

ADMINISTRATION OF THE MARINE MAMMAL PROTECTION ACT OF 1972

April 1, 1979 to March 31, 1980



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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

MARINE MAMMAL PROTECTION ACT

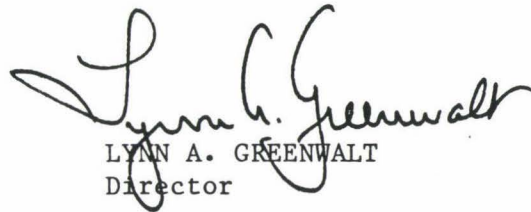
Report of the Department of the Interior

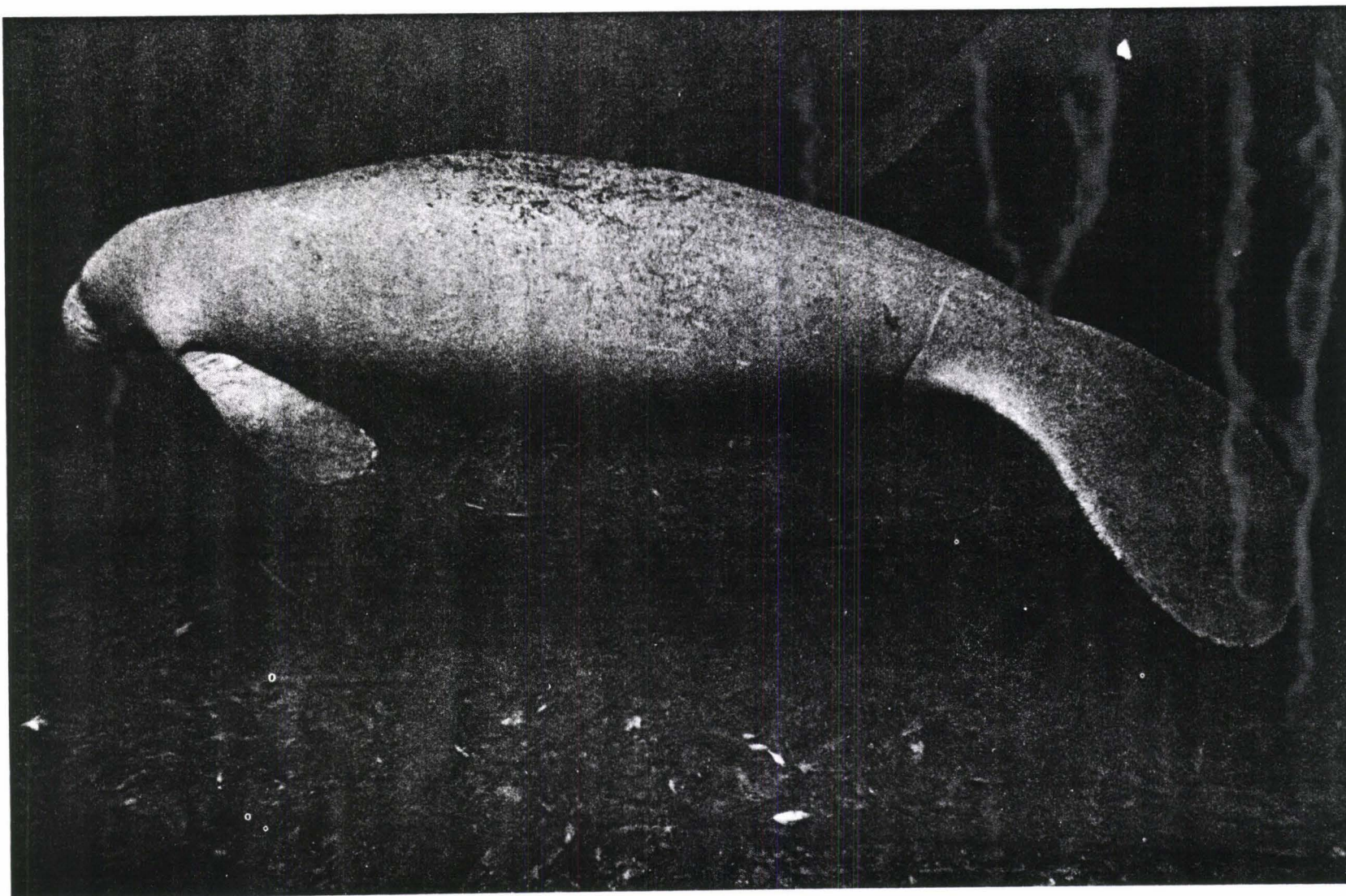
The Marine Mammal Protection Act of 1972, as amended (16 U.S.C. 1361-1407, 86 Stat. 1027 (1972)) stated in section 103(f) that "Within six months after the effective date of this Act [December 21, 1972] and every twelve months thereafter, the Secretary shall report to the public through publication in the Federal Register and to the Congress on the current status of all marine mammal species and population stocks subject to the provisions of this Act. His report shall describe those actions taken and those measures believed necessary, including where appropriate, the issuance of permits pursuant to this title to assure the well-being of such marine mammals."

The responsibility of the Department of the Interior is limited by section 3(12)(B) of the Act to those mammals that are members of the orders Carnivora (polar bear, sea otter, and marine otter), Pinnipedia (walrus), and Sirenia (manatees and dugong). Accordingly, published herewith is the report of the Department of the Interior for the period April 1, 1979, to March 31, 1980, on the administration of the Act with regard to those mammals.

Issued at Washington, D. C., dated

SEP 15 1980


LYNN A. GREENWALT
Director



Frontispiece. A West Indian manatee at Blue Spring State Park, Volusia County, Fla. This individual is a member of a wild population of known individuals monitored by the National Fish and Wildlife Laboratory for insight into basic life history characteristics. Photo by National Fish and Wildlife Laboratory.

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April 1, 1979, to March 31, 1980

Report of the Department of the Interior

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Administration of the Marine Mammal Protection Act of 1972

April 1, 1979, to March 31, 1980

INTRODUCTION

AUTHORITY

Pursuant to the requirements of section 103(f) of the Marine Mammal Protection Act of 1972 (86 Stat. 1027; hereinafter, the "Act"), this report describes administrative actions and the status of certain species of marine mammals. The report covers the period April 1, 1979, through March 31, 1980, and is presented in three parts: administrative actions, species status reports, and appendixes.

Under section 3(12)(B) of the Act, the Department of the Interior is responsible for the following marine mammals: polar bear, sea otter, marine otter, walrus, manatees, and dugong. On July 8, 1977, the Secretary of the Interior, through the Assistant Secretary for Fish and Wildlife and Parks, redelegated authority for the functions prescribed by the Act to the Director, U.S. Fish and Wildlife Service, as prescribed in 242.1.1 of the Departmental Manual.

MARINE MAMMAL COMMISSION

Title II of the Act established a Marine Mammal Commission and a nine-member Committee of Scientific Advisors on Marine Mammals. The Act prescribes extensive consultative roles for the Commission and the Committee with the Secretaries of the Interior and Commerce. Service contact with the Commission, through its staff, is on an as-needed basis. Formal reviews of permit applications, section 110 grant proposals, and moratorium-waiver requests are accomplished through established procedures.

The Commissioners are:

Douglas G. Chapman, Chairman, Seattle, Wash. Dr. Chapman is Dean of the College of Fisheries, University of Washington, Seattle, Wash.

Murray L. Johnson, Takoma, Wash. Dr. Johnson is Research Professor of Biology in the College of Medicine at the University of Puget Sound, Takoma, Wash., and is also Curator of Mammals at the Puget Sound Museum of Natural History.

Donald B. Siniff, Minneapolis, Minn. Dr. Siniff is a Professor in the Department of Ecology and Behavioral Biology, University of Minnesota, Minneapolis, Minn.

The Marine Mammal Commission is an independent body and reports to the Congress annually.

PART I--ADMINISTRATIVE ACTIONS

MARINE MAMMAL PROTECTION ACT APPROPRIATIONS

In 1978, the Congress set the Department of the Interior authorization ceiling for Marine Mammal Protection Act (MMPA) section 110(c)(research) for fiscal years 1979 and 1980 (FY's 79 and 80) at \$1.3 million and \$1.5 million, respectively; for section 114(b) (administration), at \$650,000 and \$760,000. It also authorized \$400,000 for each fiscal year for MMPA section 109 (grants to States--see following section for details). On November 27, 1979, the President signed into law the Service's budget appropriation for FY 80 (Public Law 96-126, 93 Stat. 954). This appropriation included \$1 million, \$600,000, and \$400,000, respectively, for MMPA sections 110(c), 114(b), and 109. These amounts duplicated those appropriated for FY 79.

GRANTS TO STATES

Section 109(b) of the MMPA (16 U.S.C. 1379(b)) authorizes the Secretary of the Interior to make grants to States to help them develop and implement protection and management programs for Service-jurisdiction marine mammals inhabiting their lands and waters. Funded initially for fiscal year 1979 (FY 79), these grants may not exceed 50 percent of the cost of such a program to a State, Commonwealth, or territory, provided that (1) its marine mammal laws and regulations are first approved by the Secretary as consistent with MMPA purposes and policies, and (2) its program includes planning and at least such activities as research, censusing, habitat acquisition and improvement, or law enforcement. These grants could potentially benefit polar bears and walruses in Alaska, sea otters in Alaska, California, Oregon, and Washington, West Indian manatees in Florida and Puerto Rico, and dugongs in the Trust Territory of the Pacific Islands.

In July 1979, the Service issued a \$48,900 grant from FY 79 funds to the Alaska Department of Fish and Game for its Walrus Management Program. As no other State, Commonwealth, or territory requested grants from these funds before the June 30, 1979, deadline for receipt of applications, the Service subsequently allocated the unobligated balance of the appropriation to the following in-house projects: Alaskan walrus and other marine mammal management, a comprehensive ecological study of San Nicolas Island off southern California (with special reference to its possible use as a translocation site for sea otters), and manatee research and management projects in Florida.

At the end of the reporting period, the Service had received no FY 80 grant requests, although the Florida Department of Natural Resources had indicated interest in applying for funds for manatee protection and conservation.

MARINE MAMMALS IN ALASKA

Under the MMPA, in Alaska the Service has management responsibility for the populations or stocks of polar bears, sea otters, and walruses. In 1973,

Alaska's Governor petitioned the Secretary of the Interior to waive the MMPA moratorium and return management of these populations to the State. This petition coincided with a similar request to the Secretary of Commerce for the Alaskan populations of six species under the effective jurisdiction of the National Oceanic and Atmospheric Administration's (NOAA's) National Marine Fisheries Service (NMFS). Subsequently, the request for walrus was separated from the original petition, and in 1976 a waiver for that species and the return of its management were implemented in a separate action, although one still subject to review when the request for polar bears and sea otters was acted on. In January 1979, the Service issued conditional final waiver regulations for all three species, stating specific conditions for polar bears and sea otters, and modifying some of the conditions of the 1976 walrus waiver which the 1979 waiver was intended to supersede. The NMFS simultaneously published comparable regulations for the species under its jurisdiction. The 1979 regulations will not be effective, however, until the Federal agencies approve revised Alaska marine mammal laws and regulations as being consistent with the MMPA and relevant Federal rules. Such approval is mandatory under the MMPA (16 U.S.C. 1379(a)(2)) and Service regulations (50 CFR 18.53 and 18.54). (For additional information on the 1976 and 1979 waivers and related past Service activities, see the appropriate sections in the 1979 and earlier annual reports.)

The most significant management-related chain of events in Alaska during the report period began on June 27, 1979, when the Alaska Board of Game adopted an emergency regulation, effective on July 1, which repealed most of the Alaska Department of Fish and Game (ADF&G) walrus-related hunting regulations that had been approved by the Service relative to the 1976 walrus waiver. Effective the same date, the ADF&G terminated its walrus management and associated law enforcement programs. The resulting State rules effectively allowed almost totally unlimited and unregulated taking of walrus. Consequently, on August 2 the Service published in the Federal Register (1) a notice disapproving the State's rules and modified walrus management program as inconsistent with the MMPA, relevant Service regulations, and the terms of the 1976 waiver (44 F.R. 45562-45564--see appendix A), and (2) a final emergency rule, effective immediately, suspending all taking and other activities involving walrus that were contingent on the 1976 waiver (44 F.R. 45565-45566--see appendix B). This emergency rule effectively suspended the 1976 waiver, but it did not affect that nonwasteful taking necessary for Natives' subsistence and their creation and selling of authentic native articles of handicrafts and clothing because these Native rights were not contingent on the waiver. (This "native exemption," addressed in more detail in the section "Legal actions against the Department of the Interior," allows Native taking of marine mammals unless it is wasteful or for purposes other than those permitted or unless the population or stock involved is declared to be depleted.)

Notwithstanding the resulting present total Service management responsibility for (but only limited effective control over) all three marine mammal species under its jurisdiction in Alaska, the Service had continued to work both before and since its emergency rulemaking with State and Natives' representatives to solve some of the problems that the State believed had necessitated its emergency rule and termination of its management and enforcement programs.

In addition to frequent personal and telephone contacts with non-Service people, Service representatives have met formally several times in Alaska with other involved parties to discuss waiver-related matters, walrus management, and/or aspects of the civil class action brought in 1977 against the Department by Natives in and near Alaska's Bristol Bay area (see "Legal actions against the Department of the Interior"). These meetings were held in 1979 on April 24-25 (Nome), June 12-13 (Anchorage and Juneau), July 19-20 (Anchorage), and August 31 (Anchorage) and also on February 13, 1980 (Anchorage). They involved representatives of the ADF&G, Alaska Attorney General's Office, Interior's Office of the Solicitor, NOAA, NMFS, and/or the Alaska Legal Services Corporation and Eskimo Walrus Commission (EWC). Representatives of Native groups and the EWC also discussed walrus-related matters with Service officials in Washington, D.C., on August 1, 1979. Despite all efforts to facilitate Alaska's assumption of management of all three species under the 1979 conditional waiver, at the end of the report period the ADF&G had not yet submitted its revised rules for formal Federal review, and management of these species remains totally an FWS responsibility.

