical certainty with which a population would be expected to increase. These and other aspects of the Report were considered in detail in the course of proceedings relating to regulations for the 1977 fishing season, and are discussed below.

Congressional Action

H. R. 13865

The Commission testified in hearings before the Subcommittee on Fisheries and Wildlife Conservation and the Environment on 20 May 1976 concerning the impact of the District Court's decision and amendments to the Act which were being considered by the Subcommittee. The Commission expressed its continuing concerns about the inadequacy of the international program, the uncertain status of affected populations, and other aspects of the problem. It recommended that efforts be made to insure the continued reduction in incidental kill and serious injury, and suggested that progressive reductions in permitted kill, as well as the development of a fee system which would penalize or award benefits on the basis of the performance by individual certificate holders, should be considered for this purpose.

On 26 May 1976 the Subcommittee reported out H.R. 13865, with certain amendments, to the full Committee. No further Congressional action on this or other related bills was taken by the 94th Congress.

Oversight Hearings

Oversight hearings were held by the House Subcommittee on Fisheries and Wildlife Conservation and the Environment in September 1976 as part of its continuing review of the status of the tuna-porpoise problem. The Commission testified before the Subcommittee on 29 September concerning the La Jolla Report and the effort to resolve the tuna-porpoise problem.

The Commission expressed the view that the uncertainties relating to data on populations characterize many areas of wildlife management and that decisions designed to conserve porpoise populations must be made in consideration of the uncertainties and risks. The Commission stated that the basic standard of the Act -- the concept of optimum sustainable population -- was both workable and desirable and that the increasing recognition of the validity of the concept and the efforts to gather the requisite data and develop the appropriate models were both important and promising. In the interim, the Commission noted the discussion paper on the concept of optimum sustainable populations which was prepared by the Commission and emphasized that biological considerations are paramount in the determination of optimum levels

under the Act. With respect to the implementation of the concept, the Commission expressed its view that the optimum sustainable population was within a range of population levels with the upper limit being the average carrying capacity of the habitat and the lower limit at the maximum productivity level. The Commission stressed that the lower level of this range must, however, be approached with great caution and that it believed that the population level resulting in maximum productivity for some species was significantly closer to the unexploited level than had been traditionally assumed.

The Commission stated its determination that the lower limit of the optimum range is at least 60 percent of the unexploited population. Based upon this determination, the Commission testified that the offshore spotted dolphin population and the white-belly spinner dolphin population were within the range of optimum. However, the Commission indicated that the eastern spinner population, at 54 percent of original size, was almost certainly below its optimum level.

On other aspects of the problem, the Commission restated its concerns about foreign fishing effort, the need to develop effective cooperative mechanisms through the IATTC and bilateral agreements, and its continuing recommendation that the embargo provisions of the Act be implemented if other nations do not cooperate with U.S. efforts to reduce porpoise mortality. The Commission also noted that the critical management questions suggested by the information in the La Jolla Report require more complete and precise monitoring of total kill. It suggested that specific legislative authority to conduct a comprehensive observer-enforcement program may be necessary and that additional funding was needed. Finally, the Commission restated its view that certain additional research efforts on levels of kill, population size, reproductive potentials, tuna-porpoise behavior, and fishing practices or equipment were essential. The need for a dedicated vessel from which to conduct a variety of research programs and a comprehensive aerial survey of affected populations were identified as especially important. The Commission again expressed its opinion that Saltonstall-Kennedy funds should be applied to research efforts related to this problem.

In addition to the testimony described above, Dr. Kenneth S. Norris also testified before the Subcommittee on behalf of the Commission concerning the design of and preparation for the behavioral research cruise and on the need for a dedicated vessel in 1977 from which to carry out behavioral and other research efforts.

The 1977 Fishing Season

Proposed Regulations

Proposed regulations to replace those voided by the order of the U.S. District Court for the District of Columbia were published in the Federal Register on 14 October 1976. The proposed regulations: required the use of a 1 1/4 inch mesh porpoise safety panel as well as certain other gear and techniques; amended the requirements for importing tuna and tuna products taken in association with marine mammals; authorized the placement of observers aboard any U.S. tuna purse seiner; and imposed limits on the number of animals from each porpoise stock or species that might be taken in the course of commercial fishing so as to ensure that the permitted take would not be to the disadvantage of those species or stocks. No taking of eastern spinner dolphins would be permitted under the proposed regulations, based upon the determination that the eastern spinner population is "depleted" under the Act and hence any taking, except for scientific research purposes, would be prohibited. A total quota of 29,920 animals was proposed, broken down by stocks or species. This determination of the maximum allowable U.S. kill was calculated by subtracting the estimated foreign kill from the estimated sustainable kill of each stock or species. The statistically most conservative permissible level of kill was proposed in each case so as to ensure that each affected population would increase with virtual certainty.

The Commission participated in formal hearings on the proposed regulations in Washington, D.C. from 15 - 19 November and 1 - 4 December and in San Diego, California on 22, 23, 24, and 26 November 1976. The Commission submitted briefs to the presiding administrative law judge on 17 and 21 December. The administrative law judge is scheduled to transmit his recommended decision to the Director of the National Marine Fisheries Service on or about 17 January 1977.

The Commission presented testimony and evidence that the best scientific evidence available indicates 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, is below the optimum range and is 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 Commission will review the decision of the administrative law judge when it becomes available and transmit such comments and recommendations to the Director of the National Marine Fisheries Service as may be warranted.

Proposed Interim Regime

As noted above, the order of the U.S. Court of Appeals for the District of Columbia stayed the effective date of the District Court's order until 1 January 1977 to provide time for the National Marine Fisheries Service to comply with the requirements of the Act. Despite the fact that the formal hearings on the proposed regulations were conducted pursuant to expedited procedures, the formal proceeding under Section 102 and the permit process under Section 104 of the Act will not be concluded by 1 January 1977 when the 1977 fishing season will commence.

In an attempt to bridge the gap between the start of the fishing season and the conclusion of the processes under the Act, the National Marine Fisheries Service proposed to adopt an interim regime which was published for comment in the Federal Register on 11 November 1976. The proposed interim regime imposed the same numerical limits on the taking of porpoise as the proposed regulations which are the subject of the formal proceedings. The interim regime was proposed as amendments to the regulations governing the 1976 fishing season and were proposed to apply to fishing operations until the Director adopted new regulations following receipt of the decision of the administrative law judge or until 30 April 1977, whichever came first.

The Commission wrote the National Marine Fisheries Service on 13 December confirming earlier consultation concerning the status of affected porpoise populations. The Commission stated that, pending completion of its review of the record evidence addressed in the formal proceeding, it agreed with the statements in the Federal Register notice that the proposed limitations on take of each stock or species would ensure that the allowed take would not be to the disadvantage of the species or stock and would allow the stocks to increase in size with virtual certainty.

In order to implement the proposed regime, the National Marine Fisheries Service requested that the U.S. District Court for the District of Columbia stay the effect of its order until 30 April 1977 or until the final regulations are implemented, and thereby approve implementation of the proposed interim regime. This and a modified request were denied by Judge Richey on 23 and 29 December 1976, respectively. Judge Richey concluded that an interim regime would short-circuit and prejudice the formal proceedings which are required by Section 103 of the Act and that those formal proceedings must be completed before regulations and permits could be issued to allow fishing on porpoise in 1977. On 30 December 1976 the U.S. Court of Appeals for the District of Columbia denied motions for emergency relief and reversal of Judge Richey's order. The Circuit Court agreed to hear arguments on the merits on an expedited basis but, pending that further consideration, the U.S. tuna fleet was prohibited from fishing on porpoise until the formal processes under Sections 103 and 104 were completed. Further proceedings in cases brought by tunaboat owners before the U.S. District Court for the Southern District of California are scheduled for late January 1977.

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 foreign vessels are estimated to have a rate of kill which is approximately 2.5 times higher than that of U.S. vessels.

As noted in the Commission's 1975 Annual Report, the Commission expressed concern about the need to achieve international cooperation in testimony before the Subcommittee on Fisheries and Wildlife Conservation and the Environment, House Merchant Marine and Fisheries Committee in the fall of 1975. It 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 on 9 December 1975 that the Secretary of State develop an international observer exchange program to determine the consistency of foreign fishing operations with the U.S. standards.

The Commission received the Department of State's response to this recommendation on 22 January 1976, noting that the Department of State had queried the appropriate nations about an observer program in July 1975, and that "little enthusiasm was expressed by the foreign delegations for such a program and no commitments were made." The letter indicated that the Department "will continue to explore the possibilities." The Commission wrote the Department again, on 14 April 1976, noting that immediate adoption by foreign nations of fishing gear and practices similar to those required by the U.S. would serve to reduce porpoise mortality and serious injury. The Commission further stated that in the absence of any evidence that foreign flag vessels fishing on porpoise have developed equally or more effective gear and methods, it considered the refusal of other nations to require use of similar gear and practices to be inadequate and questioned the basis for accepting certifications from such nations, as required by Section 101(a)(2) of the Act, that their fish products are caught in a manner consistent with U.S. standards. The Commission stated that only direct observation of foreign fishing practices could provide assurance of their consistency with those of the United States. It recommended that the Department of State immediately request an opportunity to place observers aboard flag vessels of those nations that fish on porpoise, and undertake efforts to develop the bilateral or multi-lateral agreements necessary to implement such a program. As an example, it cited the international observer program established pursuant to the International Whaling Convention. The Commission further recommended that the Department advise those nations that refusal of such requests and/or failure to cooperate in developing agreements would be deemed evidence that the flag vessels of those nations are not fishing in a manner which is consistent with U.S. standards. It also recommended that those nations be advised that their fish products would be embargoed pursuant to Sections 101(a)(2) and 102(c)(3) of the Act.

On 27 May 1976 the Commission received the Department's reply. It noted that it was necessary for the Department of State to consult with the Department of Commerce before finalizing a response to these recommendations. The Department's subsequent response of 17 June 1976 expressed agreement that direct observation of foreign fishing activities was the best way to determine the exact amount of incidental porpoise catch. The Department suggested, however, that an international data exchange program would be preferable to an observer exchange program for several reasons, including the Department's belief that the United States must have the

observers on hand for such an effort before formally asking to place them on foreign flag fishing vessels or entering into an international agreement establishing such a program. With respect to the Commission's recommendation that the refusal of foreign governments to cooperate in establishing an observer program be taken as evidence requiring an embargo of fish products from those nations, the Department indicated that it did not have responsibility for developing or implementing regulations and that it might well have reservations with respect to those regulations, should they be proposed. Finally, the Department indicated its belief that progress had been made, and that continued efforts at the Inter-American Tropical Tuna Commission and through diplomatic channels would be successful in ensuring that foreign fleets fish in a manner which is consistent with U.S. standards.

The Commission responded by letter of 8 July 1976, indicating that information on the extent and manner of incidental take of marine mammals in the course of foreign fishing operations continued to be essential. The Commission requested further explanation of why efforts to develop a mechanism for gathering such information should be postponed. In addition, the Commission expressed concern about the Department's belief that it was necessary to have qualified observers on hand before entering into discussions of a mutual observer program, and suggested that, contrary to the Department's position, such discussions and agreements were a necessary prerequisite to any domestic efforts to seek funds for the salary and support of such observers. The Commission noted that it had received no information which would suggest that progress had been made by foreign nations in reducing the number of porpoise killed and injured incidental to commercial yellowfin tuna fishing operations, and requested any information which was available to the Department which would substantiate its claim that such progress had been made. The Commission also requested detailed information concerning the efforts contemplated by the Department of State and the basis for its confidence that efforts at the Inter-American Tropical Tuna Commission and diplomatic channels would be successful without benefit of an observer program. In this connection, the Commission reaffirmed its position that a mutual observer program was essential, and that there was no reason to delay negotiating the conclusion of one or more agreements with foreign nations fishing on porpoise.

The Department of State responded to the Commission's recommendations by letter on 7 October 1976. It indicated that the present short-term objective of the Department was

to arrange for a program allowing scientific observers on foreign tuna boats to conduct porpoise gear research and to make recommendations regarding gear and fishing techniques designed to reduce porpoise mortality. The Department indicated that it would propose a cooperative observer program to provide for scientists to be placed on the vessels from each of the Inter-American Tropical Tuna Commission member countries at the meeting of the Commission, but expressed the judgment that foreign nations would not agree to a proposal that U.S. observers be placed aboard foreign fishing vessels for the purpose of determining whether or not foreign fishing practices were consistent with U.S. standards. The Commission responded on 10 December 1976, indicating that it remained convinced that bilateral negotiations to establish an observer program and to gain acceptance and adoption of porpoise sparing techniques were essential. The Commission noted that the need for such bilateral negotiations had become even more pressing and that, while efforts to develop a multi-lateral program at the meeting of the IATTC should certainly be pursued, those efforts should complement, not substitute for, bilateral negotiations. The Commission noted that representatives of several foreign countries had expressed a willingness to engage in discussions and therefore renewed its recommendation that the Department initiate such discussions and negotiations immediately.

Efforts by the U.S. delegation to the 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.

Research and Cooperative Efforts

On 2 January 1976, in recognition of the desirability of close cooperation and coordination of research and development efforts to reduce incidental porpoise mortality and serious injury, the Commission, the National Marine Fisheries Service, and representatives of the tuna industry entered into

a Cooperative Agreement to exchange and evaluate relevant data and to discuss, develop, and coordinate current and future research and development projects. Shortly thereafter, the tuna industry established the Porpoise Rescue Foundation to develop, implement, and oversee the research and development efforts of the various segments of the industry. Certain aspects of the cooperative research and development effort are discussed below.

Gear Testing

The results of tests of the "Bold Contender" and the "eastern Pacific" gear system in late 1975 were encouraging. The systems, which make use of a porpoise apron and chute and a larger Medina panel of 1 1/4 inch mesh, have subsequently proven effective in reducing incidental porpoise mortality and use of the 1 1/4 inch mesh is required by the proposed regulations for 1977. The results of research and testing of this and other gear and techniques are discussed in the National Marine Fisheries Service's "Progress of Research on Porpoise Mortality Incidental to Tuna Purse Seine Fishing for Fiscal Year 1976", September 1976. Among other things, the report indicates that performance by U.S. vessels improved 21 percent in 1976 when compared to similar fishing conditions in previous years.

A Commission-supported research project was conducted to develop and test the use of solid polyvinyl panels in a portion of the purse seine net to reduce entrapment of porpoise in the mesh and thereby further reduce incidental mortality and serious injury. By letter of 25 May 1976, the Commission advised the National Marine Fisheries Service that sufficient work had been completed to warrant evaluation of the progress by the Service. The Commission recommended that a National Marine Fisheries Service gear technician and any other appropriate persons arrange to evaluate the system so that appropriate modifications and further experimentation could proceed. On 8 November 1976, the National Marine Fisheries Service sent its evaluation of the system to the Commission and consideration is being given by the Commission to recommending inclusion of tests on this system in the 1977 cruises.

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.

On 13 August 1976, following consultative meetings with National Marine Fisheries Service personnel and other interested persons, the Commission wrote the National Marine Fisheries Service noting that it is exceedingly difficult to assess either the present status or future trends of the affected porpoise populations without more reliable census data. The Commission offered to make the expertise of members of its Committee of Scientific Advisors on Marine Mammals available to the Service in developing plans for an aerial survey and recommended: that an expanded aerial survey be conducted early in 1977; that aerial survey efforts be granted higher priority than tagging efforts which might be competing for available funds; that the Service make its plans for studies of school size and school density available for review and comment; and that the Service work with the Commission and its Committee in developing the sample design and methodology for the aerial census. By letter of 12 October 1976 the Commission recommended to the Service that the meeting to be held by the Service to develop plans for the survey take place no later than November rather than early in December, as proposed, and that certain persons with expertise in aerial census efforts be invited to attend the meeting. The meeting was held on 10 and 11 November and was attended by representatives of the Commission and Committee. Detailed comments and suggestions have been transmitted to National Marine Fisheries Service personnel, and the Commission is continuing to cooperate actively in developing plans for the forthcoming 1977 census.

Saltonstall-Kennedy Funds

In recognition of the pressing need for funds to be devoted to research relating to the tuna-porpoise problem, the Commission recommended on 18 November 1975 that the National Marine Fisheries Service apply Saltonstall-Kennedy funds to research efforts designed to develop a solution of the tuna-porpoise problem. These funds are available under 15 USC 713(c-3) to conduct any biological, technological, or other research pertaining to American fisheries.

The National Marine Fisheries Service responded to the Commission's recommendation by letter of 24 November 1975, indicating that the Service did not believe such funds were legally available for research related to the tuna-porpoise problem. On 27 July 1976, the Commission wrote the National Marine Fisheries Service noting that the need for additional funding for support of tuna-porpoise research continued and, if anything, had grown more acute. The Commission indicated

that it had re-examined the earlier response of the Service and expressed its disagreement with the determination that Saltonstall-Kennedy funds were not legally available for this purpose. The Commission suggested that the applicable law and administrative practice, as discussed in a memorandum which was enclosed, supported application of Saltonstall-Kennedy funds to biological, technological, and other research pertaining to this crucial issue affecting the American tuna fishery, and recommended that the National Marine Fisheries Service reconsider its decision.

The National Marine Fisheries Service responded by letter of 7 September 1976 to the effect that the Service must again conclude that Saltonstall-Kennedy funds are not available for the conduct of research relating to the tuna-porpoise problem. The Commission responded on 14 September 1976 with the recommendation that the National Marine Fisheries Service seek a formal ruling on the issue from the General Accounting Office, and is now awaiting the Service's response.

Behavioral Research Cruise, 1976

Efforts to investigate and capitalize on certain behavioral characteristics of tuna and porpoise, as a means of developing techniques to separate the two and release the porpoises unharmed, have received insufficient attention and lagged badly behind other research and development efforts. The Commission first recommended to the National Marine Fisheries Service that such efforts be undertaken in July 1974 and repeated the recommendation in testimony before Congress in August 1974, in testimony and recommendations relating to proposed regulations in December 1974, and again in a letter to the National Marine Fisheries Service in August 1975. Ultimately, when it became apparent that such efforts would not be undertaken promptly, the Commission convened a workshop of experts on 8 and 9 December 1975 to promote such an undertaking.

In response to the report and recommendations of the workshop, a cooperative effort was initiated by a consortium of the Commission, the National Marine Fisheries Service, the National Science Foundation, and the Porpoise Rescue Foundation. The Elizabeth C.J., a tuna purse seine vessel chartered by the National Marine Fisheries Service was made available for cooperative behavioral, gear, and acoustic studies by investigators under contract with the Commission, and the National Science Foundation, as well as National Marine Fisheries Service and Porpoise Rescue Foundation personnel. The National

Oceanic and Atmospheric Administration research vessel David Starr Jordan was also employed for the cruise which was conducted in October and November 1976.

Aerial, shipboard, and underwater films were utilized to record tuna-porpoise behavior before, during, and after sets. These films and related data are now being analyzed, and the preliminary assessment of the results is encouraging. 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 some moments later 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. This and other aspects of the research cruise will be carefully evaluated and reviewed at a workshop early in 1977 to develop plans for further efforts.

Dedicated Research Vessel

As in the case of the need for behavioral research efforts, the Commission has repeatedly stressed the need for a tuna purse seine vessel with experienced crew to be devoted exclusively to research efforts related to the tuna-porpoise problem. As a part of the cooperative efforts under the Cooperative Agreement with the tuna industry, the Commission wrote the Tuna Research Foundation on 18 October 1976, noting that efforts had been repeatedly delayed or precluded because of the lack of a dedicated research vessel from which to conduct research and testing, and suggesting a tentative research plan for consideration by the industry. At great expense which it has agreed to absorb, representatives of the industry have pledged in the course of public hearings to make such a dedicated vessel and crew available for cooperative research efforts starting in 1977. Several meetings between representatives of the Commission, National Marine Fisheries Service, and the Porpoise Rescue Foundation have led to development of plans for important efforts to begin early in 1977.

General Comments

The year 1976 appears to have been one of progress in coming to grips with the tuna-porpoise problem. Many of the

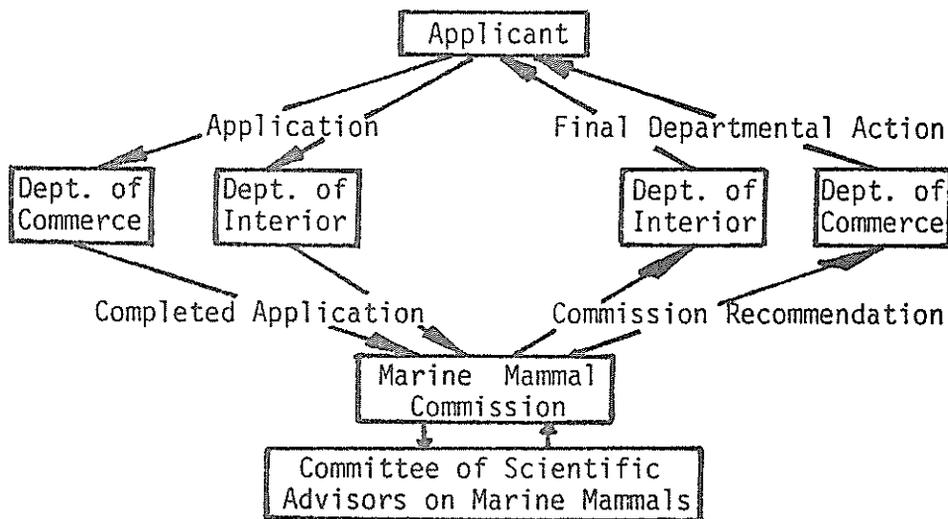
Commission's recommendations, first made in July 1974, were adopted. For the first time, a spirit of cooperation began to exist among the National Marine Fisheries Service, the tuna industry, the Department of State, and the Marine Mammal Commission. If efforts continue to be constructive and cooperative, the Commission believes that the goal of the Act may be met, and this difficult problem solved.