During the report period, the Service used available funds and additional MMPA section 109 moneys (see "Grants to States") to try to meet immediate management needs. Before Federal repeal of the 1976 walrus waiver regulations, the Service issued to the ADF&G a \$48,900 grant from FY 79 MMPA section 109 funds to help it conduct its walrus management program; the project involved mainly (1) monitoring the walrus harvest at major walrus hunting villages, (2) obtaining biological data on age structure, productivity, and food habits of harvested walruses, (3) marking and accounting for raw ivory, and (4) accounting for the extent of hunting loss associated with walrus hunting. Since July 1979, much of the Service's management effort has focused on the Natives' subsistence harvest, particularly of walruses. In late 1979 and early 1980, it negotiated a contract with the ADF&G to monitor the spring 1980 walrus harvest at five key hunting centers (Gambell, Savoonga, Nome, Wales, and Diomed) and to collect and analyze biological samples needed to assess the health, status, and trends of the population. (Because existing Service regulations do not specifically permit Natives to transfer such samples from their subsistence harvest for scientific research purposes, the Service is preparing regulation changes that will clearly allow them to do so to a duly authorized representative of the FWS Alaska Area Director.) When in March the ADF&G proved unable to accept the contract in time for the spring hunt, the Service immediately reprogrammed personnel from other ongoing Alaska Area Office projects to this priority task. With the advice and assistance of ADF&G marine mammal biologists and using a contract with the EWC (through Kawerak, Inc., in Nome) to provide field assistance and housing, Service field biologists will begin in late April or early May to collect biological specimens and incidentally monitor the walrus harvest at Gambell, Savoonga, Nome, Wales, and Diomed. The teeth collected will be used to determine the age structure of harvested animals and a possible correlation with reproductive status; analysis of female reproductive tracts (ovaries) should provide an indication of reproductive success and the status of females taken; and analysis of stomach samples should indicate whether or not the walrus population is feeding on different or a wider variety of foods than in recent years, thereby possibly indicating an overpopulation of the local habitats. In addition to

this project, the Service will also attempt, beginning in June and continuing through September, to conduct aerial surveys of walrus mortality and hauling-out on the beaches of St. Lawrence Island and the west coast of Alaska from Cold Bay on the Bering Sea side of the Alaska Peninsula to Cape Lisburne on the Chukchi Sea. These beach surveys in the Bristol Bay area will be coordinated with over-the-water surveys by the ADF&G, which is studying, under a contract with the North Pacific Fishery Management Council, walrus distribution and feeding relative to a potential commercial clam fishery in that area. As much of the Service's harvest monitoring and aerial survey work in FY 80 is based on a one-time allocation of moneys, continuation or expansion of such projects in the future will depend on the availability of adequate funds and additional personnel. Part of the allocation in FY 79 enabled the Service to initiate procurement, using MMPA section 109 funds unobligated at the end of the fiscal year, of the 32-foot aluminum workboat Sea Otter (a GSA contract item) from the Monark Boat Company of Monticello, Ark.; this vessel will be delivered in Naknek and will be used at least initially in Bristol Bay to support walrus management studies and law enforcement work.



Figure 1. University of California, Santa Cruz (UCSC) biologist about to place radio transmitter on tusk of male walrus in left foreground using compressed-air impact wrench. This is part of a cooperative study by the Service, ADF&G, and UCSC at Round Island, Alaska. Photo by Cindy Zabel, University of California, Santa Cruz.

At the February 13, 1980, meeting in Anchorage with the ADF&G and EWC, the Service proposed formation of an ad hoc advisory group, comprising two representatives each from the ADF&G, EWC, and FWS, to address walrus management issues. This group, the Pacific Walrus Technical Committee, included at the end of the report period the following: Linda Ellanna and Bob Nelson (ADF&G-Nome), John Pullock (EWC-King Island), Jack V. Williams (EWC-Mekoryok), and Ted Schmidt (FWS-Anchorage). The first meeting of the committee, tentatively scheduled for October 1980, will probably deal with organizational matters--committee objectives, particular issues and activities and the priority in which they should be addressed, and procedures to be followed in conducting committee business. At a followup meeting, probably in November, the group hopefully will begin to explore objectives and issues in depth. These cooperative efforts are expected to materially assist in the Service's development and implementation of an effective, comprehensive, and workable walrus management plan.

Contingent on the availability of adequate funds and personnel, the Service plans to develop in 1980-81 comparable management plans for polar bears and Alaskan sea otters. Although only Alaska Natives are permitted to hunt and kill polar bears under the MMPA's native exemption, the Service does not currently have the means to monitor this harvest. (As noted in the description of the status of polar bears in part II of this report, most of the available data on bear harvests comes from information gathered and provided by the ADF&G.) Because of the increasing demand for polar bear hides, the need for more information on the current status of Alaskan populations, and the inability of the Service to collect accurate and timely harvest information the FWS is preparing regulations that would require the reporting of all bears killed, the marking or tagging of all raw hides, and the Federal collection of selected bear parts for biological analyses. These regulations would help the Service determine and monitor the locations and disposition of polar bear hides, and the tagging or marking requirement would also apply to the other Alaskan marine mammal species under Service jurisdiction. In the near future, the Service also plans to initiate contacts with appropriate villages and Native groups on the North Slope and in northwest Alaska to seek their cooperation and assistance in obtaining polar bear harvest information. Ultimately, the Service and the NMFS must address the questions of what constitutes wasteful take and legitimate subsistence needs, but to reach reasonable and workable consensus or compromise on the complicated legal, philosophical, and practical aspects of these questions will require considerable time and effort from all involved parties--Federal, State, and Native as well as those with special conservation or protection interests.

Service marine mammal management concerns and activities have turned increasingly to problems attendant Alaskan OCS oil and gas exploration and development and to real or potential conflicts between marine mammals and commercial and subsistence fisheries for available fishery resources. During the report period, the potential effects of Beaufort Sea OCS activities on migrating endangered bowhead and gray whales dominated controversy regarding the December 1979 lease sale proposal, but barely less significant problems involved the displacement of ringed seals caused each spring by on-ice exploration activities and the consequent effects of such displacement on polar bears that often den and bear young in the same areas occupied by the seals; the

bears depend primarily on these seals for food after breaking out of their dens and while moving offshore. On the basis of information gathered by Service and ADF&G biologists in Alaska, in April and May 1979 the Service officially and repeatedly opposed Federal extension of the March 20 exploration-permit expiration date to May 30, 1979, the time between these dates being a period of maximum potential displacement and disruption to seals and bears alike. Although efforts to withdraw the extension failed, owing to early breakup of the shorefast ice and termination of the permitted exploration activities, the Service successfully included protective seal- and bear-related stipulations and conditions in the December 1979 lease contracts that are intended to minimize or eliminate future displacement and disruption (see also "Outer Continental Shelf environmental studies" in this report). The Service will continue to identify and evaluate potential effects of future lease sales on Alaskan marine mammals, and to act accordingly, as sale-related activities increase in the Norton Sound, Bristol Bay (Aleutian Shelf), and lower Cook Inlet areas.

Early in the report period, the North Pacific Fishery Management Council (NPFMC) intensified efforts to explore the feasibility of developing a commercial clam fishery in the Bristol Bay area. Service interest in this fishery has comparably increased because of the potentially severe impact it could have on a major food resource of walruses and, to a lesser extent, sea otters as well. Despite the lessening of NPFMC interest toward the end of the report period, apparently owing to developments in the U.S. east coast clam fishery which may have diminished the attractiveness of a Bristol Bay fishery, seasonal disturbances to walruses reportedly continue to increase during spring and summer encounters in Bristol Bay and on the high seas between walruses and commercial fishers engaged in the herring and red and pink salmon fisheries. Additional conflicts between sea otters and fishers have also been reported at Atka, where reportedly large numbers of otters allegedly prey on fishery resources used for Natives' subsistence, and in the English Bay area of lower Cook Inlet, where otters reportedly take fish from nets and are also destroying local clam beds. Although the Service will thoroughly investigate these reports, these conflicts seem to defy local legal resolution owing to discrepancies between the MMPA, which--with the Fur Seal Act under special conditions--protects sea otters, and the Fishery Conservation and Management Act (FCMA), which favors fishery interests. The subject of marine mammal/fishery conflicts is expected to receive extensive congressional attention later this spring during the reauthorization hearings on the FCMA.

Law enforcement is an integral part of marine mammal management, in Alaska as elsewhere. To date, however, the Service has been unable to mount and maintain an effective MMPA enforcement program in Alaska, owing to the limited funds and personnel available. Despite the escalating prices of walrus ivory and polar bear hides in response to the increased demand for them in recent years, limited Service resources have precluded a significant enforcement presence in areas where these parts are most likely to be taken or sold, and the Service has been unable to establish and maintain in coastal Native villages the close, cooperative working relations needed to enforce the MMPA, stop the illegal harvest, or even determine its extent. The previously mentioned Service regulations being prepared to require the marking of raw marine mammal parts are expected to also assist enforcement efforts in the

future, but it is not now known how soon they could be fully implemented. Notwithstanding these facts, during the report period the Service achieved the following results; the format used in this summary is similar to the one used in the later section of this report, entitled "Enforcement," which considers all Service marine mammal-related actions nationwide.

On April 1, 1979, 56 civil and criminal investigations were pending Service action in Alaska. Of these, 23 involved polar bears; 2, sea otters; 28, walruses; and 3, sperm whales. (Under a NMFS/FWS memorandum of understanding, the Service can retain jurisdiction over those investigations involving endangered marine mammal species, such as the sperm whale, and can initiate appropriate civil and criminal actions.) During the report period, the Service opened 30 new investigations (4 polar bear, 4 sea otter, and 22 walrus) and closed 36, of which 25 concerned gift shop marine mammal investigations involving more than 1 species and on which no action was taken. Of the remaining 11 investigations closed, 2 involved polar bears, 1 of which resulted in a suspended \$250 civil penalty and forfeiture of the hide, and the other resulted in forfeitures of \$850 in cash and the hide, as well as a \$150 civil penalty; 2 involved sea otters, and each resulted in the forfeiture of 1 skin; 4 involved walruses and resulted in the combined forfeiture of 6 pieces of ivory in 2 cases, as well as 1 civil penalty of \$450, and another civil penalty of \$50; and 3 involved sperm whales, 2 of which resulted in a combined forfeiture of 8 teeth, the third being referred to the NMFS for action. On March 31, 1980, 50 investigations were pending: 16 polar bear, 6 sea otter, and 28 walrus; 4 investigations for each of these species involved civil penalty proceedings, which have been referred to the Department's Office of the Solicitor in Anchorage.

LEGAL ACTIONS AGAINST THE DEPARTMENT OF THE INTERIOR

On April 3, 1979, Judge Harold H. Greene of the Federal District Court for the District of Columbia denied the Government's motion to dismiss the February 1977 complaint by the residents of Togiak, Twin Hills, and Goodnews Bay, Alaska, that the United States, the Secretary of the Interior, and the FWS Director had violated their rights and failed to perform statutory responsibilities relative to the 1976 walrus waiver and the return of management of that species to Alaska. In this class action, Civil No. 77-0264, the plaintiffs sought declaratory relief to void the Federal waiver regulations that (1) attempted to rescind the exemption of Alaska Natives from the taking restrictions of the MMPA and (2) provided that the taking of Pacific walruses by these Natives was subject to certain State laws and regulations which the Service had approved before the waiver was implemented. In his denial opinion and order, Judge Greene ruled that under the MMPA Alaska Natives have congressionally mandated permission to hunt from nondepleted stocks of walrus in a nonwasteful manner and for the purposes of subsistence or creating and selling authentic native articles of handicrafts and clothing; he did so on the grounds that, with regard to such native taking, the MMPA preempts any State legislation or regulation.

On July 31, 1979, Judge Greene dismissed the suit as moot after Alaska terminated most of its walrus-related regulatory and management activities and the

Service withdrew its approval of the State's rules and repealed the challenged waiver regulations. On September 10, 1979, however, Judge Greene reopened the case because of continuing discussions between the Service and the State of Alaska concerning a possible resumption of State management of walrus with new State controls on Natives' hunting. After additional written and oral submissions by the parties on the question of whether or not the plaintiffs were entitled to any declaratory or injunctive relief, Judge Greene issued his final decision on January 29, 1980. In this decision, he issued a declaratory judgment reaffirming the plaintiffs' rights to hunt walrus under the MMPA native exemption and then issued an injunction preventing the Service from delegating management authority over walrus to the State of Alaska as long as there is any State law or regulation that limits the plaintiffs' rights. Judge Greene declined to rule, however, on the right of Natives to hunt walrus on Round Island in Alaska's Walrus Islands State Game Sanctuary in Bristol Bay because that issue was not thought to be sufficiently developed to require a decision at that time and because it poses difficult constitutional and statutory questions that would be better addressed if and when there is an appropriate case. On March 28, 1980, the Government appealed the injunction, but soon after the close of the reporting period it withdrew the appeal in favor of pursuing relief under rule 60(b) of the Federal Rules of Civil Procedure. This rule would allow the Government to ask the court for relief from the injunction if circumstances should change in the future, as would happen if Alaska were to submit a new walrus management plan and regulation package for Federal approval.

ENDANGERED AND THREATENED SPECIES

The West Indian and Amazonian manatees, dugong, and marine otter are classified as endangered under the Endangered Species Act of 1973, as amended (ESA) (16 U.S.C. 1531-1543), the California population of sea otters is classified as threatened, and the West African manatee, Trichechus senegalensis, was listed in the Federal Register on July 20, 1979, as threatened throughout its entire range (44 F.R. 42910-42911--see appendix C); historically, the West African manatee ranged along the west coast of Africa from the Senegal River to the Cuanza River. The following accounts highlight some of the Service's activities involving West Indian manatees and sea otters in California during the report period. Additional information is included in the section "International activities" and in status reports for individual species.

West Indian Manatee

The West Indian manatee, Trichechus manatus, is a highly endangered species that is suffering severely at the hands of humans, especially in Florida where its activities are often not compatible with human activities. Seventy-seven manatee deaths were recorded in 1979, 7 less than in 1978. Of the 72 animals that were recovered, Service and University of Miami salvagers could determine the causes of death for 53. While 13 (25%) of these animals were either dependent calves or died of natural causes, 40 (75%) were killed directly or indirectly by human activities: 23 by collisions with boats or

barges, 8 by crushing or drowning in automatic flood gates at salinity dams or in canal lock gates, and 9 by other human causes, such as drowning in hoop nets, gunshot, or entanglement in fishing line. Three additional manatees were recovered alive and are undergoing rehabilitation at Sea World of Florida.