CHAPTER V

THE PERMIT APPLICATION REVIEW PROCESS

A central feature of the Marine Mammal Protection Act is its provision for a moratorium on the taking or importing of marine mammals or marine mammal products except by certain Indians, Aleuts, and Eskimos for subsistence or native handi-crafts 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.

A diagram of the permit application review process follows:



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 earlier Annual Reports, the Commission pointed to serious problems with the process during its first year of operation, as well as the significant improvements achieved during the second. Although performance improved during 1976, there was not a continued reduction in the overall time required for applicants to receive permits or notices of denial. Sixty-five percent of all applications processed by the Departments during 1976 resulted in permit issuance or denial within 120 days from the date of application receipt, and 30 percent within 90 days. Appendix C presents a comparison of 1976 Department and Commission processing figures with those for 1974 and 1975.

The Commission believes that restructured and simplified procedures, discussed below, will improve the permit process.

Modification of the Permit Process

Experience with administrative procedure and regulations governing the issuance of permits has shown a need for regulatory and procedural changes in order to more effectively insure that marine mammal populations are not disadvantaged by any taking while meeting the legitimate needs of persons involved in scientific research and public display activities.

The Commission carried out an intensive review of the entire permit system during the latter part of 1976. As a result, an interagency meeting will be convened by the Commission on 28 January 1977 to develop mechanisms to deal with existing problems.

Some of the weaknesses which the Commission believes can be adequately addressed through procedural and/or regulatory changes are the following:

- 1) there is confusion and inflexibility in application and permit procedures. The present process fails to accommodate "takings" which vary widely in impact. The exchange of research specimens from dead animals has little impact, and should not be treated in the same way as live capture, or maintenance for public display or research;

2) there is no clear, standard application form. Applicants are often confused by the requirements of the regulations; this results in the submission of inadequate applications and consequent delays. Concise, standard forms acceptable to both agencies, as well as a descriptive brochure in plain English, should be developed;

3) there remains ambiguity as to what types of activities require permits. Confusion exists among researchers as to what activities may be conducted without a permit. Many activities, if conducted carefully, may cause little or no disturbance to animals, but may technically constitute harassment;

4) the disposition of live stranded marine mammals is a chronic problem. For example, current agency practices have varied as to whether it is or should be possible to obtain a permit to retain salvaged marine mammals. Also, further thought needs to be given to the disposition of stranded animals that are saved. Depending upon the time they are away from their natural environment, they may have little chance of surviving if returned. Hence, consideration should be given to their use for approved scientific research or public display purposes, thereby reducing the drain on healthy animals from the wild;

5) there are inconsistencies in the permit processes followed by the two agencies. Standard criteria and procedures need to be developed for the determination of the sufficiency of applications, formal publication of the application summary, the terms and conditions of issued permits, and modification of existing permits;

6) there is confusion as to the geographical extent of the Act's coverage with respect to the activities of United States citizens. The situation is compounded by the fact that the two agencies have different views on the issue; and

7) an agreed permit process for exporting marine mammals to foreign display facilities must be formulated. It should recognize the need for reliable information on the foreign facilities, and evidence that the foreign government is both capable and willing to enforce the terms of the permit.

CHAPTER VI

MARINE MAMMAL MAINTENANCE STANDARDS AND GUIDELINES

Section 104(c) of the Act requires that permits specify the methods of capture, supervision, care, and transportation of any live marine mammal during and after taking or importation.

The Commission recognized, at its first meeting in 1974, the need to develop uniform standards to measure the adequacy of holding facilities and practices. It established a special subcommittee of the Committee of Scientific Advisors to develop standards. Information and comments on the subcommittee's draft proposals were solicited from specialists in the United States and abroad.

Based upon information on the biological needs of captive animals, the Commission's recommended Marine Mammal Maintenance Standards and Guidelines were transmitted to the Departments of Agriculture, Commerce, and the Interior on 20 October 1975. The Commission recommended that they be adopted and that appropriate provisions and arrangements be developed for their uniform administration and application, including inspection and enforcement. The Standards and Guidelines were designed to ensure the welfare of captive marine mammals in compliance with the provisions of the Marine Mammal Protection Act and the Federal Laboratory Animal Welfare Act. They will improve the health of captive marine mammals, ensure humane treatment, and reduce the need to remove marine mammals from wild populations.

The Commission has been disappointed during 1976, despite repeated assurances to the contrary, that the Standards and Guidelines have not yet been published for public review and comment. The Department of Agriculture has the responsibility for promulgating necessary regulations to implement the standards but has not yet done so. Its inaction is a disservice to captive animals, to the public display industry, and to the research community. If the Department of Agriculture has not published the Standards and Guidelines by early February 1977, the Commission will print and distribute its original recommendations. Although the recommendations will lack regulatory stature, they will at least serve to provide those involved in the public display industry and the research community comprehensive information on the maintenance of captive marine mammals.

CHAPTER VII

REQUESTS FOR WAIVERS OF THE MORATORIUM

Under the authority granted in Section 101(a)(3)(A) of the Act, the Secretaries of Commerce and Interior, in consultation with the Commission, may waive the moratorium on the taking and importing of marine mammals or marine mammal products and promulgate regulations if such waiver is determined to be consistent with the goals and policies of the Act. The following requests for waivers were under consideration by the Commission during 1976.

1. Application of the State of Alaska for Waiver and Return of Management of Certain Marine Mammal Populations

As noted in the Commission's previous Annual Reports, the State of Alaska filed an application on 31 January 1973 with the Secretaries of Commerce and the Interior to resume management of certain marine mammal populations pursuant to Section 109(a)(2) of the Act. The proposed State management program involved the taking of certain marine mammals and therefore entailed a waiver of the moratorium pursuant to Section 101(a)(3)(A).

Formal hearings on the proposed waivers, the proposed Federal regulations, and the proposed State laws and regulations were conducted in Nome, Bethel, and Anchorage, Alaska in June and July 1976, and in Washington, D. C. in October 1976. The Commission participated in the formal hearings and presented testimony in support of the proposed waivers and return of management, subject to certain modifications of the proposals. The Commission recommended that the extent of the waivers of the moratorium on polar bears, beluga whales, harbor seals, Steller sea lions, and Larga seals be limited to more conservative levels than those proposed, in light of the uncertainties in the relevant data. The Commission noted that these uncertainties could and should be resolved. It recommended that the more limited waivers be granted subject to the condition that a workshop of marine mammal scientists be convened to review and analyze the available data and assess research needs relating to the subject populations. The Commission hopes to support and participate in such a workshop in 1977.

The Commission will submit initial and reply briefs to the presiding administrative law judge in January and February 1977 in support of its recommendations and after review of the record evidence.

2. Request of the State of California for Return of Management of Sea Otters

The State of California submitted an application to the Department of the Interior in January 1976 for a waiver of the moratorium and to resume management of the sea otters within the State's jurisdiction. After consultation with the Department and the Commission, the State determined that its program goals could be achieved under the authority of a scientific research permit. So, in June 1976, it withdrew its application for a waiver and submitted an application for a permit. The State requested that its application to resume management of sea otters be considered without any request for a waiver of the moratorium. Such a request, under Section 109 of the Act, requires a determination by the Secretary that State laws and regulations governing management are consistent with the Act.

After reviewing all of the materials submitted by the State in support of both requests -- to conduct scientific research and to resume management of sea otters -- the Commission met with Department of the Interior staff members in September 1976 and advised them that substantial additional information and clarification were necessary before the State's request could be evaluated with reference to the requirements of the Act. By letter of 17 December 1976 to the Department, the Commission again identified the need for additional information and clarification of certain matters, and noted that a significant number of problems appear to result from a lack of familiarity with the provisions of the Act and implementing regulations. The Commission again recommended that the State be advised of these problems and be invited to participate in a meeting with appropriate scientific and legal personnel of the Department and the Commission. The Commission hopes to meet with appropriate personnel of the Department and State of California early in 1977 to identify and resolve these problems.

CHAPTER VIII

ENDANGERED AND THREATENED SPECIES

In accordance with its responsibilities to conduct continuing reviews of the status of marine mammal populations for purposes of recommending appropriate changes in the Endangered Species List, the Commission has taken steps designed to afford greater protection to three marine mammal species.

1. 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" pursuant to Section 4 of the Endangered Species Act of 1973. A review of new data collected on a survey in 1976 convinced the Commission that the situation was even graver than had been supposed. It again recommended to the National Marine Fisheries Service that immediate action be taken.

Noting the Act's prerequisites for the designation of a species as depleted and its belief that the status of the Hawaiian monk seal was such that such designation would be appropriate, the National Marine Fisheries Service published its notice of proposed rulemaking in June and, in July, formally designated the Hawaiian monk seal as a depleted species. This action banned the taking of the species for purposes 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 such factors as habitat destruction, overutilization, disease, predation, and the inadequacy of existing regulatory mechanisms as those which supported the designation. On 23 November 1976, the species was formally designated as endangered.

2. Gulf of California harbor porpoise (Phocoena sinus)

The status of the Gulf of California harbor porpoise, an animal which breeds only in Mexican waters, has long been of concern to the Commission. In its major review of threatened and endangered species, the Commission's Committee

of Scientific Advisors recommended that efforts be undertaken to secure the designation of Phocoena sinus as a threatened species. Because the Commission felt that additional data would be valuable, it supported Mexican scientists in a survey designed to gather the needed information. The survey has been completed, and a number of the Commission's Committee of Scientific Advisors will review the results with Mexican scientists in February 1977. No action will be taken until after that meeting.

3. California sea otter (Enhydra lutris)

In 1976, the Commission reviewed information on the status of the California sea otters with particular reference to the definitions of "endangered" and "threatened" in the Endangered Species Act of 1973. The Commission concluded that, although the population was not endangered, it was threatened. It therefore recommended to the Department of the Interior in June that this population be so designated.

The Commission noted then that, although California sea otters have increased in numbers and range over the past 50 years, they currently occupy only a small portion of their former range and, further, a major oil spill would likely render the population endangered. The Commission therefore recommended its designation as a "threatened" species. The Commission further recommended that sea otters be reintroduced into two or more locations previously occupied by the animals, and that the possibility of establishing them in Mexico be explored. In this regard, the Commission made known its view that animals captured for any such translocation should come from the center of the current distribution to allow expansion of both the southern and northern edges of the range.

To date, the Department of the Interior has made no official determination with respect to the status of California sea otters.

CHAPTER IX

PROTECTED AREAS AND CRITICAL HABITATS

Congress, in enacting the Marine Mammal Protection Act, recognized the importance of protecting habitats. The Act states that "in particular, efforts should be made to protect rookeries, mating grounds, and areas of similar significance for each species of marine mammal from the adverse impact of man's actions."

A subcommittee of the Committee of Scientific Advisors was established in 1974 to identify geographic areas which warrant special protection because of their importance to marine mammal species and to evaluate available mechanisms to secure such protection. To aid the subcommittee in its work, the Commission undertook an analysis of available measures for marine mammal habitat protection.

During 1976, the Commission made three recommendations on habitat preservation.

1. Hawaiian monk seal habitat

Commission recommendations during 1975 concerning the Hawaiian monk seal specifically addressed the need for protective measures for monk seal habitat areas, including the designation of certain areas as critical habitat pursuant to the Endangered Species Act. The Commission's 1976 review of more recent survey data led it to conclude that the status of the species was even graver than previously indicated, and it therefore recommended to the National Marine Fisheries Service in December 1976 that all areas used by the monk seal as breeding or pupping grounds, as well as adjacent waters, be designated critical habitat for the species. In addition, the Commission recommended that: islands and atolls within the Hawaiian Islands National Wildlife Refuge which are breeding and pupping areas be closed to all human use, including commercial and sport fishing; the beaches of Eastern Island be cleared of antenna towers and placed off limits; U. S. Coast Guard personnel at French Frigate Shoals be confined to Tern Island; environmental studies be conducted at Pearl and Hermes Reef to determine possible causes for recent population decline; and a study program be instituted at once on one of the apparently healthy island populations, such as Laysan.

2. San Miguel Island

The Commission reviewed the National Park Service's Report on San Miguel: Its Resources and transmitted comments and recommendations in September. While noting that the report was a helpful base from which to formulate a final management plan for the Island, the Commission was concerned that too little attention had been given to the unique value of the Island. Nowhere else in the world is an area the size of San Miguel used by as many as six species of seals. The Commission also suggested that the report would benefit from a more careful evaluation of the potential impacts of proposed oil and gas developments. The Commission recommended to the Service that a scientific advisory body be established to evaluate proposed action for the recovery or reintroduction of rare, locally extinct plants and animals. It expressed interest in reviewing a final management plan for San Miguel when it becomes available.

3. Point Reyes National Seashore

The Commission reviewed and transmitted comments in September on the National Park Service's Preliminary Natural Resource Management Plan and Environmental Assessment: Point Reyes National Seashore. The Commission expressed concern about the Plan's lack of emphasis on the marine ecosystem and marine mammal populations of the area. The Commission suggested that these be taken into account, and that consideration be given to the adverse impacts of visitors to marine beach zones. It recommended that total protection be afforded to certain areas.

CHAPTER X

OUTER CONTINENTAL SHELF EXPLORATION AND EXPLOITATION

Activities associated with exploration for, and recovery of, oil and gas from the outer continental shelf can cause marine mammals to abandon breeding, resting, or feeding areas. They can adversely affect organisms which serve as food for marine mammals, thereby reducing the carrying capacity of habitats. They can increase mortality due to pollution and boat collisions. Pursuant to the Act, and in consultation with its Committee of Scientific Advisors, the Commission has reviewed plans for oil and gas leasing in several areas and has made recommendations to the Bureau of Land Management identifying potential hazards and emphasizing the need for protective measures.

Lower Cook Inlet, Alaska

The Commission reviewed the Draft Environmental Impact Statement for the Proposed Oil and Gas Lease Sale in the Lower Cook Inlet and determined that knowledge of marine mammals in the area is insufficient to either predict or to assess the effects of development. The Commission therefore recommended, by letter of 17 September 1976, that the sale be delayed until data on marine mammal food requirements, trophic relationships, location of feeding areas, and population parameters are at hand. The Commission recommended that additional studies be undertaken to identify critical habitat requirements of marine mammals in the area, and that an ongoing study of the physiological effects of oil on pinnipeds (primarily fur seals) be expanded to include sea otters, cetaceans, and harbor seals.

Northern Gulf of Alaska

In its comments of 12 April 1976 on plans for Sale No. 39 in the Northern Gulf of Alaska, the Commission concurred with a previous decision to eliminate sixteen tracts from the sale so as to assure greater protection for certain marine mammal populations. The Commission noted, however, that marine mammal concentrations, especially sea otters, Steller sea lions, and harbor seals, around Kayak Island and Controller Bay remain vulnerable to spills in tracts immediately to the east. The Commission recommended the elimination of 37 additional tracts from the proposed lease sale.

Southern California Outer Continental Shelf

The Channel Islands and their waters support one of the world's richest assemblages of marine mammals. San Miguel Island is used as a haulout and/or pupping site for six species of pinnipeds. More than twenty species of cetaceans are residents or transients in the California Bight.

To insure the protection of the Channel Islands, the Commission recommended by letter of 8 September 1976 that neither exploitation nor additional exploration be permitted until baseline studies now underway have been completed, and the data have been assessed.

Gulf of Mexico Outer Continental Shelf

The Commission reviewed the Draft Environmental Impact Statement for the proposed OCS Sale No. 47, and transmitted detailed comments and recommendations to the Bureau of Land Management by letter of 28 December 1976. The Commission concluded that there is not enough information on the marine mammals in the Gulf to predict the impacts of the proposed action. It recommended that the sale be delayed until more data are available. The Commission further recommended that the Bureau of Land Management establish baseline data on marine mammals necessary for immediate decision-making and long-term monitoring.

North Atlantic Outer Continental Shelf

The Commission reviewed plans for OCS Sale No. 42 and concluded that knowledge of the abundance, movements, and life histories of the marine mammals of Georges Bank is inadequate as a base for predicting the potential impact of oil and gas development. The Commission therefore recommended by letter of 6 December 1976 that the proposed sale be delayed until sufficient data become available. The Commission provided detailed comments on potential adverse impacts on marine mammals in the Georges Bank area, formulated a research program designed to begin to provide the data base needed for immediate decision-making and long-term monitoring, and recommended that the program be implemented as soon as possible. The Commission further recommended that the Bureau of Land Management undertake laboratory studies to determine the effects on marine mammals of contact with, ingestion of, and inhalation of oil.

CHAPTER XI
COASTAL ZONE MANAGEMENT

In response to an increasing national concern for the protection of U. S. coastal resources, Congress passed the Coastal Zone Management Act to encourage the coastal states to engage in prudent coastal zone resource management. The Act authorizes the granting of Federal funds to those states which prepare and administer coastal zone management programs that meet specified Federal criteria. It also provides, for Federal agencies having interests in the coast, the opportunity to participate in the development of state management programs.

To insure that marine mammals are considered in the development of coastal zone management plans, the Commission sponsored a study of the relationship between the Marine Mammal Protection Act and the Coastal Zone Management Act. A report is expected in early 1977. It will include an analysis of the provisions of the Coastal Zone Management Act and implementing regulations as they relate to the protection and conservation of marine mammals.

Approximately twenty species of marine mammals, including six on the Endangered Species List, are substantially dependent upon the resources of the U. S. coastal zone. It is therefore particularly important that coastal zone management plans provide adequate protection for the critical habitats of these species. The Commission study of critical habitats, discussed elsewhere in this Report, will identify those coastal areas of special significance.

Because many marine mammals live along the California coast, the Commission supported a study of the California State Coastal Zone Management Plan -- a comprehensive plan whose development entailed the extremely difficult task of trying to reconcile and address all of the concerns of any number of interest groups. Based, in part, upon the results of this study, the Commission suggested that the Plan, as it pertains to marine mammals, be strengthened. The Marine Mammal Commission also offered to provide the California Coastal Commission funds to convene an advisory group to study the specific inclusion of marine mammal protection in the State's management program.

CHAPTER XII

ENFORCEMENT ACTIVITIES

In 1976, the Commission reviewed enforcement of the Act by the National Marine Fisheries Service (and the States with which it contracts), the Fish and Wildlife Service, the Treasury Department, and the United States Coast Guard. The Commission found it difficult to evaluate enforcement activities because clear statements and records of the structure, policies, strategies, emphasis, success or failure, and needs of the enforcement program were not available. As a result, the evaluation was tentative and incomplete in some respects. Nevertheless, sufficient information was available to provide the basis for a number of recommendations and comments regarding these programs.

The Commission's original approach was to solicit basic information on policies and levels of effort, coupled with in-depth examination of selected enforcement cases. More recently, the Commission has tried to utilize available information to structure data-gathering systems to assess the effectiveness of enforcement programs. The National Marine Fisheries Service and Fish and Wildlife Service programs have evolved through ever-broadening experience. In several areas, substantial progress has been made.

Based upon its review, the Commission will make recommendations early in 1977 to further improve enforcement. Among the basic recommendations will be that the National Marine Fisheries Service and Fish and Wildlife Service undertake cooperatively to:

- (1) develop, articulate, disseminate, and implement, in cooperation with each other, consistent Federal enforcement policies and strategies, as well as guidelines for State and Federal personnel, with respect to the initiation, investigation, and processing of civil and criminal cases under the Act. Subjects which should be covered include, but are not limited to: (a) methods and sufficiency of documentation of cases for civil or criminal action; (b) emphasis on enforcement efforts where uniformity among the States and Regions is feasible (patrol, investigation, inspection, and monitoring); (c) the territorial limits of the Act's coverage of the activities of U. S. citizens; (d) handling of responses to inquiries from the public as to the legality of proposed actions; and (e) the

advantages of using the Marine Mammal Protection Act, rather than the Endangered Species Act or other laws, to protect marine mammals;

(2) in consultation with enforcement personnel of both agencies, review and compare the provisions of the Marine Mammal Protection Act, Endangered Species Act, and other applicable wildlife statutes and, where advisable, recommend changes in the Marine Mammal Protection Act that will eliminate weaknesses which may now render it less useful than other statutes for protecting marine mammals;

(3) conclude cooperative enforcement agreements with each other, the Customs Service, and the Coast Guard that will not only clarify the roles and responsibilities of each agency (thereby assuring timely and appropriate responses to incidents involving marine mammals) but also minimize wasteful efforts; and

(4) develop and implement a uniform Federal approach toward efficient utilization of State enforcement resources.

CHAPTER XIII

INTERNATIONAL ASPECTS OF MARINE
MAMMAL PROTECTION AND CONSERVATION

Marine mammals inhabit the world ocean. Problems of their conservation and protection are international. The Commission directs a portion of its efforts to the solution of those problems.

Multilateral Cooperation

Antarctic Marine Life

The Commission, in September 1976, 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 strongly believes that priority should be given to living resources, rather than to non-living resources of the Antarctic. In expressing this belief, the Commission emphasized the need to define research needs and priorities, and to implement a research program that will help to maintain the integrity of Antarctic ecosystems.

International Whaling Commission (IWC)

The Marine Mammal Commission consulted with the U.S. Commissioner, Dr. Robert M. White, in the formulation of the U.S. position for the 28th meeting of the IWC (London, June 1976).