During the report period, the State of Florida, the Fish and Wildlife Service and other Federal agencies, the Florida Audubon Society, the Florida Power and Light Company, and other groups continued the intensified coordinated efforts described in the 1979 annual report to gather needed baseline data and to increase the effectiveness and scope of manatee protection in Florida through stronger legislation, regulations, law enforcement, and public information and education. The Manatee Recovery Team has continued its work of coordinating research and management efforts and in March 1980 completed the final West Indian Manatee Recovery Plan. This plan, approved by the FWS Director on April 15, 1980, charts a course for recovery of the species under the Service's Endangered Species Program auspices, guiding allocation of State and Federal funds and identifying and programming proposed activities to meet critical research and management needs. At the end of the report period, the recovery team comprised: Leader: John C. Oberheu (FWS, Jacksonville Area Office); Members: Dr. Robert L. Brownell, Jr. (FWS, National Fish and Wildlife Laboratory (NFWL), Washington), A. Blair Irvine (FWS, NFWL, Gainesville Field Station), Lt. J. Robert Lee (Florida Department of Natural Resources), and Patrick M. Rose (Florida Audubon Society); Consultants: Dr. Howard W. Campbell (FWS, NFWL, Gainesville Field Station), William H. Harper (Florida Department of Natural Resources), and Dr. Peter C. H. Pritchard (Florida Audubon Society).

On October 22, 1979, the Service promulgated final regulations (50 CFR 17.100-17.108) providing a means for establishing manatee protection areas in Florida (44 F.R. 60962-60965--see appendix D). The Director may establish manatee protection areas on an emergency basis whenever there is substantial evidence showing that their establishment is necessary to prevent the taking of one or more manatees. Observations by Service personnel and other researchers have shown that manatees are being harassed to such an extent that their normal use of the warm water areas around the springs at the headwaters of Crystal River is being disrupted. This disturbance is caused by all forms of waterborne activity, including boating, swimming, and diving (both SCUBA and snorkle diving). This disruption is affecting their normal sheltering behavior and may directly affect their breeding and calf-rearing activities. It may also directly affect their well-being by forcing them to use colder waters during critical periods, subjecting them to cold-related stress and disease.

On January 11, 1980, the Service established on an emergency basis a manatee refuge in Kings Bay, Crystal River, Fla., under 50 CFR 17.106 and effective through March 31, 1980, to prevent the harassment of manatees in the area by swimmers and divers. That action provided manatees with temporary protection from harassment during the winter season. For subsequent years, the Service announced on February 8, 1980, in the Federal Register its intention to propose rules permanently establishing a manatee protection area in Kings Bay (45 F.R. 8675-8677--see appendix E). In the winter months, the manatee is dependent on warm water sources for survival during periods when cold water



Figure 2. The West Indian manatee "Beauregard" being unloaded at Marineland of Florida, in St. Augustine, after being held at Sea World of Florida. "Beauregard," a full-grown male, was rescued from Gulfport, Miss., in January 1979. Photo by Sea World of Florida.

temperatures prevail in the surrounding environment. This emergency establishment of a manatee refuge was in a natural warm water spring area where up to 79 manatees have been known to congregate during the winter months. Florida State law--the Florida Manatee Sanctuary Act, which took effect in July 1978--provides for the restriction of motorboat activity in designated areas, and the Florida Department of Natural Resources designated the emergency manatee refuge area as a "Motorboats Prohibited Zone" effective on November 15, 1979. Large signs delineating the area have resulted in the attraction of swimmers, divers, and boaters to the designated area to seek out and observe manatees which they presume are in the area. This concentration of divers and swimmers resulted in the harassment of manatees by frightening all but the tamest individuals from the area. A critical cold weather period may occur during which it is essential that the manatees have the use of the warm spring areas.

While the Kings Bay emergency rule was in effect, FWS Special Agents undertook a high-visibility preventive enforcement program including increased patrols, diving with divers, extensive person-to-person contacts, and active participation in public information activities. In general, the intensified cooperative Federal and State enforcement efforts, coupled with an extensive publicity campaign, greatly contributed to increased public awareness of the plight of the manatees.

As noted near the beginning of this account, manatees have perished from entanglement in ropes, traps, and fish nets in the past. Entanglement in hoop nets in the St. Johns River area had become a problem. The development during and after the close of the report period of a device called an excluder panel, when used in conjunction with a hoop net, has lessened mortality and injury to manatees.

To further minimize potential harm to manatees, on May 15, 1979, the Service published in the Federal Register special public entry and use regulations that restricted boat speeds in the Chassahowitzka National Wildlife Refuge on Florida's west coast between May 15 and August 15, 1979 (44 F.R. 28330--see appendix F). On February 22, 1980, it renewed these special regulations between May 1 and August 15 in both 1980 and 1981 (45 F.R. 11813-11814--see appendix G). Similarly, on February 7, 1980, the Service published new water-related public use regulations, effective on that date, for the Merritt Island National Wildlife Refuge on Florida's east coast (45 F.R. 8306-8307--see appendix H).

During the report period, the Service conducted 25 formal Endangered Species consultations for projects and permits that might impact the West Indian manatee. These consultations are required under section 7 of the ESA and may be requested for any Federal program, or non-Federal program involving Federal approval, permits, or funding, before these programs may be implemented. The results, although not binding, must be considered before action decisions are made, and they are issued by the Service's Washington and Regional Offices in the form of "biological opinions," which support the Service's determination that a proposed project (1) would promote conservation of a species, (2) is not likely to jeopardize a species, or (3) is likely to jeopardize a species. Jeopardy opinions must present "reasonable and prudent alternatives" which, if adopted, would preclude jeopardy to the species.

Of the 25 manatee-related consultations, 2 involved Outer Continental Shelf (OCS) oil and gas lease sales and other activities, and the Service issued the following findings in its opinions. In the April 10, 1979, opinion to the Bureau of Land Management on OCS oil and gas leasing in the Gulf of Mexico, because of the increasing recreational boating activities, increased support boat traffic for dredging, and existing commercial boat traffic, it was determined that boating activities between Cedar Key and Key West, Fla., resulting from OCS leasing and exploration (and possible development should significant quantities of oil and gas be discovered), would likely jeopardize the continued existence of the West Indian manatee. (One alternative that would preclude jeopardy involved using Tampa/Port Manatee as a support base for the proposed operations, and restricting associated shipping to the deeper channels between Egmont Channel and Port Manatee.) In the March 11, 1980, opinion concerning oil and gas leasing and exploration activities in the South Atlantic region, it was determined that the activities are not likely to jeopardize the manatee.

Of the 23 remaining formal consultations, only one opinion of jeopardy was issued, the determination of the others being "not likely to jeopardize" or "will promote the conservation of" the manatee.

Sea otters in California

The California population of sea otters (Enhydra lutris) was listed as threatened under the ESA on January 14, 1977, and has also been protected by the Federal Government since 1972 under the MMPA. The population has been under protective State legislation since 1913.

Since the end of the fur trade of otter pelts in the early 1900's, the California otter population has increased from possibly fewer than 50 animals and is now estimated to number about 1,800 individuals. The current range is from Pismo Beach on the south to Soquel Point (Santa Cruz) on the north. The population is slowly expanding its range, but it remains questionable whether or not the population size is increasing. In compliance with both the ESA and the MMPA, management of the population must remain under Federal control as long as it is listed as threatened and until it has reached its optimum sustainable population--a term and concept in the MMPA which refers to the relationship between the numbers of animals and the ecosystem of which they are a part.

The principal listing factor was that the small range and population size exposed the otter to the potential threat of extinction as the result of a major oil spill. Marine terminals for the transfer of petroleum products are located at both the northern and southern ends of the range, Monterey Bay and Estero Bay, respectively. Tanker traffic occurs along the entire range of the otter. OCS leases and the proposed enlargement of the Moss Landing Marine Terminal will further accent the threat to sea otters by oil development.

The Marine Mammal Commission hosted a meeting in May 1979 to provide all affected parties (i.e., Federal agencies, State agencies, private conservation groups, and private citizens) an opportunity to discuss the various current issues concerning the sea otter.

At the end of the report period, the Service was nearing completion of a working draft of the Sea Otter Recovery Plan, which will address the possibility of attempting translocations from this population to various sites within its historical range. One of the main challenges of such an attempt is to locate areas free from the threat of oil spills, having sufficient food supplies, and possessing desirable reproductive conditions. If the population can be restored to a larger portion of its historical range, its vulnerability to oil spills would be proportionally lessened. Research by the FWS and the California Department of Fish and Game (CDF&G) is ongoing, and planned projects will aid in the recovery effort. Likewise, the Service, the CDF&G, and others are in the process of creating an oil spill contingency plan for sea otters.

During the report period, formal section 7 consultations were requested for two applications for scientific research permits, one involving the southern sea otter (for details, see "New permit PRT 2-4114 and amendments "under "Scientific research permit applications"), and the other (PRT 2-4496) which would allow the Bernice P. Bishop Museum in Honolulu to salvage Hawaiian monk seals. It was determined that neither would jeopardize the respective species.

MARINE MAMMAL CARE AND MAINTENANCE REGULATIONS AND STANDARDS

On June 22, 1979, the Department of Agriculture's Animal and Plant Health Inspection Service (APHIS) published in the Federal Register final regulations and standards on the humane handling, care, treatment, and transportation of live marine mammals maintained in captivity for purposes of research, testing, experimentation, or exhibition (44 F.R. 36868-36883--see appendix I). These standards are intended to provide each individual marine mammal with at least the minimum acceptable conditions consistent with its good health and well-being and with regard to its physical requirements and behavioral characteristics. They were prepared under authority of the Animal Welfare Act of 1970, as amended (7 U.S.C. 2131 et seq.); culminated efforts begun in 1975 by representatives of the APHIS, FWS, NMFS, and Marine Mammal Commission; and finalized the revised proposed rules published in September 1978 (see 1979 annual report).

On August 10, 1979, the Service signed an interagency agreement with the APHIS and NMFS to promote effective implementation of the standards. This agreement detailed the respective responsibilities of each party and specified conditions for its amendment and termination as well as the seizure, confiscation, and/or destruction of marine mammals. It, like the standards themselves, became effective on September 20, 1979.

On June 26-28, 1979, Service representatives joined with Department of Agriculture, NMFS, and invited non-Federal speakers in Orlando, Fla., to provide training on the standards to 28 APHIS Animal Care Specialists and Compliance Officers and 12 Veterinary Service field personnel. A Service representative also participated in a similar training course for about 40 additional APHIS personnel on January 28-February 1, 1980, in San Diego, Calif. Shortly after the interagency agreement became effective, Service regional and Alaska Area directors designated contact people in their respective offices to work with

APHIS field representatives on care and maintenance-related matters and to coordinate, as needed, relevant activities with Service law enforcement Special-Agents-in-Charge.

ENFORCEMENT

The Service's Division of Law Enforcement is responsible for enforcing the MMPA and ESA provisions for polar bears, sea and marine otters, walrus, manatees, and dugongs. Although most enforcement efforts are based on reported or alleged Act violations, the Division of Law Enforcement's Special Agents continue to apprehend Act violators and conduct initial investigations of illegal importations of marine mammals or marine mammal products.

Service Special Agents also assist the NMFS by making apprehensions and investigations in cases involving species under that agency's jurisdiction, referring the results of these efforts to the NMFS for its consideration and appropriate action. Pursuant to a NMFS/Service memorandum of understanding, however, the Service retains jurisdiction over those investigations that involve endangered marine mammal species and refers them to the Department of the Interior's Office of the Solicitor for civil action or to the Department of Justice for criminal action.

One hundred and four marine mammal investigations were pending at the start of the report period, during which Service Special Agents initiated 144 new investigations. A total of 133 investigations were closed, while 115 were pending at the end of the period.

None of the cases presented to the Justice Department for criminal action during the report period resulted in criminal disposition. However, one marine mammal investigation involving polar bears resulted in the substantiation of a Lacey Act violation and culminated in a criminal conviction for the sale of three brown bear hides. The U.S. District Court's sentence, a \$5,000 fine, 6 months imprisonment, and 5 years probation, was upheld by the U.S. Court of Appeals for the Ninth Circuit.

The composition and results of marine mammal investigations in Alaska were summarized earlier in this report in the concluding part of the section "Marine mammals in Alaska."

SCIENTIFIC RESEARCH AND PUBLIC DISPLAY PERMITS

The Act declared a moratorium on the taking or importing of marine mammals and marine mammal products, but it included exceptions that allow scientific research on these animals as well as taking them for public display. Such research and taking, however, may be conducted only if there are no adverse effects on the health and well-being of the involved marine mammal species and populations and the marine ecosystems of which they are a part.

Section 102(2)(1) of the Act and section 18.31 of Title 50, Code of Federal Regulations, which govern the taking and importing of marine mammals under

Fish and Wildlife Service jurisdiction, authorize the Director (by delegation) to issue permits for scientific research and public display purposes, but only after the applications have been reviewed by the Marine Mammal Commission and its Committee of Scientific Advisors on Marine Mammals.

During the report period, the Service received eight new applications for scientific research or public display permits and seven requests for amendments. It also processed one application for an amendment that was pending at the end of the last report period. Eleven new permits or amendments were issued, 1 was denied, and 4 were pending final action at the end of the report period. The permits issued or amended are summarized below.

Scientific Research Permit Applications

Amendments to PRT 2-319. (California Department of Fish and Game, Sacramento, Calif., E. Charles Fullerton, Director.) The original permit, authorizing scientific research on sea otters (Enhydra lutris nereis) along the Pacific coast of California, was issued on August 26, 1977. It was due to expire on September 30, 1979. Two amendments were issued during the report period. The first was pending at the end of the previous report period, and the second was requested on September 28, 1979. As now amended, the permit authorizes the permittee to capture 200 sea otters weighing 12 pounds or more, to immobilize them with drugs when necessary, to tag them on the ears and hind flippers, and to collect other data on each animal as described in the application. In addition, 40 other otters can be captured and used in a simulated transplant project. The expiration date for the permit was extended to September 30, 1980.