Goals of the New Management Procedure, set forth in 1974, were significantly advanced at the 1976 session. The quotas set for whales in all oceans were about 6,000 below those in 1975, and include substantial reductions in the quotas on fin, sei, sperm, and Bryde's whales. Total protection was afforded to southern hemisphere fin whales and to both fin and sei whales in the north Pacific. Blue, humpback, right, and gray whales remain protected from commercial whaling everywhere, under the Convention, although there may be some exploitation of these species by non-member nations.

Although the Commission was encouraged by the achievements of the 1976 IWC meeting, which established the lowest quotas in the history of the IWC, it believes that the whaling activities of non-IWC member nations continue to frustrate productive international efforts to conserve and protect the world's whale populations. While resolutions were adopted to inform these nations that their actions are diminishing the effectiveness of the IWC's conservation program, additional measures are required.

In response to Commission recommendations during 1975, the Department of Commerce agreed that non-member nations should be encouraged to join the IWC and, more important, should be informed that whaling activities inconsistent with the IWC program could subject them to sanctions under the Pelly Amendment to the Fishermen's Protective Act of 1967. The Commission will evaluate the whaling activities of non-member nations early in 1977 and, if appropriate, make recommendations to the Secretary of Commerce concerning a ban on importation of fish products from such nations, pursuant to the Pelly Amendment.

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During 1976, three international agreements (discussed below) for the protection and conservation of marine mammals were presented to the Senate for ratification. Hearings on ratification were held by the Senate Foreign Relations Committee in August. The Commission submitted testimony to the effect that, although each agreement contained provisions not totally satisfactory in terms of the protection of marine mammals, the desirable aspects of the conventions outweighed the weaknesses. The Commission therefore supported ratification of the agreements. All three agreements were ratified by the Senate.

Convention for the Conservation of Antarctic Seals

This convention, concluded in 1972, provides complete protection for three species of Antarctic seals and sets quotas for the remaining three. The Commission felt that the absence of inspection and enforcement provisions as part of the convention was a serious deficiency, but noted that the convention sets forth protective measures not otherwise available, and that it includes provisions for further negotiations by which it could be strengthened. More important, in the Commission's view, U.S. ratification of this convention should ensure a more effective role for the U.S. in the formulation of future measures for the conservation of Antarctic marine life.

Convention for the Conservation of North Pacific Fur Seals

The Commission strongly supported efforts, undertaken on two occasions during 1975, to negotiate a new convention which would be consistent with the Marine Mammal Protection Act. Although the efforts were unsuccessful, agreement was reached on a Protocol to amend and extend the current convention for an additional four years. The Commission continues to consider a new convention necessary. However, it recognizes that the present convention provides a necessary measure of protection to the fur seals that might not otherwise exist.

International Agreement on the Conservation of Polar Bears

This agreement, concluded in 1973 among the five polar nations, prohibits the taking of bears in locations and by means other than those traditionally used. The use of aircraft or large motorized boats for hunting is also prohibited. The agreement provides for national, and cooperative international, polar bear research, habitat protection, and protection for denning females and females with cubs. While the Commission expressed concern that the prohibitions on taking were not as strict as those contained in the Act, it noted the value of provisions for research and data exchange, and considered ratification important in light of the threats posed by oil and gas exploitation in the Arctic.

International Observer Exchange

As discussed earlier in this Report, the Commission continues to pursue, through consultation with and recommendations to the Department of State, measures to reduce marine mammal mortality and serious injury in the course of commercial fishing operations and to exchange observers.

While some IATTC member nations have expressed interest in reviewing U.S. standards, and in the concept of observer exchange, there continues to be a disturbing lack of response to the U.S. proposals.

Bilateral Arrangements

In addition to U.S. participation in multi-lateral organizations, the protection and conservation of marine mammals can be furthered through bilateral arrangements. The Commission has supported the development of such arrangements

with Canada and Mexico, and has concentrated its efforts on fostering cooperative research efforts to identify and quantify factors affecting population and ecosystem dynamics.

Cooperative Arrangements with Mexico

Areas of mutual interest for cooperative work include protection of the gray whale in its breeding lagoons and along its migration paths, as well as studies on certain other species of mutual concern. A meeting of U.S. and Mexican scientists was convened in La Paz, Mexico, in January 1976 to discuss and identify research needs. At the conclusion, participants agreed to meet again in La Paz in 1977. While encouraged at these discussions, the Commission believed that the forthcoming meeting could be more productive than the last with more careful preparation and provided appropriate material to the participants toward this end.

Cooperative Arrangements with Canada

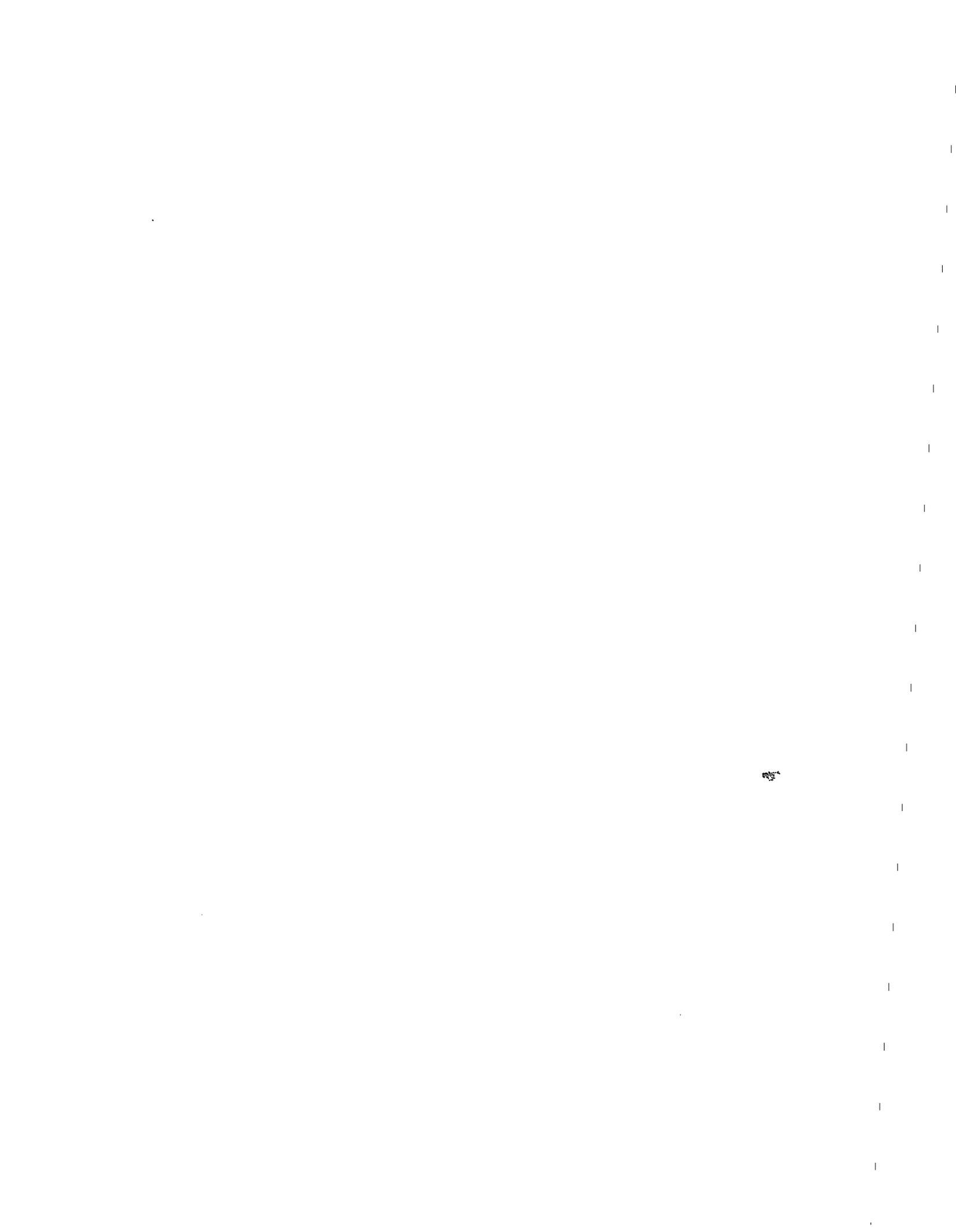
The Commission supported the convening a meeting of U.S. and Canadian officials to identify areas of mutual interest and to begin developing arrangements for the conduct of cooperative research. Prior to the initiation of negotiations in September 1976, the Commission made several recommendations to the Department of Commerce concerning appropriate topics for discussion. The Commission has noted the importance of investigations of the polar bear-ringed seal complex, and of cooperative surveys, marking programs, and life history studies of the abundance, distribution, and behavior of killer, beluga, and bowhead whales.

Cooperative Arrangements with the USSR

Joint U.S.-Soviet research and exchange of information on the status of stocks and the biology of marine mammals of the North Pacific were continued in 1976 under the direction of the Department of the Interior. The Commission maintained its overview through participation of past and present members of its Committee of Scientific Advisors. Project highlights were: 1) both sides participated in the most extensive and intensive aerial surveys ever performed of pinnipeds and cetaceans of the Bering Sea pack ice to develop information on distribution and abundance, mainly of ice inhabiting seals and walrus; 2) cooperative research on ice seals and walrus was conducted from the Soviet vessel, Zagoriy, in the Bering Sea. The work confirmed the existence of a reproductively active part of the walrus population in the southeastern Bering Sea,

an area where earlier observations had suggested the presence of only non-breeding males; 3) joint research on age determination of small cetaceans showed that tetracycline injections can serve as meaningful time markers, and a plan is being developed for marking captive porpoises to facilitate growth and age studies; 4) a plan was developed for publishing the results of cooperative research undertaken since the project began in 1973; and 5) preliminary consideration was given to the need for a bilateral convention for the protection and management of marine mammals of the Bering Sea and contiguous waters of the North Pacific and Arctic Oceans.

At the next regular U.S./USSR meeting in January 1977, plans for cooperative work over the next two years will be discussed.



APPENDIX A

COMMISSION RECOMMENDATIONS: CALENDAR YEAR 1976

- 20 January: Commerce, taking exception to the recommended decision of the Administrative Law Judge concerning the application of the Fouke Company for a waiver of the moratorium; noting certain aspects of the application which did not fulfill the requirements of the Act and recommending that a waiver be denied.
- 9 February: Commerce, concerns over continued delays in processing the request of the State of Alaska for a waiver of the moratorium.
- 10 February: Interior, scientific research permit application, Ancel Johnson.
- 27 February: Commerce, public display permit application, Quinlan Marine Attractions.
- 27 February: Commerce, scientific research permit application, Northwest Fisheries Center.
- 8 March: Commerce, to expand and clarify recommendations concerning proposed regulations governing incidental taking in the course of yellowfin tuna fishing operations; that quota be established at lower levels and that fishing conditions and kill be monitored; that appropriate procedures for setting season closure data be established; and that the National Marine Fisheries Service develop enforcement proceedings.
- 17 March: Interior/BLM, to detail specific research needs relative to marine mammals in coastal waters of the Northeastern United States; that BLM support research to gather data necessary to assess impact of Outer Continental Shelf resource development.
- 5 April: National Sea Grant Program/NOAA, that they provide support for a proposal concerning marine mammal-fisheries conflicts in Oregon.

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- 12 April: Interior/BLM, to concur with decision to eliminate sixteen tracts from a proposed OCS sale in the Northern Gulf of Alaska; that 37 additional tracts be eliminated from sale.
- 14 April: Commerce, public display permit application, 20th Century Fox-Marineland.
- 14 April: Commerce, scientific research permit application, Susan Shane.
- 14 April: State, that immediate measures be undertaken to secure observer exchange; that consideration be given to possibility of invoking the embargo provisions of the Marine Mammal Protection Act with respect to nations whose fishing practices were not consistent with U.S. standards.
- 14 April: NSF/RANN, that they provide support for a proposal concerning the tuna-porpoise problem.
- 22 April: Commerce, to outline inadequacies in proposed research project; that support for the proposal not be granted.
- 23 April: Commerce, scientific research permit application, William Schevill/William Watkins.
- 23 April: Commerce, scientific research permit application, Akhouri Sinha.
- 26 April: Commerce, that the National Marine Fisheries Service make available additional funds in support of a tuna-porpoise behavioral research cruise.
- 28 April: Interior, scientific research permit application, Daniel Odell.
- 5 May: Commerce, public display permit application, Marine Animal Productions.
- 6 May: Commerce, Interior, that cooperative efforts be undertaken to establish a centralized system for coordinating marine mammal marking activities and to develop a computerized data storage and retrieval system.

- 17 May: Commerce, scientific research permit application, William Schevill/William Watkins.
- 17 May: Commerce, scientific research permit application, Carleton Ray/Douglas Wartzok.
- 17 May: Commerce, scientific research permit application, Northwest Fisheries Center.
- 19 May: Commerce, to restate recommendation that steps be undertaken immediately to declare the Hawaiian monk seal endangered.
- 20 May: Interior, public display permit application, Seattle Aquarium.
- 20 May: Commerce, scientific research permit application, John Hall.
- 20 May: Commerce, scientific research permit application, Northwest Fisheries Center.
- 25 May: Commerce, that the National Marine Fisheries Service arrange for review and evaluation of results of gear research project undertaken to find solutions to the tuna/porpoise problem.
- 26 May: Commerce, to restate recommendations concerning designation of Hawaiian Monk Seal as endangered and depleted.
- 26 May: Commerce, public display permit application, Baltimore Zoo.
- 26 May: Commerce, public display permit application, Royal Windsor Safari Park.
- 26 May: Transportation, that additional measures necessary for the protection of Hawaiian monk seals be undertaken.
- 1 June: Interior, to raise questions concerning the request of the State of California for return of management for sea otters; that the California sea otter be designated threatened.
- 1 June: Commerce, that National Marine Fisheries Service provide support for a research proposal concerned with the tuna/porpoise problem.

they be published at earliest possible date.

- 9 July: Commerce, public display permit application, State of Maine, Department of Natural Resources.
- 9 July: Commerce, to concur in proposed designation of Hawaiian monk seal as endangered; additional comments on proposed rulemaking.
- 9 July: Commerce, scientific research permit application, James Hain.
- 12 July: Commerce, scientific research permit application, Carleton Ray/Douglas Wartzok.
- 14 July: Commerce, scientific research permit application, William Schevill/William Watkins.
- 20 July: Interior, scientific research permit application, Frederick Martini.
- 20 July: Commerce, public display permit application, Cleveland Metroparks Zoo.
- 27 July: Commerce, to state view that Saltonstall-Kennedy funds should be made available for research on the tuna/porpoise problem; that the National Marine Fisheries Service review its determination that such funds were not legally available for that purpose.
- 3 August: Interior/BLM, comments on the Draft Environmental Impact Statement relating to proposed OCS sale in the Gulf of Mexico, noting that insufficient evaluation had been made of the impacts of OCS activities upon marine mammals.
- 4 August: Commerce, scientific research permit application, Gerald Kooyman.
- 4 August: Commerce, public display permit application, Henry Doorly Zoo.
- 4 August: Commerce, public display permit application, Kahala Hilton.
- 4 August: Commerce, public display permit application, Beardsley Zoological Gardens.

- 6 August: Interior, public display permit application, Sea World.
- 6 August: Commerce, scientific research permit application, Northwest Fisheries Center.
- 12 August: Interior, scientific research permit application, Aquatic Institute for Research.
- 12 August: Commerce, scientific research/public display permit application, Sea World.
- 12 August: Commerce, public display permit application, Theater of the Sea.
- 12 August: Commerce, public display permit application, Montreal Aquarium.
- 12 August: Commerce, public display permit application, Oklahoma City Zoo.
- 13 August: Commerce, that expanded aerial surveys of porpoise populations be undertaken as originally planned and given highest priority; that tagging efforts continue to be supported; that sample design and methodology for aerial census be developed promptly in consultation with the Commission.
- 18 August: Agriculture, to state concern regarding delays in adopting and implementing Commission's recommended Marine Mammal Maintenance Standards and Guidelines and the apparent departure of Departmental proposals from Commission recommendations; to request an explanation of the reasons that recommendations had not been followed.
- 23 August: Interior, scientific research permit application, Daniel Costa.
- 27 August: Interior, scientific research permit application, Donald Siniff/John Tester.
- 27 August: Interior, scientific research permit application, Samuel McGinnis.
- 27 August: Interior, scientific research permit application, Gerald Kooyman.

- 27 August: Interior, scientific research permit application, Carl Ohata.
- 27 August: Commerce, scientific research permit application, Southwest Fisheries Center.
- 31 August: Commerce, scientific research permit application, Kenneth Norris.
- 7 September: National Park Service, comments on a resource assessment study concerning the Point Reyes National Seashore; that modifications be made in the final management plan to insure protective measures for marine mammal populations of the area.
- 8 September: Interior/BLM, that further OCS exploration and exploitation in the area of the Channel Islands not be undertaken until the completion of baseline studies to obtain data necessary to evaluate potential impacts on marine mammals.
- 14 September: Commerce, to restate recommendations that Saltonstall-Kennedy funds be made available for research on the tuna-porpoise problem and that the National Marine Fisheries Service request a formal ruling from the General Accounting Office as to the availability of Saltonstall-Kennedy funds for this purpose.
- 17 September: Interior/BLM, review comments on the Draft Environmental Impact Statement relating to oil and gas leasing in the Lower Cook Inlet; that proposed sale be delayed until sufficient data were available concerning the marine mammal populations of the area and their requirements; that additional studies be undertaken to gather necessary information.
- 20 September: National Park Service, review comments on resource assessment of San Miguel Island; that certain modifications be made to strengthen the assessment and to ensure adequate consideration for and protection of marine mammals in a final management plan for the Island.

- 22 September: State, to restate concerns regarding the Department's policy on resources of the Antarctic; that necessary steps be undertaken to reevaluate the policy and to develop and implement a policy concerning the living resources of the area.
- 22 September: National Science Foundation, to restate comments on the Foundation's position paper concerning krill resources of the Southern Ocean; that modifications be made in the paper for circulation and discussion.
- 23 September: Commerce, scientific research permit application, Gerald Kooyman.
- 23 September: Commerce, scientific research/public display permit application, Scott Rutherford.
- 23 September: Commerce, public display permit application, Louis Scarpuzzi Enterprises.
- 23 September: Interior, to note problems encountered in the processing of permit applications; that the Department undertake a review of the permit policies and procedures.
- 12 October: Commerce, that proposed meeting regarding 1977 aerial surveys be convened at earliest possible date and that outside experts be invited to participate.
- 15 October: Commerce, to note that the 1976 quota on porpoises taken incidentally to commercial tuna fishing would shortly be exceeded; that steps be undertaken to publish notice that further setting on porpoise would be prohibited; that appropriate action be taken to announce and implement the Act's embargo provisions; that research efforts underway be continued.
- 27 October: Commerce, public display permit application, Sea-Arama Marineworld.
- 27 October: Commerce, public display permit application, Six Flags Over Texas.

- 27 October: Commerce, public display permit application, Sealand of Cape Cod.
- 27 October: Commerce, to express concern over the status of Tursiops truncatus in coastal waters of Florida and the Gulf of Mexico; to request information concerning the level of collection for public display and scientific research purposes; that a system to insure the tagging of Tursiops in the course of public display collection be established as well as system for collection of data and maintenance of records; that decisions on applications involving Tursiops be deferred pending review and evaluation of requested information.
- 28 October: Commerce, review comments and recommendations on the Research Program of the National Marine Fisheries Service.
- 29 October: Interior, public display permit application, Vancouver Aquarium.
- 5 November: Interior, that the marine otter, Lutra felina, be listed as a marine mammal.
- 5 November: Commerce, scientific research permit application, Steven Swartz.
- 5 November: Commerce, public display permit application, Mystic Marinelife Aquarium.
- 5 November: Commerce, public display permit application, Zoological Society of Buffalo.
- 23 November: Commerce, public display permit application, Audubon Park.
- 23 November: Commerce, public display permit application, Roger Williams Park Zoo.
- 6 December: State, to expand and clarify recommendations concerning the formulation and implementation of U.S. policy on living resources of the Antarctic.

Ax

- 6 December: Interior/BLM, review comments on the Draft Environmental Statement relating to oil and gas leasing offshore the North Atlantic states; that proposed sale be delayed until data are available to evaluate impacts; that previously outlined research program be implemented as soon as possible.
- 9 December: Commerce, that all areas used by the Hawaiian monk seal as breeding and pupping grounds be designated critical habitat for the species; that other specific measures be undertaken to prevent extinction of the species.
- 10 December: State, to restate recommendations that the Department initiate bilateral negotiations to achieve an observer exchange program to insure that fishing practices of other nations serve to minimize incidental porpoise mortality and serious injury.
- 14 December: Commerce, public display permit application, Rio Grande Zoological Park.
- 14 December: Interior, scientific research permit application, Charles Jonkel.
- 21 December: California Coastal Commission, review comments on the California coastal plan; that scientific advisory group be convened to review problems and formulate additional plans.
- 28 December: Interior/BLM, review comments on the Draft Environmental Impact Statement relating to proposed oil and gas leasing in the Gulf of Mexico; that the sale be delayed until data are sufficient to evaluate potential impacts; that baseline studies be initiated to gather needed information.