Amendment to PRT 2-1609. (University of California, La Jolla, Calif., Dr. G. L. Kooyman.) The permit, as previously amended, authorized the capture of 35 sea otters (Enhydra lutris) in Alaska and the attachment of radio transmitters and depth recorders to them before their release. The permit also authorized the placing of oil on the pelage of 10 otters. The request for a second amendment was for authorization to place "temple" tags on a hind flipper of each otter captured for long-term identification. This amendment was issued on June 4, 1979. The permit expired on December 31, 1979.

Amendment to PRT 2-3106. (National Fish and Wildlife Laboratory, Washington, D.C.) The permit, as previously amended, authorized certain activities with sea otters (Enhydra lutris) in Prince William Sound, Alaska, for the purpose of scientific research. The permit was due to expire on December 31, 1979. Because all of the authorized research had not been accomplished, it was requested that the expiration date be extended. On January 21, 1980, amendment No. 2 was issued, extending the expiration date to December 31, 1980.

Amendment to PRT 2-3724. (National Fish and Wildlife Laboratory, Washington, D.C.) The permit, issued on March 15, 1979, authorized the permittee to capture, conduct certain research activities, and release up to 600 polar bears (Ursus maritimus) in certain areas of Alaska. A portion of the research project involved the use of Sernylan to immobilize the bears. On April 4, 1979, an amendment was requested which would authorize the use of the drug M99 and

its authorized antagonist M50-50 as an alternate to Sernylan. This request was approved on April 6, 1979. The permit expires on March 1, 1982.

New permit PRT 2-4114 and amendments. (University of Minnesota, Minneapolis, Minn., Dr. Donald B. Siniff and Dr. John R. Tester.) This permit, as amended, authorizes the permittee to capture 20 sea otters (Enhydra lutris) in the vicinity of San Simeon and in the Shell Beach area of California, 200 sea otters on or in the vicinity of Amchitka Island, Alaska, and 100 sea otters in Prince William Sound, Alaska; to anesthetize the otters using the drugs Fentanyl and Azaperone and the antagonist Narcan; to tag them with "temple" tags; to attach telemetry devices; and to conduct other scientific research as described in the application. The permit was issued on August 6, 1979, and expires on July 31, 1982. Amendment No. 1 was issued on October 18, 1979, and amendment No. 2 on November 28, 1979, making changes to the permit so that it now reads as stated above.

New permit PRT 2-4371. (Abraham Lincoln School of Medicine, Chicago, Ill., Dr. Ursula Rowlett.) This permit authorizes the permittee to import 35 preserved hearts of dugongs (Dugong dugon) from Australia for scientific research. The permit was issued on September 14, 1979, and expires on September 15, 1980.

New permit PRT 2-4405. (National Fish and Wildlife Laboratory, Washington, D.C.) This permit authorizes the tagging and retagging with radio transmitters, as often as necessary, of six West Indian manatees (Trichechus manatus) within the State of Florida. The permit was issued on January 15, 1980, and expires on December 31, 1981.

Public Display Permit Application

Amendment to PRT 2-2507. (Vancouver Public Aquarium, Vancouver, B.C., Canada, K. Gilbey Hewlett, Curator.) The original permit authorized the taking of four sea otters (Enhydra lutris) from Prince William Sound, Alaska. The expiration date was December 31, 1979. The otters were not captured at the time anticipated, and on September 18, 1979, a request was made to extend the expiration date. The request was granted on October 17, 1979, and the permit now expires on December 31, 1980.

CERTIFICATES OF REGISTRATION

Section 18.23 of Title 50, Code of Federal Regulations, provides that marine mammals taken by an Indian, Aleut, or Eskimo for the purposes of creating and selling authentic native articles of handicrafts and clothing may be transferred to a registered tannery, either directly by an Indian, Aleut, or Eskimo, or through a registered agent. Similarly, marine mammals taken by Alaskan Natives for subsistence may be sent to a registered tannery for processing and subsequent return to an Alaskan Native.

Any tannery or person who wishes to act as an agent may apply for registration. During the report period, the Service received three requests for new

certificates and one request to renew a certificate which had expired. Two new certificates were issued, one was renewed, and one was pending at the end of the report period. The new and renewed certificates are summarized below.

Renewed certificate PRT 2-2105-RA. New Method Fur Dressing Co., 131 Deacon St., South San Francisco, Calif., Renaldo Pepi, President. This renewed certificate authorizes the holder to receive or acquire and sell or transfer polar bear (Ursus maritimus) skins from and to Alaskan Natives or other registered agents. This certificate was issued on March 21, 1980, and expires on December 31, 1982.

New certificate PRT 2-4298-RA. Fick's Taxidermy, 8001 Little Dipper, Anchorage, Alaska, Clinton Fick, Owner. This certificate authorizes the holder to receive or acquire and sell or transfer polar bear (Ursus maritimus) skins from and to Alaskan Natives or other registered agents. This certificate was issued on August 16, 1979, and expires on August 31, 1981.

New certificate PRT 2-4845-RA. AAA Rams Unlimited Taxidermy, P.O. Box 10-774, Anchorage, Alaska, Harold B. Jones, Owner. This certificate authorizes the holder to receive or acquire and sell or transfer polar bear (Ursus maritimus) and walrus (Odobenus rosmarus) skins from and to Alaskan Natives or other registered agents. The certificate was issued on March 3, 1980, and expires on February 15, 1982.

RESEARCH

The marine-mammal research-related objectives of the Fish and Wildlife Service are to actively carry out the Service's mandates under the Marine Mammal Protection Act and to determine the ecological effects of energy-resource-development-related human activities on marine wildlife. To meet these objectives, considerable survey work, accumulation of information, and detailed analyses of population data remain to be accomplished. Review of worldwide marine mammal research literature and preparation of status reports continue to be important efforts in the overall research program.

In June 1979, the Service published a report on the Pinniped and Sea Otter Tagging Workshop held in Seattle, Wash., the previous January (see account in "Research" in the 1979 annual report). This report, prepared by the Service's Division of Wildlife Ecology Research's National Fish and Wildlife Laboratory (NFWL) and the American Institute of Biological Sciences, summarizes in its abstracts the state-of-the-art in tagging and marking these animal as well as information on materials and methods used in various tagging and marking programs, highlights workshop discussions, and makes general and specific recommendations on the appropriate utilization and development of tags and marks.

On August 23-25, 1979, the NFWL cosponsored, with the California Department of Fish and Game and the Santa Barbara Museum of Natural History (SMBNH), the Second Workshop on Sea Otters, which was held in Santa Barbara, Calif. The workshop was divided into four sessions devoted to the following subjects: (1) subtidal ecology and shellfish stock assessment, (2) sea otter biology,

husbandry, and methodology, (3) otter population dynamics and assessment, and (4) otter management perspectives and future research priorities. Workshop proceedings will be published by the SBMNH. Further information about the proceedings can be obtained from Dr. Charles D. Woodhouse, Jr., Santa Barbara Museum of Natural History, 2559 Puesta del Sol Road, Santa Barbara, Calif. 93105.

During the report period, NFWL personnel also served on the advisory committee to the Under Secretary of the Interior concerning the bowhead whale take requirements of the Alaskan Native community. A contract to summarize available information on the Natives' nutritional and cultural needs relative to bowhead whales was issued in January 1980 to Dr. Fred Milan, University of Alaska. A final report, scheduled for distribution to the advisory committee in April 1980, will be incorporated into the U.S. position on recommended subsistence bowhead take to be presented to the International Whaling Commission this summer (see "International Whaling Commission" account in "International Activities" section for background details).

Owing to funding problems within the NMFS, the Marine Mammal Tagging Office, activated in 1978 in the NFWL's Marine Mammal Section under joint funding by the Service and the NMFS, was funded and functional only through the end of FY 79; that is, through half of the report year. During this time, the office continued to perform its functions of (1) communication and coordination, (2) archiving, and (3) research and development. It will resume operations in April 1980, under a letter of agreement signed by the FWS Director and NOAA's Assistant Administrator for Fisheries, when it will be housed within the NMFS' National Marine Mammal Laboratory (NMML) in Seattle, Wash.

Between April 1979 and October 1979, the office consulted and participated in research programs involving (1) the immobilization, tagging, and tracking of polar bears north of Pt. Barrow, Alaska, (2) an attempt to identify right whales by colosity marks from aircraft for mark/recapture population estimation, and (3) radio tracking of West Indian manatees in Florida's St. Johns River. The office also participated in a biotelemetry conference in Laramie, Wyo., and a meeting of professional users of the Argos Satellite System in Lanham, Md.

During FY 80, the Service continued to fund the office at a reduced level and used its expertise in other FWS programs. These included: participation in the Third Conference on the Biology of Marine Mammals in Seattle, initiation of a meeting in Woods Hole, Mass., for principals involved in large cetacean tagging and tracking, and participation in meetings held in San Diego, Calif., by the American Acoustical Society to evaluate the impact of human-related development in the Beaufort Sea.

The office also participated in Marine Mammal Commission-sponsored meetings involving reviews of marine mammal research on the Atlantic and Gulf coasts of North America, research in Glacier Bay, Alaska (especially on the endangered status of humpback whales), and present and projected research in the Beaufort and Bering Seas. Reports and comments from these meetings are available through the Marine Mammal Commission.

Acting on requests from the NMFS, the office also served on the source evaluation board for studies on the bottlenose dolphin along the Atlantic and Gulf coasts (proposals were evaluated and a contract was awarded to Hubbs/Sea World Research Institute), and participated in a research review of proposed gray whale studies (a national plan was developed and is available from the NMML).

Research--conducted in-house, by contract, and under an ESA section 6 grant-in-aid to the California Department of Fish and Game--is summarized below.

In-house

1. Polar bear investigations:

- a. Satellite tracking of bears.
- b. Biological parameters of bears of western Beaufort Sea.
- c. Feasibility of ecosystem-oriented studies of bears in Beaufort Sea.
- d. Biology and ecology of bears of Arctic Ocean.
- e. Summer distribution and ecology of bears.
- f. Produce model that will simulate population dynamics of northern Alaska polar bear population.
- g. Annual status report.

2. Sea otter and marine otter investigations:

- a. Annual and seasonal distribution, abundance, and composition of populations of sea otters and other marine mammals in Prince William Sound, Alaska.
- b. Biology and management needs for California sea otters.
- c. Interactions between sea otters and the nearshore community.
- d. Parasites and environmental contaminants in sea otters.
- e. Determination of status of marine otters.
- f. Annual status reports on sea and marine otters.

3. Walrus investigations:

- a. Biological activities of Pacific and Atlantic walruses.
- b. Parasites and environmental contaminants in walruses.
- c. Annual status reports on Pacific and Atlantic walruses.

4. Manatee and dugong investigations:

- a. Determination of causes of manatee mortality and study and salvage of stranded manatees and other marine mammals.
- b. Development of manatee tagging and tracking technology.
- c. Definition of ecosystem relationships of manatees and assessment of effects of habitat alterations.
- d. Basic sensory and physiological parameters of West Indian manatees as related to technical needs.
- e. Basic reproductive and behavioral characteristics of West Indian manatees.

- f. Influence of warm water effluents on manatee distribution and movements around selected powerplants.
 - g. Parasites and environmental contaminants in manatees and dugongs.
 - h. Distribution and status of all manatee taxa and populations; annual status reports.
 - i. Distribution and status of all dugong populations; annual status report.
5. Other marine mammals: Biological studies, in cooperation with the NMFS, to determine status of Hawaiian monk seal population.
 6. Marine mammal tagging:
 - a. Serve as clearinghouse and information center for marine mammal tagging operations.
 - b. Stimulation of research and development of marine mammal tags and techniques.
 - c. Archive data from tagging/marking studies.

Contracts

1. San Nicolas Island (California) survey for baseline data and as potential sea otter translocation site. Principal investigator: W. Doyle, University of California, Santa Cruz (\$100,000).
2. Evaluation of existing manatee-propeller guard technology. Principal investigator: Diana Magor, University of California, Santa Cruz (\$7,800).
3. Study of the relationship between manatees and flood control dams and visual or sound stimuli (scare devices) to keep manatees away from dangerous manmade structures (floodgates and navigation locks). Principal investigator: Daniel K. Odell, University of Miami (\$5,000).
4. Upgrade manatee salvage in Florida for the next 2 years. Principal investigator: Daniel K. Odell, University of Miami (\$33,000).
5. Effects of Dade County automatic flood control gates on manatees. Principal investigator: Daniel K. Odell, University of Miami (\$28,825).
6. Studies on polar bear/walrus/manatee. Principal investigator: Donald B. Siniff, University of Minnesota (\$41,810).
7. Round Island walrus survey. Principal investigator: James Taggart, University of California, Santa Cruz (\$17,000).
8. Study marine and terrestrial ecosystems and habitats, with emphasis on marine mammals and land use problems. Principal investigator: W. Doyle, University of California, Santa Cruz (\$20,245).

ESA Section 6 Grant-in-aid to California Department of Fish and Game

1. Sea otter mortality rates and causes (\$28,040).
2. Interrelationship between sea otters and their habitat (\$28,040).
3. Size, distribution, and movements of California's sea otter population (\$58,425).
4. Feasibility of translocating sea otters (\$39,731).

OUTER CONTINENTAL SHELF (OCS) ENVIRONMENTAL STUDIES

During the report period, the Service's Office of Biological Services (OBS) contracted with Dames and Moore to perform an Atlantic coast ecological inventory. Using available information, they are locating and mapping areas of high natural resource value, noting species and habitats present and special land use designations. The locations and abundance of marine mammals will be mapped on a scale of 1:250,000 and described in a narrative report.

The OBS also contracted with the Point Reyes Bird Observatory to prepare a manual for identifying beached marine birds and mammals along the U.S. Pacific coast. This manual, issued in January 1980, includes keys for identifying carcasses and also describes species' ranges.

Under joint funding by the OBS and the Service's Office of Endangered Species, the Service's Division of Wildlife Ecology Research's National Fish and Wildlife Laboratory (NFWL) conducted a study on selected threatened and endangered vertebrate species of the U.S. coastal zone. Species accounts were prepared for each species involved, including marine mammals. The NFWL also responded to several OBS requests for consultations on marine mammal-related contracts for the Bureau of Land Management (BLM). These ultimately involved serving on technical proposal evaluation committees for studies of: (1) the effects of oil on marine mammals, (2) the effects of human, OCS development-associated, disturbance on marine mammals, (3) a marine mammal and seabird characterization of northern and central California, and (4) an evaluation of radio tags for cetaceans to be used in Iceland. Contracts were issued for each study during the report year.

In June 1979, the NFWL began a pilot study of the seasonal distribution and abundance of marine wildlife of the South Atlantic and Gulf of Mexico. This study, managed by the OBS and funded by the BLM, considers the seasonal distribution of--and the impact of oil and gas activities on--marine birds, mammals, turtles, and the endangered manatee. Because it is a pilot study, the data can be considered to be suggestive but not conclusive. The study area comprised two areas in Texas and two in western Florida, and differences were discerned between the marine mammal faunas of the two States. Bottlenose dolphins (Tursiops truncatus) were found off both. Three species of dolphins (Stenella spp.) were found off Texas in August, and the striped dolphin (Stenella coeruleoalba) was positively identified off Florida in August. No Stenella were found off Texas in November. Beaked whales (Mesoplodon sp.), sperm whales (Physeter catodon), and short-finned pilot whales (Globicephala macrorhynchus) were observed off the Texas coast but not off Florida. Surveys

of inshore areas of western Florida were conducted independently of the offshore studies to determine the abundance of the West Indian manatee (Trichechus manatus). The inshore study area extended from Hernando County to Monroe County, Fla. During this survey, 554 manatees were sighted in 297 herds, most of the sightings occurring in the shallow, inshore, brackish waters of Collier and Monroe Counties. Reports from this study will be completed near the end of FY 80. In addition, a more extensive study of selected areas of South Atlantic and Gulf of Mexico coastal waters is now beginning for endangered species of birds, mammals, and turtles.

Of major importance in the Service's OCS-related activities, the FWS participates in the Department's OCS Minerals Leasing and Development Program, primarily by providing advice, input, and reviews at various decision stages. Its concerns include environmental studies, resource assessments, tract selections, Secretarial Issue Documents, and the design of protective lease stipulations. The Service provides to the Department technical expertise on the management of fish and wildlife resources and the habitats on which they depend. Service responsibilities include not only particular marine mammals but also migratory birds, endangered and threatened animal and plant species, and the National Wildlife Refuge System. During the report period, the Service participated in various lease sales and provided protective measures for the polar bear, sea otter, and manatee. It also participated in the marine sanctuary process by providing to the NOAA technical expertise on sea otter-related concerns in the California Channel Islands.

During discussions concerning the Federal/State Beaufort Sea lease sale, the Service expressed concern over the potential impact of oil and gas activities on the polar bears in and adjacent to the sale area. Seismic activities conducted after March 15 of each year are suspected to be a contributing factor in the displacement of ringed seals, which constitute the major food of polar bears in the Beaufort Sea. The displacement of ringed seals implies a potential for the parallel displacement of polar bears. The Service, recognizing the need for more awareness of the potential impact of these seismic activities on polar bears, included in the lessee's contract a notice that the lessee should contact the FWS regarding the impacts of sale activities and the possible mitigating measures for these impacts before any activities begin. It also included general biological stipulations that serve as protective measures for the fish and wildlife resources in the Beaufort Sea lease area.

Sea otters that might again occupy the Channel Islands benefited from the Service's participation in Southern California Lease Sale 48. Oil and gas development tracts within 6 nautical miles of the islands were deleted from sale consideration and the potential impacts of development. The populations of marine mammals and seabirds using the Channel Islands are recognized by the FWS as deserving a buffer from the general disturbances caused by human encroachment. The FWS also provided technical information and expertise on sea otters to the NOAA during its considerations of the proposed Channel Islands Marine Sanctuary.

In support of the ESA section 7 consultation process with the BLM for sales in the South Atlantic, the Service's preliminary recommendation was that an information statement concerning manatees be given to the lessees. The FWS

is concerned about the potential impacts on manatees that might result from increased boating in the South Atlantic harbors where oil and gas support bases would be sited. The statement would advise the lessee of preferable boating speeds and channels in harbors to prevent collisions with the manatees that also use these harbors.

ECOLOGICAL CHARACTERIZATIONS OF U.S. COASTAL AREAS

The Service's Office of Biological Services is managing a group of studies known as ecological characterizations, funded by Environmental Protection Agency pass-through funds and by the Bureau of Land Management. An ecological characterization is a structured synthesis of existing information on the functional relationships of ecosystem processes and components. This ecosystem information base is designed to assist decisionmakers in comprehensive coastal resource planning and management. For example, current characterization efforts along the coasts of Texas, the Mississippi Delta, and central and northern California are specifically designed to meet information needs that will support the OCS oil and gas leasing program of the Department of the Interior. Each of the characterizations now underway will contain a section on marine mammal life histories (provided adequate information exists for the area), species abundance and distribution, migration routes, statistics on harvest by man, and habitat preferences and requirements. Two characterizations have been completed:

1. An ecological characterization study of the Chenier Plain coastal ecosystem of Louisiana and Texas. Project officer: James B. Johnston, National Coastal Ecosystems Team, U.S. Fish and Wildlife Service.
2. An ecological characterization study of the Pacific Northwest coastal region. Project officer: Jay Watson, Region 1, U.S. Fish and Wildlife Service.

Five other characterizations are currently being prepared under contracts and are due for completion in FY 81 or FY 82:

1. An ecological characterization study of the rocky coast of Maine. Project officer: Steward Fefer, Region 5, U.S. Fish and Wildlife Service.
2. An ecological characterization study of the Sea Islands and coastal plain of South Carolina and Georgia. Project officer: Lee Barclay, Region 4, U.S. Fish and Wildlife Service.
3. An ecological characterization study of the Mississippi Deltaic Plain region. Project officer: James B. Johnston, National Coastal Ecosystems Team, U.S. Fish and Wildlife Service.
4. An ecological characterization study of the Texas Barrier Islands. Project officer: James B. Johnston, National Coastal Ecosystems Team, U.S. Fish and Wildlife Service.
5. An ecological characterization study of the central and northern California coast. Project officer: Jay Watson, Region 1, U.S. Fish and Wildlife Service.

INTERNATIONAL ACTIVITIES

The Service's international efforts toward the conservation of marine mammals and their habitats are an important component of its overall efforts to achieve the objectives of the Marine Mammal Protection Act. The following summaries describe the principal international activities carried out or participated in by the Service during the report period.

Seminar-Workshop on Dugongs

The Australian National Parks and Wildlife Service, in association with James Cook University of northern Queensland, convened a seminar-workshop on dugongs at the university in Townsville on May 8-13, 1979. The group attending the meeting examined the biology and ecology of the dugong and the cultural and legal aspects of its conservation. Workshops were held on such topics as the anatomy and pathology of dugongs, analysis of stomach contents, age determination, and aerial survey methods. Proceedings of the seminar-workshop will be published by James Cook University. Orders should be addressed to: P. Channells, Zoology Department, James Cook University, Townsville, 4811, Queensland, Australia.

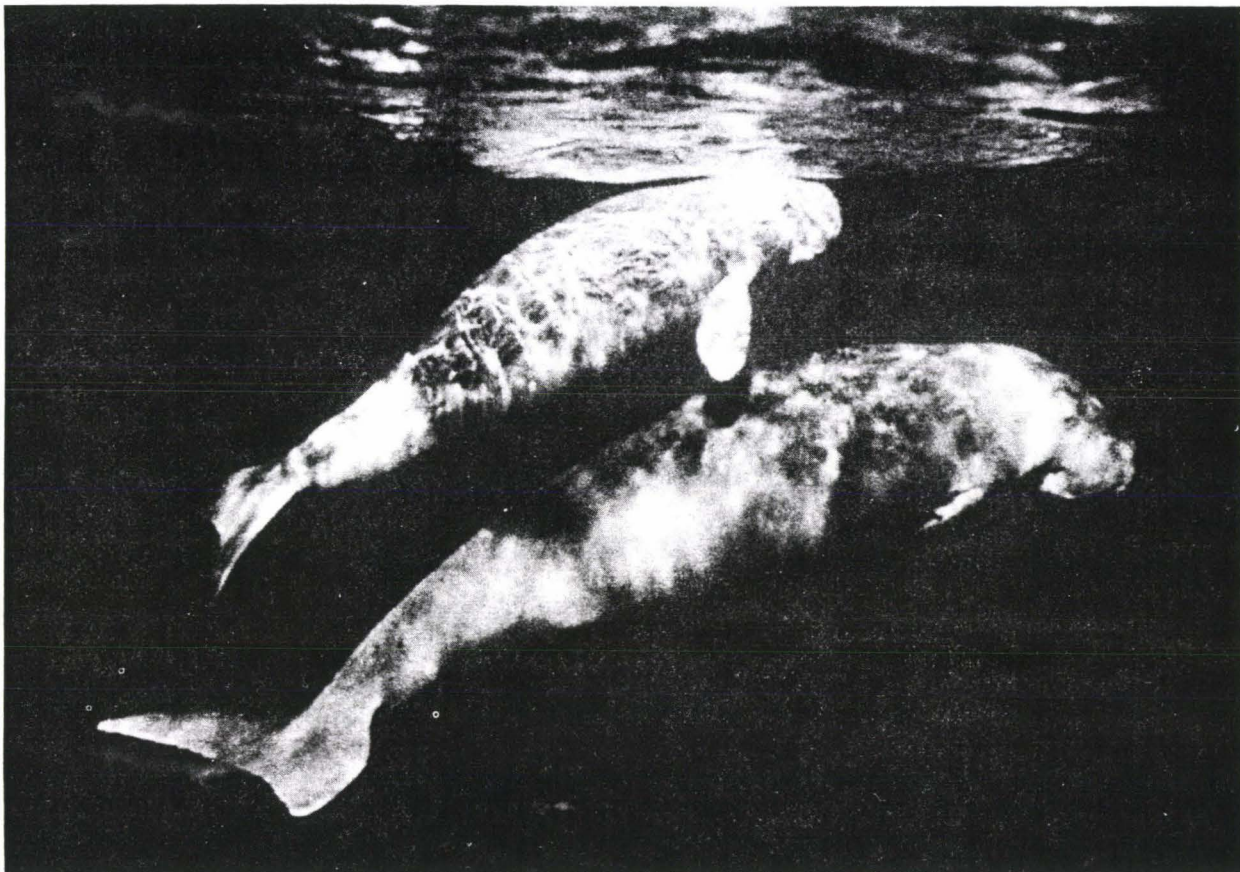


Figure 3. Dugong and calf swimming in Shark Bay, Western Australia. These individuals are members of a wild population being studied by Paul K. Anderson, University of Calgary, Canada. Photo by Paul K. Anderson.

U.S.-U.S.S.R. Environmental Agreement, Marine Mammal Project

Coordinated jointly by the Service, the NMFS, and the U.S.S.R. Ministry of Fisheries, this project seeks to promote the conservation and effective management of marine mammals of interest to both countries. During the report period, four exchange visits, involving three U.S. and three Soviet specialists, took place and significantly contributed to ongoing studies of the biology, ecology, and population dynamics of these animals.

In May-June 1979, Dr. Lev Popov visited the United States to conduct joint research with scientists of the Alaska Department of Fish and Game on ringed seals in the Beaufort Sea area, sea lions in the vicinity of Kodiak Island, and beluga whales in Kotzebue Sound. Through their collaborative work and exchange of expertise on the research methods practiced in each country, new information was obtained on the distribution, ecology, and morphology of these marine mammals.

Soviet scientist Dr. Alexei Yablokov spent 1 month working with the Director of the Hubbs/Sea World Research Institute in San Diego during the summer of 1979. Drs. Yablokov and William E. Evans continued their joint studies on color pattern variation of cetaceans, including killer whales and pelagic dolphins, and completed a draft of a paper describing their collaborative work. A third Soviet scientist, Dr. Anatoliy Sokolov, visited the United States in September-December 1979 to pursue morphophysiological studies of small cetaceans, with particular emphasis on porpoises, at the NMFS Southwest Fisheries Center in La Jolla, Calif. Although this particular exchange was sponsored by the Academies of Sciences of each country, earlier work related to these studies was conducted under the auspices of the U.S.-U.S.S.R. Environmental Agreement.

Three U.S. scientists, Dr. Robert V. Miller, Mr. James H. Johnson, and Mr. Mitchell Taylor, participated in a joint bowhead whale research cruise aboard the Soviet vessel Avangard in the Chukchi Sea during September-October 1979. Extensive observations on bowhead and gray whales, as well as walrus and ice seals, were made by the U.S. and Soviet scientists, which contributed to the study of the fall distribution of these species.

The U.S.-Soviet Marine Mammal Working Group met in Seattle in March 1980, where they reviewed joint work conducted during 1979 and developed plans for upcoming exchanges. In accordance with the resulting protocol of the session, bilateral work under this project for 1980 includes the following:

1. Two U.S. specialists are scheduled to spend 2 to 3 weeks at Lake Baikal in the U.S.S.R. aboard a Soviet research vessel, conducting physiological and behavioral studies of the Baikal seal population.
2. The Soviet side has invited the Director of the Hubbs/Sea World Research Institute to the U.S.S.R. Institute of Developmental Biology during October-November to continue joint studies on cetacean color patterns.
3. Two or three U.S. scientists plan to participate in a Soviet whale research cruise in the Chukchi and Bering Seas during the fall.

4. Both sides will continue preparation of joint compendia on pinnipeds and cetaceans scheduled for publication in the near future.

The two sides also exchanged scientific literature and data on gray whales, sea otters, harbor seals, northern sea lions, and other marine mammals at the March meeting.