STUDIES INITIATED IN CALENDAR YEAR 1976

| <u>Investigator; Institution</u> | <u>Project (Short Title)</u> | <u>Cost</u> |
|--|---|-------------|
| Ainley, D. G.; Point Reyes Bird Observatory | Marine Mammals at the Farallon Islands | \$ 6,610 |
| Baldwin, P. L. | Analysis of the Coastal Zone Management Act | 2,000 |
| Botkin, D. B. and M. J. Sobel | The Concept of Optimum Sustain- able Populations of Marine Mammals | 10,000 |
| Breiwick, J.; U. of Washington | Analysis of Tuna-Porpoise Data | 12,353 |
| Chapman, D. G. and M. F. Tillman; U. of Washington | Reassessment of Antarctic Sei Whale Data | 8,421 |
| Dayton, P. K.; U. of California, San Diego | Experimental Manipulation of Marine Communities Dominated by Sea Otters | 53,939 |
| Evans, W. E. and J. S. Leatherwood; Naval Undersea Center | Acoustic Characteristics of Purse Seiner | 19,800 |
| Gard, R. U. of Alaska | Gray Whales in their Breeding Waters | 13,384 |
| Geraci, J. and J. Prescott; New England Aquarium | Marine Mammal Strandings along the New England Coast | 32,262 |
| Gilbert, J. R.; U. of Maine | Status of Gray Seals in the Northeast United States | 13,280 |
| Green, K. A.; LGL Limited | Ecosystem Model for the Southern Ocean | 12,842 |
| Johnson, M. L.; U. of Puget Sound | Harbor Seals in Washington State | 11,020 |

| | | |
|---|---|---------|
| Katona, S. K.; College of the Atlantic | The Gulf of Maine Whale Sighting Network | 2,482 |
| Kavanau, J. L.; U. of California, Los Angeles | Behavior of the California Sea Otter | 5,544 |
| Kenyon, K. W. | Determination of Critical Habitat for the Hawaiian Monk Seal | 500 |
| Kooyman, G. L.; U. of California, San Diego | Development of a Dive Recorder | 19,022 |
| Nafziger, J. A. R. U. of Oregon | Developments in the Law of Marine Mammal Management | 7,379 |
| New England Aquarium | Workshop to Assess the Impact of the Argo Merchant Oil Spill on Marine Mammals along the New England Coast | 1,000 |
| Norris, K. S.; U. of California Santa Cruz | Studies of Tuna-Porpoise Behavior | 128,536 |
| Orr, J. M. | Assessment of Information Related to the Live-Capture of Bottle- nose Dolphins | 800 |
| Payne, R. A.; New York Zoolog- ical Society | Individual Recognition and Assessment of Right Whales | 22,160 |
| Pearse, J. S.; U. of California, Santa Cruz | Assessment of Habitats Outside the Present Sea Otter Range | 23,516 |
| Ray, G. C. Johns Hopkins | Identification of Critical Habitat for Marine Mammals | 20,850 |
| Reeves, R. R. | Assessment of Canadian-Norwegian Harp Seal and Hooded Seal Fishery | 2,100 |
| Reeves, R. R. | Gray Whale Harassment | 3,132 |

| | | |
|--|--|--------|
| Ridgway, S. H., <u>et al.</u> : Naval Undersea Center | Humane Taking of Certain Marine Mammals | 9,000 |
| Risebrough, R.W.; Bodega Bay Institute of Pollution Ecology | Pollutants in Marine Mammals | 1,000 |
| Schmidly, D. G.; Texas A&M U. | Bottlenose Dolphin in the Aransas Pass area of Texas | 6,030 |
| Waring, G. H. | Analysis of Outer Continental Shelf Activities | 19,040 |
| Waring, G. H. | Plan for a Centralized Marine Mammal Marking and Data Recovery Program | 900 |
| Wilson, S. C.; Smithsonian Institution | Management Implications of Harbor Seal Behavior | 8,630 |

PERMIT APPLICATION REVIEW AND PROCESSING

I

INITIAL PROCESSING

Time Lapse Between Receipt of Application At
Department and Transmittal to Commission for Review

Department of Commerce
% and # of applications transmitted

| No. Days | Prior to Feb. 74* | | 1974 | | 1975 | | 1976 | |
|-------------|----------------------|-----------|------|-----------|------|-----------|------|-----------|
| | % | # | % | # | % | # | % | # |
| 0-30 | 8 | 2 | 6 | 4 | 60 | 29 | 79 | 41 |
| 31-45 | 26 | 7 | 11 | 7 | 11 | 5 | 4 | 2 |
| 46-60 | 22 | 6 | 11 | 7 | 4 | 2 | 2 | 1 |
| 61-80 | 26 | 7 | 28 | 18 | 4 | 2 | 6 | 3 |
| 81-100 | 8 | 2 | 8 | 5 | 0 | 0 | 4 | 2 |
| 101-120 | 4 | 1 | 12 | 8 | 2 | 1 | 0 | 0 |
| 121+ | 8 | 2 | 25 | 16 | 19 | 9 | 6 | 3 |
| | | <u>27</u> | | <u>65</u> | | <u>48</u> | | <u>52</u> |

Department of Interior
% and # of applications transmitted

| No. Days | 1974 | | 1975 | | 1976 | |
|-------------|------|-----------|------|-----------|------|-----------|
| | % | # | % | # | % | # |
| 0-30 | 9 | 1 | 17 | 2 | 40 | 6 |
| 31-45 | 27 | 3 | 42 | 5 | 20 | 3 |
| 46-60 | 27 | 3 | 17 | 2 | 33 | 5 |
| 61-80 | 36 | 4 | 8 | 1 | | 0 |
| 81-100 | 0 | 0 | 8 | 1 | | 0 |
| 101-120 | 0 | 0 | 0 | 0 | | 0 |
| 121+ | 0 | 0 | 8 | 1 | 7 | 1 |
| | | <u>11</u> | | <u>12</u> | | <u>15</u> |

(NOTE: Due to rounding, percentages do not always total 100.)

*Prior to mid-February 1974, the Commission, with neither staff nor offices, was not in a position to provide timely reviews. Also, the permit system was new to the National Marine Fisheries Service. Note: The Department of Interior did not transmit any permit applications to the Commission for review prior to February 1974.

II

COMMISSION REVIEW TIME

Axv

% and # of applications transmitted

| No. Days | Prior to Feb. 74 | | 1974 | | 1975 | | 1976 | |
|-------------|---------------------|-----------|------|-----------|------|-----------|------|------------|
| | % | # | % | # | % | # | % | # |
| 0-25 | 0 | 0 | 13 | 10 | 17 | 10 | 24 | 14 |
| 26-35 | 22 | 6 | 20 | 15 | 57 | 34 | 41 | 24 |
| 36-45 | 22 | 6 | 59 | 44 | 18 | 11 | 19 | 11 |
| 46+ | 56 | 15 | 8 | 6 | 8 | 5 | 16 | 9 |
| | | <u>27</u> | | <u>75</u> | | <u>60</u> | | <u>58*</u> |

* 5 applications were under review at the Commission as of 31 December 1975.

3 applications were withdrawn prior to Commission recommendations

III

FINAL PROCESSING

Elapsed Time from Date of Transmittal
of Commission Recommendations

Department of Commerce
% and # of applications processed

| No. Days | Prior to Feb. 74 | | 1974 | | 1975 | | 1976 | |
|-------------|---------------------|------------|------|-----------|------|-------------|------|--------------|
| | % | # | % | # | % | # | % | # |
| 0-30 | 36 | 8 | 33 | 21 | 56 | 22 | 21 | 8 |
| 31-45 | 9 | 2 | 19 | 12 | 20 | 8 | 45 | 17 |
| 46-60 | 14 | 3 | 16 | 10 | 8 | 3 | 13 | 5 |
| 61-80 | 9 | 2 | 13 | 8 | 13 | 5 | 11 | 4 |
| 81-100 | 14 | 3 | 3 | 2 | 3 | 1 | 3 | 1 |
| 101-120 | 0 | 0 | 2 | 1 | 0 | 0 | 3 | 1 |
| 120+ | 18 | 4 | 14 | 9 | 0 | 0 | 5 | 2 |
| | | <u>22*</u> | | <u>63</u> | | <u>39**</u> | | <u>38***</u> |

* 2 applications withdrawn

3 applications processed prior to Commission review

** 9 applications were awaiting final action by the Department on 31 December 1975

*** 7 applications were awaiting final action by the Department on 31 December 1976

Department of Interior
% and # of applications processed

| No. Days | 1974 | | 1975 | | 1976 | |
|-------------|------|-----------|------|-----------|------|-------------|
| | % | # | % | # | % | # |
| 0-30 | 36 | 4 | 67 | 6 | 50 | 5 |
| 31-45 | 18 | 2 | 22 | 2 | 10 | 1 |
| 46-60 | 27 | 3 | 0 | 0 | 30 | 3 |
| 61-80 | 9 | 1 | 11 | 1 | 0 | 0 |
| 81-100 | 9 | 1 | 0 | 0 | 10 | 1 |
| 101-120 | 0 | 0 | 0 | 0 | 0 | 0 |
| 121+ | 0 | 0 | 0 | 0 | 0 | 0 |
| | | <u>11</u> | | <u>9*</u> | | <u>10**</u> |

* 3 applications were awaiting final action by the Department on 31 December 1976

** 2 applications were awaiting final action by the Department on 31 December 1976

1 application withdrawn

1 application processed prior to Commission recommendations

IV

TOTAL PROCESSING

Time Lapse Between Receipt of Application
at Department and Issuance or Denial of Permit

Department of Commerce
% and # of applications processed

| No. Days | Prior to Feb. 74 | | 1974 | | 1975 | | 1976 | |
|-------------|---------------------|-----------|------|-----------|------|------------|------|-------------|
| | % | # | % | # | % | # | % | # |
| 0-90 | 4 | 1 | 3 | 2 | 56 | 22 | 37 | 14 |
| 91-120 | 12 | 3 | 8 | 5 | 10 | 4 | 37 | 14 |
| 121-150 | 36 | 9 | 16 | 10 | 10 | 4 | 13 | 5 |
| 151-180 | 16 | 4 | 25 | 16 | 5 | 2 | 8 | 3 |
| 181-200 | 8 | 2 | 8 | 5 | 0 | 0 | | 0 |
| 201-250 | 20 | 5 | 11 | 7 | 8 | 3 | | 0 |
| 251+ | 4 | 1 | 29 | 18 | 10 | 4 | 5 | 2 |
| | | <u>25</u> | | <u>63</u> | | <u>39*</u> | | <u>38**</u> |

* 9 applications were awaiting final action by the Department on 31 December 1975

** 7 applications were awaiting final action by the Department on 31 December 1976

Department of Interior
% and # of applications processed

| No. Days | 1974 | | 1975 | | 1976 | |
|-------------|------|----|------|----|------|------|
| | % | # | % | # | % | # |
| 0-90 | 18 | 2 | 11 | 1 | 18 | 2 |
| 91-120 | 36 | 4 | 67 | 6 | 18 | 2 |
| 121-150 | 18 | 2 | 11 | 1 | 18 | 2 |
| 151-180 | 9 | 1 | 11 | 1 | 27 | 3 |
| 181-200 | 9 | 1 | 0 | 0 | 0 | 0 |
| 201-250 | 9 | 1 | 0 | 0 | 18 | 2 |
| 250+ | | | | | | |
| | | 11 | | 9* | | 11** |

* 3 applications were awaiting final action by the Department on 31 December 1975

** 2 applications were awaiting final action by the Department on 31 December 1976

1 application was withdrawn

4
11
11

APPENDIX D

MARINE MAMMAL NAMES USED BY THE
MARINE MAMMAL COMMISSION

The following list was prepared to serve as a general standard nomenclature for the recent species of marine mammals. It is by no means complete, final, authoritative, or inflexible, and is subject to revision and extension. Although compiled with regard for current scientific usage, it is for the most part derivative, rather than based on original research into primary sources and synonymies; it is therefore not to be taken as complete in scientific detail. In order to have a means of talking about certain species, especially in certain "large" or "difficult" genera, such as Stenella and Mesoplodon, we have been inclusive rather than exclusive in listing nominal species.