International Whaling Commission (IWC)

The 31st meeting of the IWC was held on July 9-13, 1979, in London, England. The U.S. delegation was headed by the U.S. Commissioner, Richard A. Frank, Administrator of the Department of Commerce's National Oceanic and Atmospheric Administration; the delegation included 19 other members. Interior's only direct involvement with the IWC is over aboriginal whaling by Alaskan Eskimos. The U.S. delegation report on the meeting reads in part:

"As in previous years, the Scientific Committee recommended a zero catch limit for bowhead whales taken by Alaskan Eskimos. With the introduction of new assumptions, its report stated that, if it is accepted that the best estimate of bowhead gross recruitment is 2.5 to 3.5 percent and that the total removals in the Eskimo fishery averaged 45 annually for the six year period 1973-1978, then a reduction in recruitment can be expected within the next few years, in which case the population will decline. As had been agreed at the 30th Meeting, the Commission took into account the report of the IWC Working Group of the Technical Committee on Aboriginal Whaling. This Working Group recommended quotas of 20 landed or 27 struck, whichever occurs first, for 1980 and 1981. The Working Group also recommended an aboriginal whaling regime which would go into effect in 1982.

"Weighing the reports of the Scientific Committee, the Working Group, and the needs of both the Eskimo and the bowhead whale, the Commission agreed to a one-year catch limit of 18 landed or 26 struck, whichever occurs first. Although the aboriginal whaling regime was not adopted, the principles underlying it as proposed by the Working Group were adopted."

A complete report of the U.S. delegation to the 1979 IWC meeting is available from Dean Swanson, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, Department of Commerce, Washington, D.C. 20235.

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

The second biennial meeting of the Conference of the Parties took place in San José, Costa Rica, on March 19-30, 1979. (See 1979 annual report for details.)

In Costa Rica, the parties adopted a resolution, proposed by the United States, that would deny CITES permits for commercial trade in products of whales classified as "Protection Stocks" by the International Whaling Commission (IWC).

Pursuant to the adoption of that resolution, the Secretary General of CITES participated in the 31st annual meeting of the IWC and its Scientific Committee in June-July 1979 (see preceding account for additional discussion). At that time, he consulted with the Secretary of the IWC to develop "a list of species and stocks of whales protected from commercial whaling by the International Convention for the Regulation of Whaling." The list was transmitted to all CITES parties in "Notification to the Parties No. 120," dated July 20, 1979; it will be revised periodically to reflect decisions of the IWC.

The changes made in the CITES appendixes at the second biennial meeting entered into force on June 28, 1979. Australia, Canada, South Africa, and the U.S.S.R. (all IWC members) maintained their reservations regarding cetaceans listed in these appendixes. Moreover, Canada and South Africa entered new reservations regarding the listing of cetaceans at the Costa Rica meeting. Following the entry into force of the revised appendixes, the United Kingdom enacted new regulations to control trade in whale products, effective September 19, 1979.

International trade in whale products has continued to be of interest and concern to the CITES parties. On January 29-31, 1980, a technical expert committee, composed of representatives of the parties, met in Bonn, Federal Republic of Germany (FRG), to discuss the development of a common permit form and procedure which could be adopted and used by all parties. At that meeting, the issue of whale products was added to the discussion agenda at the request of the FRG. Following extensive discussions, the technical expert committee drafted a resolution for consideration at the third biennial meeting of the Conference of the Parties, scheduled for February 2-13, 1981, in New Delhi, India. This resolution would recommend that the parties pay particular attention to the documentation of cetacean specimens (whale products involved in export and import), and also calls on those parties not currently adhering to the International Convention for the Regulation of Whaling to do so.

U.S.-Mexico Marine Mammal Activities

On August 29, 1979, a U.S. interagency delegation met with representatives from the Mexican Ministry of External Affairs and Fisheries Department in Mexico City for talks on a bilateral agreement for marine mammals. The talks were informal, non-negotiating discussions aimed at reactivating the proposed agreement after 1-1/2 years of delays. The meeting was spent discussing the U.S. draft and the Mexican position that this agreement should be a protocol to the U.S.-Mexican Fisheries Agreement of 1976--based on article XVI of that agreement. The Mexican officials stressed the fact that they want broad cooperation with the United States and other countries to conserve marine resources, but that they felt the U.S. approach favoring a formal agreement was too cumbersome and they preferred to make use of existing mechanisms in the 1976 fisheries agreement. During the fall of 1979, the United States worked to develop a U.S. response to the Mexicans' proposals.

On October 23-24, 1979, U.S. and Mexican scientists met in Seattle, Wash., to discuss a joint marine mammal research program. This meeting was a followup

to the first session, held in July 1978, to establish a bilateral cooperative framework for research. Five projects are underway and continuing: a West Indian manatee research plan, joint research on small coastal marine mammals, a gray whale research plan, a population survey of eastern tropical Pacific dolphins, and a study of tropical dolphin biology. The projects on West Indian manatees, small coastal marine mammals, and gray whales are being conducted on a joint basis. Gray whales are the main concern of the Mexican scientists.

Other topics of discussion included establishment of a marine mammal salvage program at the Erendira research facility in Baja California Norte, Mexico's July 1979 declaration of Laguna San Ignacio as a gray whale refuge, a visiting scientist program at the NMFS Southwest Fisheries Center, and consideration of a sea otter habitat study.

Agency for International Development (AID) Contract with FWS on Thailand

In August 1979, the Service began negotiating a 1-year contract with the AID, signed in December, to evolve a profile of the endangered species of Thailand. The result is to be a planning tool or early warning system to enable the AID to avoid or compensate for impacts that development projects are likely to have on endangered species. With several species of dolphins, porpoises, and whales, as well as the dugong, occurring in Thai waters, the Service would like to see the result of this project lead to future in-depth field research on those species associated with any development activities.

Symposium on the Biology of the Dugong

On December 6-7, 1979, a Service representative participated in a symposium on the biology of the dugong at the Ocean Research Institute, University of Tokyo, Japan. The meeting, convened by Professor Masaharu Nishiwaki, was divided into the following sections: (1) capture and transportation, (2) maintenance in captivity, (3) food habits; (4) growth, (5) morphology, parasitology, and other biological parameters, (6) distribution and present status, (7) sighting records and abundance, and (8) overall discussion. No proceedings of the symposium will be published.

Latin American/Caribbean Program

In January-February 1980, a biologist of the Honduras Department of Renewable Natural Resources received 3 weeks of training with the FWS manatee project in Florida. Honduras is considering the possibility of establishing a manatee reserve, and the Service may assist in the future in planning such a reserve.

In March 1980, the FWS and Ecuador's Department of Administration of Natural Areas and Wildlife tentatively agreed to cooperate over the next 2 years in providing training in manatee research for an Ecuadoran biologist and possibly

in conducting a survey of the Amazonian manatee (Trichechus inunguis) in Ecuador's Amazon region.

U.S.-Peoples Republic of China Environmental Protocol

On February 5, 1980, the United States and the Peoples Republic of China signed the protocol in Beijing, China, thereby opening the door to cooperation on environmental and other matters of mutual concern and interest. At the close of the report period, plans were being made for drafting the five annexes that will contain the protocol's substantive provisions. Annex 5, "Preservation of Nature," is expected to consider marine mammals within its project to study and conserve threatened and endangered species of animals. Specifically, the United States would transmit information on current research on threatened and endangered marine mammals, while the Peoples Republic of China would furnish information on the population size, range, and distribution of the baiji (white flag) dolphin (Lipotes vexillifer). Formal agreement on the content of the project is expected later this year, and exchanges of specialists will probably begin in 1981.

International Conference on Bear Research and Management

The fifth International Conference on Bear Research and Management, sponsored by the Bear Biology Association, was held at the University of Wisconsin (Madison) on February 10-13, 1980. Abstracts of the papers were made available at registration, and the proceedings were expected to be published within 2 years. A peer review process was established to decide which papers will be published. The editor will be Dr. E. C. Meslow, Oregon State University, Corvallis, Oreg. 97331.

International Meeting on Marine Mammals of Baja California

The fifth meeting of the Mexican Society for the Study of Marine Mammals was held in Ensenada, Baja California, on February 19-21, 1980. Because of heavy rains in the area at that time, transportation to and from Ensenada was severely restricted, resulting in an unusually poor attendance at the meeting. For example, many people from the United States, as well as representatives from Mexico, were unable to reach Ensenada. Several people were pressed into service to fill vacant places on the planned program. Despite the water and the circumstances in Ensenada, over 100 people registered for the meeting.

Excess Foreign Currency Programs

During the report period, the Service received congressional authorization for continued use of excess foreign currencies held by the U.S. Government in Egypt, India, and Pakistan. These authorizations were requested under section 8 of the Endangered Species Act, which allows such funds to be expended on projects deemed by the Secretary of the Interior to be necessary or useful for the conservation of endangered or threatened species.



Figure 4. Female Amazonian manatee captured on Ilha de Marajó, at the mouth of the Amazon River in Brazil. Note the smooth, shiny skin, in marked contrast to that of the West Indian manatee. Photo by Daryl P. Domning.

As part of the program in Egypt, in 1979 that Government ratified the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and sent a representative to the Conference of Parties in Costa Rica. An Egyptian representative also participated in the negotiation of the Convention on the Conservation of Migratory Species of Wild Animals, held in Bonn, and was one of the original signers of that convention. The entire conservation movement has been bolstered by the establishment of a ministerial-level conservation council to assure a conservation voice in development planning. This has also led to a ministerial proposal to establish an Egyptian Wildlife Service with 25 full-time biologists assigned to it. Field surveys have been conducted in several parts of the country, resulting in the discovery of species thought to have been extirpated within their Egyptian range. Efforts are underway to establish laws and regulations protecting the natural resources of Sinai, including the endangered dugong.

Negotiations with Pakistan have resulted in three draft contracts involving research, management, and education and training on endangered and threatened species. These contracts, if approved by the Pakistani Government, will allow the National Council for Wildlife Conservation to release moneys for project proposals already approved under the National Conservation Strategy. Included under this strategy is a project for the Indus River dolphin.

In India, the joint program enabled the Service to send representatives from the U.S. CITES Management and Scientific Authorities to India for consultations with officials before the Conference of Parties in Costa Rica. The Director of the Nehru Zoological Gardens in Hyderabad toured the United States for 2 months, focusing on marine aquariums and reserves. A joint project proposal nearing fruition will develop a major marine reserve and zoological/scientific park for marine mammal research.

Cooperation with Other Organizations

The Service is continuing its support of the International Union for the Conservation of Nature and Natural Resources (IUCN) through the participation of Service personnel on the IUCN's Survival Service Commission. The commission sponsors Specialist Working Groups on polar bears, sirenians, cetaceans, otters, and pinnipeds.

Agreement on the Conservation of Polar Bears

This treaty commits the United States and four other signatories, Canada, Denmark, Norway, and the U.S.S.R., to protecting polar bear habitat components, especially denning and feeding sites and important migration areas. The agreement further commits the signatories to managing polar bear populations with sound conservation practices based on the best available scientific data, and it prohibits hunting, killing, and capturing bears except for listed specific purposes and by limited methods.

In 1979, the depository government Norway recommended that a meeting of signatory nations be convened in early 1980 to review the treaty because its

initial 5-year period in force will expire in May 1981. Although participants were unable to meet at that time, a review of the treaty is tentatively scheduled for January 1981 in Norway. The Service is committed, through the MMPA, to continuing polar bear conservation efforts.

PART II--SPECIES STATUS REPORTS

INTRODUCTION

Status reports have been prepared for the eight species over which the Secretary of the Interior has jurisdiction under the terms of the Act. Information about each species is summarized under seven major headings: Distribution and migration, abundance and trends, general biology, ecological problems, allocation problems, regulations, and current research. (To convert the metric measurements used in the reports to their English (U.S. customary unit) equivalents, multiply as follows: millimeters X 0.03937 = inches, centimeters X 0.3937 = inches, meters X 3.281 = feet, kilometers X 0.6214 = miles, kilograms X 2.205 = pounds, liters X 1.057 = quarts, and 1.8 X degrees Celsius + 32 = degrees Fahrenheit.) A partial bibliography for each species is included at the end of this part.

The Act defines a marine mammal as "any mammal which (A) is morphologically adapted to the marine environment (including sea otters and members of the orders Sirenia, Pinnipedia and Cetacea), or (B) primarily inhabits the marine environment (such as polar bears); and for the purposes of this Act, includes any part of any such marine mammal, including its raw, dressed, or dyed fur or skin."

SPECIES LIST

Carnivora

Ursidae

Ursus maritimus (Polar bear)

Mustelidae

Enhydra lutris (Sea otter)

Lutra felina (Marine otter)

Pinnipedia

Odobenidae

Odobenus rosmarus divergens (Pacific walrus)

Odobenus rosmarus rosmarus (Atlantic walrus)

Sirenia

Trichechidae

Trichechus manatus (West Indian manatee)

Trichechus inunguis (Amazonian manatee)

Trichechus senegalensis (West African manatee)

Dugong dugon (Dugong)

STATUS REPORTS

Polar bear (Ursus maritimus)

Distribution and migration. Polar bears are limited to the Northern Hemisphere and are in most cases closely associated with Arctic sea ice. Centers of relatively isolated populations in the Polar Basin are Wrangel Island-western Alaska, northern Alaska, northern Canada, Greenland, Svalbard Islands-Franz Joseph Land, and central Siberia. Separate populations also occur in Hudson Bay, Canada.

Polar bears are most abundant near the southern edge of the sea ice, although they occur throughout the Polar Basin as far north as latitude 88° N. Extensive north-south movements accompany seasonal changes in the position of the southern ice edge. In winter, bears typically occur as far south as Bering Strait and may reach St. Lawrence Island or St. Matthew Island in the Bering Sea on occasion. The summer ice edge position is normally between latitudes 71° and 72° N. Pregnant females concentrate primarily on certain Arctic islands of the Soviet Union and the Svalbard group and in Canada to den and bear young during winter.

Abundance, trends, and harvest. Worldwide population estimates range from 10,000 to 20,000 polar bears. These estimates are based on broad assumptions and should be interpreted cautiously. Alaska Natives harvested about 120 bears per year between 1930 and 1960. Aircraft-supported trophy hunting began in the late 1940's. The total annual bear harvest thus gradually increased to about 260 by 1972. Airborne hunting guides provided reliable data on bears seen per hour of flying during 1956-69. No trend in bear numbers was apparent during this period. Eighty-seven percent of the bear harvest was taken with the use of aircraft during 1961-72. Of this fraction, 70 to 80 percent were males. In spite of the reduction in numbers of mature males, the percentage of females with young remained high in Alaskan populations. The age structure of bears harvested west of Alaska did not change during the period of aircraft-assisted hunting. Ages of bears harvested north of Alaska decreased in 1970 and 1971, then increased in 1972, possibly reflecting heavy harvests in 1966 and 1967 followed by hunting restrictions and reduced harvests.

Following passage of the Marine Mammal Protection Act, the mandatory bear sealing program of the Alaska Department of Fish and Game (ADF&G) ceased, and a reliable estimate of the total subsistence take is not known. Between 1973 and 1976, the ADF&G vigorously continued its sealing effort and sealed the following numbers of bears for the respective years from 1973 and 1976: 36, 48, 146, and 167. Since 1977, the ADF&G has continued to seal harvested bears on a voluntary basis for hunters interested in cooperating. On the basis of these records and additional information obtained through such means as counting the number of bears on drying racks, interviews with village residents, and input from seasonally employed village residents, the ADF&G reports that the minimum numbers of bears harvested in the years 1977 through 1979 were, respectively, 114, 59, and 29. The actual take of polar bears is believed to have been substantially greater for most years, but there are no post-1976 data on which to develop reliable estimates.

Soviet scientists suggest that polar bear populations in the Soviet Arctic were declining before the imposition of strict harvest limits in 1956, after which bear numbers seem to have stabilized. The annual worldwide bear harvest is now about 900 to 1,000 (10 to 15 in the Soviet Union, 600 to 700 in Canada, and 125 to 150 in Greenland--as well as those harvested by Alaska Natives).

General biology. Polar bears are solitary most of the year except for females with young. Males actively seek out females during late March, April, and May by following tracks on sea ice. Polar bears are serially polygamous. A male remains with a female for a relatively short time, then seeks another. Delayed implantation probably occurs.

Pregnant females seek out denning sites in October and November. Known areas of denning concentration are on Wrangel Island (Soviet Union), the Svalbard Islands (Norway), and near Cape Churchill on Hudson Bay. Scattered denning also occurs along the Greenland coast, along the Arctic coast of Alaska, and in the heavy pack ice north of Alaska. Dens are formed under coastal or river banks or on slopes where snow drifts. A denning female forms a depression in the snow, then maintains and enlarges a chamber as snow drifts over her. Young are born in December and typically weigh less than 1 kilogram. Litters of two cubs are most common, but single births occur frequently. Litters of three are rare. The female and cubs break out of the den in late March or early April when cubs weigh about 7 kilograms. Short trips are made to and from the den for several days as cubs acclimate to outside temperatures. The family group then travels to sea ice if the den is on land. Young polar bears usually remain with the mother for about 28 months.

Females produce first litters at an age of 4 to 8 years. Some females produce a litter every third year, but the interval between litters is longer for other females. Males are sexually mature at an age of 4 years. Polar bears rarely live longer than 25 years. Among bears north of the Alaskan Arctic coast, mature females typically weigh 200 to 300 kilograms; mature males weigh 300 to 600 kilograms. Bears west of Alaska are somewhat larger.

Polar bears feed primarily on ringed seals. Bearded, harp, and hooded seals and walrus are also frequent prey. Whale, walrus, and seal carrion is occasionally eaten. Small mammals, birds, eggs, and vegetation are consumed when other food is not available. About 60 percent of Alaskan bears harbor the internal parasite Trichinella spiralis, apparently obtained by eating marine mammals, garbage, and possibly bear carcasses. Polar bear liver has a high vitamin A content and is toxic if eaten.

Ecological problems. Long-term climatic variations may have a significant effect on polar bear populations. Denning success declines in warm years because available denning areas are reduced. Years of light snow or light winds (which reduce drift formation) also depress denning success of both polar bears and ringed seals. Patterns of ice formation and movement are crucial to denning success rates.

The greatest immediate threat to polar bear populations may be human development of fossil fuel resources in the Arctic region. Such development in

principal denning areas may cause females to try denning in less suitable locations or to break out of dens sooner than normal, thereby reducing cub survivorship. The possibility of oil spills could lead to fouling of bear fur, seriously reducing its insulative efficiency, and will cause death from ingestion of oil during grooming. The potential for development of petroleum resources now exists for the entire Alaskan Arctic coast, an area which supports many polar bears.

Mercury and low levels of DDT and PCB's have been found in tissue samples of all Alaskan bears that have been tested.

Allocation problems. A full range of opinion exists in the United States regarding polar bear management options, which include complete protection, limited harvest for native subsistence, and maximum sustained harvest primarily by trophy hunters. The restriction of polar bear hunting to Natives is currently viewed as discriminatory by non-Native residents of the Arctic coast. New conflicts will certainly arise as continued economic development of the Arctic region increases the frequency of encounters between bears and people.

The Soviet Union restricts taking of polar bears off the Siberian coast to a few cubs each year for delivery to zoos. This reflects the Soviet view that Siberian bear stocks are reduced. Before 1971, Norwegian sealers killed bears as predators, Svalbard trappers used baited set guns to obtain hides to sell, and trophy hunters took bears from Norwegian boats in the summer. These activities are now prohibited by a moratorium on bear killing imposed by the Norwegian Government in 1973. Polar bear harvesting in Greenland has been limited to Natives and long-term non-Native residents, primarily for subsistence and skins for personal use. Home rule of Greenland became effective on May 1, 1979. It is not presently known how this will affect management of Greenland polar bear populations.

The Canadian harvest has traditionally been restricted to Natives who hunt for subsistence and to obtain skins to sell. Trophy hunting from the ground has been encouraged by management agencies in parts of Canada but has seen little development because Natives, needed as guides by trophy hunters, can realize more profit from selling skins than from guiding.

Regulations. Past management practices in Alaska included seasons, bag limits, a permit system, limits on numbers of hunts in which a guide could participate, and protection for young and females with young. Management areas were established to the west and north of the State. Residents could hunt bears for food from the ground at any time. Alaska Department of Fish and Game representatives examined and sealed skulls and hides from all bears taken and also removed teeth for age estimation. The season was lengthened to encourage ground hunting when the State banned aircraft-assisted hunting in July 1972.

Alaskan polar bear management authority was transferred to the Federal Government by the Marine Mammal Protection Act of 1972 (MMPA). Under the Act, bear harvesting is limited to coastal Indians, Aleuts, and Eskimos for subsistence and the creating and selling of authentic native articles of clothing and handicrafts. The Act does not prevent these Natives from taking

young bears and females with young, but it does require that no taking be wasteful. In 1973, the State requested that the MMPA moratorium on taking be lifted and that management authority be returned. The Fish and Wildlife Service issued regulations in January 1979 that waive the MMPA moratorium and will allow return of management after the Service approves Alaska laws and regulations as being consistent with the MMPA and relevant Federal regulations. At the end of the reporting period, the State had not yet submitted its rules for formal review.

The Agreement on Conservation of Polar Bears was ratified by the United States in 1976. Other member nations are Canada, Denmark, Norway, and the Soviet Union. The agreement limits the hunting of polar bears to areas of traditional harvesting and prohibits the use of aircraft and large motorized vessels as hunting aids. The agreement seeks improved national and cooperative international research and management, especially for oceanic populations or populations which occupy more than one nation, and it protects the ecosystems of which polar bears are a part. Protection is sought for denned females, females with cubs, and cubs, and a call is issued for improved control of traffic in hides. The latter goal is now being sought through the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

Current research. The governments of Canada, Denmark, Norway, the Soviet Union, and the United States are all supporting long-term studies of polar bear biology. Top international research priorities include the description of population trends, the identification of critical denning and feeding areas, and the characterization of population discreteness. Most nations in which polar bear hunting occurs have active harvest monitoring programs. An international effort is underway to develop and use satellite tracking methods to study bear movement. International cooperative research is being coordinated by the International Union for the Conservation of Nature and Natural Resources. Canadian research includes studies of bear population dynamics and behavior, effects of oiling, and deterrence/attractance. Danish studies include surveys of populations in Greenland and satellite tracking work. Norway supports biennial den surveys, study of den emergence behavior, and satellite tracking. The Soviet Union conducts analyses of skull morphology and trace elements and does tagging work at Wrangel Island. The U.S. Fish and Wildlife Service and the State of Alaska employ biologists whose current efforts focus on the use of satellite tracking to study denning and routes of migration, and on mark/recapture studies. Fish and Wildlife Service biologists will capture as many as 600 bears over the next few years for these studies, fitting some with transmitter collars for satellite tracking or radio telemetry.

Sea otter
(*Enhydra lutris*)

Distribution and migration. Populations occur in the shallow coastal waters of the North Pacific Ocean. Before exploitation by the fur trade, sea otters occurred along the west coast of North America from Morro Hermosa, Baja California, northward to Prince William Sound, Alaska, westward through the Aleutian, Pribilof, and Commander Islands, and southward along the southern Kamchatka Peninsula, through the Kurile Islands, to northern Hokkaido and southern Sakhalin. Sea otters seldom occupy waters deeper than 55 meters. Populations are year-round resident and do not migrate.

Abundance and trends. Hunting by fur traders reduced sea otters to widely scattered groups of a few tens or hundreds of animals by 1900. Sea otters were first accorded protection by international treaty in 1911. Remnant populations have grown and reoccupied some portions of the historical range. The



Figure 5. Sea otter participants in Service sea otter-oiling studies, Prince William Sound, Alaska. Photo by Ancel M. Johnson, National Fish and Wildlife Laboratory.

Alaska Department of Fish and Game estimated the total number of sea otters in all Alaskan waters to be between 100,000 and 120,000 in 1973. The California population is now estimated to number about 1,800 animals, ranging from Soquel Point (Santa Cruz) southward to Pismo Beach.

During the period 1965-72, sea otters from Amchitka Island and Prince William Sound were translocated to the Pribilof Islands, southeastern Alaska, British Columbia, Washington, and Oregon. Young otters have since been observed in all translocated groups except the Pribilof Island group. It now appears that translocation efforts have succeeded in southeastern Alaska and British Columbia. Recent surveys indicated populations of about 500 sea otters off Yakobi, Baranof, Chichagof, and Prince of Wales Islands, Alaska, and about 75 otters off Vancouver Island, British Columbia. Translocation success is questionable elsewhere. About 20 otters were recently found along the Washington coast and none off Oregon. Recent observations at the Pribilof Islands indicate a small population of probably less than 10.

General biology. The sea otter is the largest member of the family Mustelidae, reaching a length of 147 centimeters and a weight of 45.5 kilograms. Females become sexually mature at about 4 years of age and bear single young weighing approximately 2.3 kilograms, usually biennially. Recent studies of tagged otters in Alaska and California indicate that at least some females pup annually. Pups nurse for 6 to 12 months but are often provided with solid food by the mother before being weaned. Mothers are very attentive to their young. Most young are born during spring and summer, but mating and birth may occur in any season. Males mature at ages of 6 to 8 years. Breeding behavior is poorly understood but appears to be promiscuous or polygynous. Studies in progress should provide more definitive information on this behavior. A mating pair may remain together for several days, but this does not occur in all cases.

The dense underfur of the pelage is about 25 millimeters long; guard hairs are 30 to 35 millimeters long. Healthy sea otters may accumulate body fat, but the blubber layer characteristic of most marine mammals is lacking. Sea otters rely entirely on the air blanket held by the underfur for insulation from cool (1.7° C to 18° C) marine waters.

Amchitka Island, Alaska, is the only area in which a sea otter population thought to be near carrying capacity has been studied intensively. Mortality at Amchitka is greatest in winter and early spring. Populations of food organisms have been depleted by otters, apparently resulting in starvation during stormy weather. Young animals accounted for 70 percent of the mortality. Most of the other dead were animals showing signs of old age. Most dead animals had symptoms of starvation and enteritis. Recent studies indicate that a comparable condition has developed in southern Prince William Sound and that a less distinct relationship exists between stormy weather and sea otter mortality in California. Some young sea otters are preyed on by bald eagles around Amchitka Island. Unknown numbers of California otters die from shark attack. Known internal parasites of sea otters include Trematoda (4 spp.), Cestoda (2 spp.), Nematoda (1 sp.), and Acanthocephala (5 or 6 spp.).

Sea otters forage on benthic invertebrates of nearshore intertidal and subtidal habitats by diving to the bottom, gathering food, and carrying it to the surface to eat. Principal food items and foraging activity patterns vary considerably with location, sea otter density, and time since otters have reoccupied a given area. In California, otters near the ends of their expanding range may focus foraging effort on sea urchins, abalone, or clams, depending on the location, while those within the central portion of the range feed mostly on crabs and small snails. Sea otters in long-occupied portions of Prince William Sound eat a variety of small and large clams, mussels, and crabs, while those in newly reoccupied parts of the sound appear to focus on large clams, which must be dug from the mud bottoms. Otters in the high-density population at Amchitka Island eat fishes and large numbers of very small sea urchins, while those at sparsely occupied Attu Island feed almost entirely on large urchins. Sea otters are effective users of "tools" for opening hard-shelled prey such as clams or snails. Such prey are held in the forepaws and rapped sharply against flat stones or other hard-shelled prey balanced on the chest while the otter floats on its back on the surface.

Sea otters have a significant effect on the structure of nearshore marine communities in the Aleutian Islands. High-density otter populations deplete numbers of benthic herbivores, resulting in the development of luxuriant kelp populations and the concomitant expansion of fish stocks. Relationships between otters and bottom communities in Prince William Sound and California are less obvious but appear to be significant. These relationships are presently under active investigation.

Ecological problems. Alteration of the nearshore marine environment by human activity will almost certainly affect sea otter populations. There is little doubt that most sea otters that encounter spilled oil would suffer fouled pelage and die. Otters in California are occasionally lost to collisions with boat propellers. Pesticide residues have been found in California otters, but the effect is unknown.

Allocation problems. Conflict exists over policies for managing the sea otter populations in Alaska and California. Sea otters clearly reduce the numbers of certain prey species, some of which are desired by humans. Commercial, subsistence, and sport users of these resources prefer that the range and abundance of sea otters be limited, and some feel sea otters should be harvested. Preservation groups favor the reestablishment of sea otters throughout their historical range. The question is complicated by uncertainties regarding indirect relationships between sea otters and large kelps, some of which are harvested commercially and may benefit from the presence of otters.

There is no commercial or subsistence harvest of sea otters at present.