A principal benefit of scientific or technical names is that they are usually unique, unambiguous, and cosmopolitan for each species. The Commission therefore urges that they be used as far as possible in preference to, or in dominant conjunction with, so-called common names. Following each technical name, we have given one or more common names, the first being preferred by us where more than one is given. It must be emphasized that these are of limited utility in view of their imprecision, ambiguity, duplication, and geographic, cultural, and linguistic limitations.

LIST OF RECENT MARINE MAMMALS

Order Cetacea (whales and porpoises), Suborder Mysticeti
(baleen whales)

Family Balaenidae

| | |
|----------------------------|--|
| <u>Balaena mysticetus</u> | bowhead |
| <u>Eubalaena glacialis</u> | northern right whale, right whale, black right whale |
| <u>Eubalaena australis</u> | southern right whale, right whale, black right whale |
| <u>Caperea marginata</u> | pygmy right whale |

Family Eschrichtiidae

| | |
|------------------------------|------------|
| <u>Eschrichtius robustus</u> | gray whale |
|------------------------------|------------|

Family Balaenopteridae

| | |
|-----------------------------------|--------------------|
| <u>Balaenoptera musculus</u> | blue whale |
| <u>Balaenoptera physalus</u> | fin whale, finback |
| <u>Balaenoptera borealis</u> | sei whale |
| <u>Balaenoptera edeni</u> | Bryde's whale |
| <u>Balaenoptera acutorostrata</u> | minke whale |
| <u>Megaptera novaeangliae</u> | humpback |

Order Cetacea, Suborder Odontoceti (toothed whales, including porpoises)

Family Physeteridae

| | |
|-------------------------|-------------------|
| <u>Physeter catodon</u> | sperm whale |
| <u>Kogia breviceps</u> | pygmy sperm whale |
| <u>Kogia simus</u> | dwarf sperm whale |

Family Monodontidae

| | |
|------------------------------|---------------------------------|
| <u>Monodon monoceros</u> | narwhal |
| <u>Delphinapterus leucas</u> | white whale, belukha, beluga |

Family Ziphiidae

| | |
|--------------------------------|-----------------------------|
| <u>Tasmacetus shepherdi</u> | Shepherd's beaked whale |
| <u>Berardius arnuxii</u> | Arnoux's beaked whale |
| <u>Berardius bairdii</u> | Baird's beaked whale |
| <u>Mesoplodon pacificus</u> | Longman's beaked whale |
| <u>Mesoplodon bidens</u> | Sowerby's beaked whale |
| <u>Mesoplodon densirostris</u> | Blainville's beaked whale |
| <u>Mesoplodon europaeus</u> | Gervais' beaked whale |
| <u>Mesoplodon layardii</u> | strap-toothed whale |
| <u>Mesoplodon hectori</u> | Hector's beaked whale |
| <u>Mesoplodon grayi</u> | Gray's beaked whale |
| <u>Mesoplodon stejnegeri</u> | Stejneger's beaked whale |
| <u>Mesoplodon bowdoini</u> | Andrews' beaked whale |
| <u>Mesoplodon mirus</u> | True's beaked whale |
| <u>Mesoplodon ginkgodens</u> | ginkgo-toothed beaked whale |
| <u>Mesoplodon carlhubbsi</u> | Hubbs' beaked whale |
| <u>Ziphius cavirostris</u> | Cuvier's beaked whale |
| <u>Hyperoodon ampullatus</u> | northern bottlenose whale |
| <u>Hyperoodon planifrons</u> | southern bottlenose whale |

Family Delphinidae

| | |
|------------------------------|--------------------------------|
| <u>Orcaella brevirostris</u> | Irrawaddy dolphin |
| <u>Peponocephala electra</u> | melon-headed whale, electra |

| | |
|-----------------------------------|--|
| <u>Feresa attenuata</u> | pygmy killer whale |
| <u>Pseudorca crassidens</u> | false killer whale |
| <u>Orcinus orca</u> | killer whale |
| <u>Globicephala melaena</u> | long-finned pilot whale, pothead, pilot whale, blackfish |
| <u>Globicephala macrorhynchus</u> | short-finned pilot whale, pothead, pilot whale |
| <u>Steno bredanensis</u> | rough-toothed dolphin |
| <u>Sotalia fluviatilis</u> | tucuxi |
| <u>Sousa chinensis</u> | Indo-Pacific hump-backed dolphin, Indo-Pacific sousa |
| <u>Sousa teuszii</u> | Atlantic hump-backed dolphin, West African sousa |
| <u>Lagenorhynchus albirostris</u> | white-beaked dolphin |
| <u>Lagenorhynchus acutus</u> | Atlantic white-sided dolphin |
| <u>Lagenorhynchus obscurus</u> | dusky dolphin, southern striped porpoise |
| <u>Lagenorhynchus obliquidens</u> | Pacific white-sided dolphin |
| <u>Lagenorhynchus cruciger</u> | hourglass dolphin |
| <u>Lagenorhynchus australis</u> | Peale's dolphin |
| <u>Lagenodelphis hosei</u> | Fraser's dolphin, shortsnouted whitebelly |
| <u>Delphinus delphis</u> | common dolphin, saddleback porpoise, whitebellied porpoise |
| <u>Tursiops truncatus</u> | bottlenose dolphin |
| <u>Grampus griseus</u> | Risso's dolphin, grampus |
| <u>Stenella attenuata</u> | } spotted dolphins (probably two or more species) |
| <u>Stenella dubia</u> | |
| <u>Stenella frontalis</u> | |
| <u>Stenella plagiodon</u> | |

| | |
|------------------------------------|---|
| <u>Stenella longirostris</u> | spinner dolphin |
| <u>Stenella coeruleoalba</u> | striped dolphin, streaker |
| <u>Lissodelphis peronii</u> | southern right whale dolphin |
| <u>Lissodelphis borealis</u> | northern right whale dolphin |
| <u>Cephalorhynchus heavisidii</u> | Heaviside's dolphin |
| <u>Cephalorhynchus eutropia</u> | black dolphin |
| <u>Cephalorhynchus hectori</u> | Hector's dolphin, whitefront dolphin |
| <u>Cephalorhynchus commersonii</u> | Commerson's dolphin |
| Family Phocoenidae | |
| <u>Phocoena phocoena</u> | harbor porpoise |
| <u>Phocoena spinipinnis</u> | Burmeister's porpoise |
| <u>Phocoena sinus</u> | vaquita, cochito |
| <u>Phocoena dioptrica</u> | spectacled porpoise |
| <u>Phocoenoides dalli</u> | Dall's porpoise |
| <u>Neophocaena phocaenoides</u> | finless porpoise |
| Family Platanistidae | |
| <u>Platanista gangetica</u> | Ganges susu, Ganges River dolphin |
| <u>Platanista minor</u> | Indus susu, Indus River dolphin |
| <u>Inia geoffrensis</u> | boutu, boto, Amazon porpoise |
| <u>Lipotes vexillifer</u> | white flag porpoise, pei c'hi |
| <u>Pontoporia blainvillei</u> | franciscana |

Order Carnivora (cats, civets, hyenas, weasels, raccoons, bears, dogs, pinnipeds, etc.)

Family Otariidae

| | |
|------------------------------------|---|
| <u>Eumetopias jubatus</u> | Steller sea lion, northern sea lion |
| <u>Zalophus californianus</u> | California sea lion |
| <u>Otaria flavescens</u> | South American sea lion |
| <u>Neophoca cinerea</u> | Australian sea lion |
| <u>Phocartos hookeri</u> | New Zealand sea lion |
| <u>Callorhinus ursinus</u> | northern fur seal |
| <u>Arctocephalus townsendi</u> | Guadalupe fur seal |
| <u>Arctocephalus philippii</u> | Juan Fernández fur seal |
| <u>Arctocephalus galapagoensis</u> | Galápagos fur seal |
| <u>Arctocephalus australis</u> | South American fur seal |
| <u>Arctocephalus pusillus</u> | Cape fur seal, South African fur seal, Tasmanian fur seal, Victorian fur seal |
| <u>Arctocephalus forsteri</u> | New Zealand fur seal, Western Australian fur seal |
| <u>Arctocephalus gazella</u> | Kerguelen fur seal, Antarctic fur seal |
| <u>Arctocephalus tropicalis</u> | Amsterdam Island fur seal, subantarctic fur seal |

Family Odobenidae

| | |
|--------------------------|--------|
| <u>Odobenus rosmarus</u> | walrus |
|--------------------------|--------|

Family Phocidae

| | |
|-----------------------|---------------------------|
| <u>Phoca vitulina</u> | harbor seal |
| <u>Phoca largha</u> | largha seal, spotted seal |

| | |
|--------------------------------|--|
| <u>Phoca hispida</u> | ringed seal |
| <u>Phoca sibirica</u> | Baikal seal |
| <u>Phoca caspica</u> | Caspian seal |
| <u>Phoca groenlandica</u> | harp seal, Greenland seal |
| <u>Phoca fasciata</u> | ribbon seal |
| <u>Erignathus barbatus</u> | bearded seal |
| <u>Cystophora cristata</u> | hooded seal, bladdernose seal |
| <u>Halichoerus grypus</u> | gray seal |
| <u>Monachus monachus</u> | Mediterranean monk seal |
| <u>Monachus tropicalis</u> | West Indian monk seal, Caribbean monk seal |
| <u>Monachus schauinslandi</u> | Hawaiian monk seal |
| <u>Mirounga leonina</u> | southern elephant seal |
| <u>Mirounga angustirostris</u> | northern elephant seal |
| <u>Lobodon carcinophagus</u> | crabeater seal |
| <u>Ommatophoca rossii</u> | Ross seal |
| <u>Hydrurga leptonyx</u> | leopard seal |
| <u>Leptonychotes weddelli</u> | Weddell seal |
| Family Mustelidae | |
| <u>Lutra felina</u> | chungungo, marine otter, gato marino |
| <u>Enhydra lutris</u> | sea otter |
| Family Ursidae | |
| <u>Ursus maritimus</u> | polar bear |

Order Sirenia (sea cows)

Family Dugongidae

Dugong dugon

dugong

Hydrodamalis gigas

Steller sea cow

Family Trichechidae

Trichechus manatus

West Indian manatee,
Caribbean manatee

Trichechus inunguis

Amazon manatee

Trichechus senegalensis

West African manatee