Regulations. The sea otter is protected by the Marine Mammal Protection Act of 1972 (MMPA) (Public Law 92-522). The California population is listed as threatened under the Endangered Species Act of 1973 (Public Law 93-205) and is also fully protected by California State law. In 1973, the State of Alaska requested that the MMPA moratorium on taking Alaskan sea otters be waived

and that management of these otters be transferred from Federal to State jurisdiction. The Fish and Wildlife Service issued regulations in January 1979 that waive the moratorium and will allow return of management after the Service approves Alaska laws and regulations as being consistent with the MMPA and relevant Federal regulations. At the end of the reporting period, the State had not yet submitted its rules for formal review.

Current research. The U.S. Fish and Wildlife Service employs three full-time biologists on studies of sea otter populations and their relationships with nearshore marine communities. The State of Alaska no longer assigns biologists to full-time sea otter research, but it does census otter populations. The State of California currently assigns three biologists to full-time and one to part-time sea otter research. The State began an intensive otter tagging program in California in 1977 and continues to monitor some effects of otter foraging on nearshore communities. Additional research is supported by the U.S. Department of Energy.

Marine otter
(Lutra felina)

Local common names. Gato marino, chungungo, hullaque, nutria de mar, and chinchimen.

Taxonomy. Two subspecies of marine otter have been described: L. f. felina from southern Chile has a slightly darker brown ventral surface than does L. f. peruviensis from northern Chile and Peru. Sufficient specimens are not currently available to permit detailed studies on the validity of these subspecies.

Distribution and migration. This species inhabits nearshore waters along the west coast of South America from central Peru (at least as far north as lat. 12° S.) south to Cape Horn, Chile. Nothing is known about its seasonal movements. It occurs mainly in the littoral region but is also known to ascend rivers to at least 650 meters above sea level.

Abundance and trends. Darwin found the marine otter to be abundant in the Chonos Archipelago and among the islands off the southwestern shores of Tierra del Fuego. It has diminished greatly in numbers since Darwin's time, but in 1923 the Chicago Field Museum Expedition found it to be common along the southern end of Isla de Chiloe, Chile. The number of marine otters along the northern coast of Chile is unknown, but in Peruvian waters the population is estimated to be between 200 and 300. In the Cape Horn and southern Tierra del Fuego region, the marine otter has been practically exterminated. One specimen was collected at Islas Wollaston, Tierra del Fuego, over 25 years ago.

General biology. The following external measurements have been recorded for the marine otter: head and body, 570 to 787 millimeters (mm); tail, 300 to 362 mm; and total length, 910 to 1,149 mm. An adult male taken at the southern end of Isla de Chiloe weighed 4.1 kilograms. Marine otters feed on the freshwater prawn, Criphiops caementarius; Darwin reported that they feed also on fish, "small red crab," "cuttle-fish," and the inhabitants of "volute shells." Sexual dimorphism was not detected in a small sample of marine otter specimens. All species of Lutra except L. provocax and L. felina are allopatric (occupying different geographic areas), and all except L. felina, a littoral marine species, are probably ecological equivalents. Lutra felina is the smallest and the most distinct species in the genus and, according to one investigator, "probably evolved from a stream-dwelling species that adapted to a marine environment after isolation in coastal habitats as a consequence of progressive aridity in middle latitudes of South America's west coast."

Parasites and diseases. Nothing is known about parasites or diseases in this species.

Allocation problems. In Peruvian waters, these otters are often shot by fishermen because of the alleged damage they do to the stocks of freshwater prawns. In Chile, especially south of Isla de Chiloe, these animals are hunted regularly by fishermen for their skins.

Ecological Problems. No specimens have been examined for pesticide residues or heavy metal contaminants.

Regulations. This species is listed as endangered in the Red Data Book of the International Union for the Conservation of Nature. On June 14, 1976, the marine otter was listed as an endangered species and, therefore, was afforded protection under the U.S. Endangered Species Act of 1973, which prohibits its importation into the United States for purposes other than scientific research and propagation. On July 1, 1975, it was listed also in appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora, and on March 29, 1978, it was designated to be a marine mammal and thereby entitled to additional protection under the U.S. Marine Mammal Protection Act of 1972. In Peru, the marine otter has been found in three areas being considered as a coastal park, but it is not known if the species is local enough in habits to remain in any one of these areas throughout the year.

Current research. Research contracts are being established by the U.S. Fish and Wildlife Service in Peru and Chile. Carlos Cabello of the Corporacion Nacional Forestal, Chile, is studying marine otters around Isla de Chiloe, Chile.

Pacific walrus
(Odobenus rosmarus divergens)

Distribution and migration. The entire population winters on the seasonal pack ice of the Bering Sea where animals are distributed from eastern Bristol Bay to the area southwest of St. Lawrence Island. The exact distribution varies with the extent and quality of sea ice. The majority of breeding females apparently occurs in the north-central Bering Sea.

The northward migration begins in April; the exact timing of migration probably depends heavily on the pattern of sea ice recession, which may vary greatly from year to year. At least 15,000 males presently remain on or near Round Island in northern Bristol Bay. This number has probably increased by 2,000 to 3,000 over the past several decades. Recent preliminary data suggest the possibility of high turnover rates within the Round Island group and that the number of males using the site could be higher than previously estimated.

Following the northward migration into the Chukchi Sea, walrus disperse along the ice edge from about Pt. Barrow west to the Kolyma River in the east Siberian Sea. Apparently the routes of migration and the summer distribution vary considerably among years, depending on seasonal conditions.

During the southward migration, walrus frequently haul out to rest at Big Diomede and Penuk Islands and along the Soviet coastline until the pack ice becomes accessible. During the fall of 1976, biologists from the Soviet Union located nine such coastal haul-out areas between the north coast of Chukotka and Cape Olyutorski.

Abundance, trends, and harvest. The Pacific walrus population has increased during the past several decades, following a decline in abundance caused by overexploitation. The population may have numbered as few as 40,000 to 50,000 by about 1950. Aerial surveys of walrus were begun in 1960 and repeated in various forms in 1965, 1968, 1970, 1972, 1974, 1975, 1976, and 1977. The 1975 and 1976 surveys were coordinated efforts between the United States and the Soviet Union. Over 96,000 walrus were counted at coastal hauling areas along the Soviet coastline, and another 30,000 to 40,000 were estimated to occur along the ice edge west of the international dateline. Another 75,000 were estimated to occur east of the dateline. However, these estimates are, at best, very crude.

The take of walrus by the Soviet Union in 1978 was 1,575 animals, not including those killed or wounded but lost. An additional 545 walrus were taken for scientific research. The comparable 1978 retrieved harvest in Alaska, conducted almost exclusively for subsistence purposes by Alaska Natives, comprised 2,224 animals.

General biology. Only one group of pinnipeds, the elephant seals, is larger than the walrus. Adult males weigh an average of about 1,160 kilograms, and their mean standard length is about 316 centimeters. Adult females weigh an average of about 900 kilograms and have a mean standard length of about 270 centimeters. In a sample of newborn young, the maximum weight was 77 kilograms; the maximum length, 137 centimeters.

The first ovulation of females usually occurs between 5 and 8 years of age. Males become fertile at an age of 7 to 8 years but are not physically mature until they are at least 10 years old. The walrus is polygamous. The gestation period is about 15 months, including an approximately 3-month-long period of delayed implantation. The young are usually born in May during the northward spring migration. The females and young are very gregarious; males are gregarious at times other than the breeding season. Walruses often attain ages of 30 or more years.

Walruses are not buoyant and must rest on ice or land at fairly frequent intervals. By means of pharyngeal pouches that may be inflated, however, they are able to sleep while floating upright at sea for short periods of time.

Clams are the most important food. The stomach of one adult male contained about 23 kilograms of Mya truncata siphons and 16 kilograms of Clinocardium nuttalli feet. Other food includes echinoderms, annelids, coelenterates, sipunculids, echiurids, priapulids, arthropods, and tunicates. Occasionally, adult males may eat the flesh of other pinnipeds or cetaceans. The walrus diet appears to vary seasonally.

Internal parasites recorded from walruses include Trematoda (3 spp.), Cestoda (3 spp.), Nematoda (6 spp.), and Acanthocephala (4 spp.). All walruses are infested with external parasites. Small numbers of adult male walruses become carnivorous and feed on seal flesh. Probably it is this abnormal feeding behavior that accounts for trichinosis infection in from 1 to 10 percent of the more than 1,000 male walruses sampled from 4 Arctic regions. Incidence of uterine cysts and other disease conditions is low, as far as is known, and such diseases and abnormalities appear to be unimportant.

Ecological problems. Petroleum will undoubtedly be extracted in the Bering and Chukchi Seas and the Arctic Ocean. The effect of this activity on walruses or the resources they require is unknown. Their extensive benthic food resources are also subject to human use, which could compete with the needs of the walruses or disturb benthic communities within which they feed. Also of concern is the harassment of walruses when they haul out in summer on the Walrus Islands State Game Sanctuary (Togiak Bay), Bristol Bay.

Allocation problems. Loss of walruses during hunting is about 40 to 50 percent. Additional waste occurs in the utilization of the products of retrieved walruses. If ivory is the primary objective, actual use amounts to as little as 1 to 3 percent of full potential utilization. When meat and hides are used, utilization is as high as 90 percent of the carcasses. During recent years, ivory hunting has increased as a problem.

Regulations. In 1976, management of Pacific walruses was returned to the State of Alaska. Effective on July 1, 1979, the State terminated its management program and returned walrus management to the Service, which on August 2 invoked an emergency rulemaking that prohibited all taking under the 1976 waiver of the MMPA moratorium. Other waiver regulations, issued by the Service in January 1979, would have modified some terms of the 1976 waiver and will allow return of management of polar bears and sea otters and the resumed State management of walruses after the Service approves Alaska laws and regulations.

as being consistent with the MMPA and relevant Federal regulations. At the end of the reporting period, the State had not yet submitted its rules for formal review. The taking of walrus has therefore again been restricted to Indians, Aleuts, or Eskimos in Alaska whose taking must be nonwasteful and for the purposes of subsistence or the creation and selling of authentic native articles of handicrafts and clothing.

Current research. The U.S. Fish and Wildlife Service has an ongoing research program on Pacific walrus. Investigators from the University of Alaska are currently studying walrus under grants funded by several agencies. In 1980, the FWS had observers during part of the spring hunting season at coastal villages of Alaska to monitor the kill and to collect information on the population.



Figure 6. Sleeping adult male Pacific walrus with visual tag attached to left tusk for aid in FWS-Alaska Department of Fish and Game tracking studies, Round Island, Alaska. Photo by James Taggart, University of California, Santa Cruz.

Atlantic walrus
(Odobenus rosmarus rosmarus)

Distribution and migration. Walruses are circumpolar in distribution. In the North Atlantic, small numbers are found along the east coast of Greenland, at Svalbard (Spitsbergen)-Franz Josef Land, and throughout the Barents and Kara Seas. A larger, geographically isolated population occurs in the eastern Canadian Arctic and western Greenland. Presently, walruses are rarely found along the coast of North America south of Labrador. Scattered groups are located in Hudson Strait and on the southeastern coast of Baffin Island. In Hudson Bay, the main population is found around Coats, Bencas, and Southampton Islands and in Fisher and Evans Straits. Another population, possibly very large, exists in northern Foxe Basin. Scattered concentrations occur in Lancaster and Jones Sounds and throughout the Canadian Archipelago as far west as Cornwallis Island. The Thule district of northwestern Greenland has large numbers of walruses year-round, and they occur at least seasonally along the western Greenland coast south to Sukkertoppen. Atlantic walruses in general seem to be less strongly migratory than the Pacific subspecies, with the possible exception of those along the coast of western Greenland.

Abundance and trends. Very few walruses remain in the eastern North Atlantic, where the total population numbered in at least the high tens of thousands in historic times. Less than 500 were counted at Novaya Zemlya in 1969-70, and this population continues to decline. The walrus may be nearing extinction around Franz Josef Land. The species was virtually exterminated in Svalbard; a group of about 10 animals has been seen regularly in recent years on northern Spitsbergen. A total population of about 200 walruses in northeastern Greenland may be stable.

Exploitation of walruses in Canada has diminished owing to cultural and technological changes within human communities. The northern Hudson Bay herds, estimated at approximately 3,000 in 1961, are probably stable. The population in Foxe Basin appears to be larger, although no reliable estimate is available. Little is known of the status of walruses in other areas of the eastern Canadian Arctic.

Although still hunted intensively by the Polar Eskimos, the walrus population in Greenland's Thule district remains substantial. South of Thule, however, the Greenland population appears to have declined considerably since the 1940's because of human encroachment and hunting. Western Greenland is probably the area most critically in need of assessment.

General biology. Most of what is known about the biology of the Atlantic walrus comes from studies at Southampton Island in the 1950's. Calves average 122 centimeters in length at birth and weigh about 67 kilograms. Adult females have an average length of about 260 centimeters and an average weight of about 570 kilograms, whereas males attain an average length of 305 centimeters and an average weight of about 910 kilograms. Seldom do the tusk lengths exceed 36 centimeters for males, 25 centimeters for females. Adult males may be distinguished from females by cutaneous tubercles of the head and neck, a broader muzzle, and more powerful muscles of the neck and shoulders.

The reproductive biology of the Atlantic walrus is not well understood. During most of the year, herds of adult males are spatially segregated from the herds of adult females with calves and immatures. Females apparently reach sexual maturity at an age of about 4 years and males at about 6 years, although neither may become reproductively active until several years later. Implantation is delayed for approximately 3 months, and gestation lasts about 1 year.

Ecological problems. Disturbances associated with economic development of the Soviet Arctic may be inhibiting the recovery, or even the maintenance, of the badly depleted walrus resource there. The same may be true in the mineral-rich Svalbard area. Exploration for and exploitation of oil and gas have been contemplated in northern Hudson Bay, Baffin Bay, and Lancaster Sound. The effect of these activities on walruses or their requisite resources is unknown. Reduction of the benthic fauna in areas inhabited by walruses may have a negative impact on their population. Human population growth throughout much of the Atlantic walrus' present and past range probably continues to limit its recovery, although the exact mechanisms by which various human activities affect walruses remain obscure.

Allocation problems. No commercial harvest of Atlantic walruses takes place today. Only subsistence hunting continues. Nothing is known about continued use of Atlantic walruses by Siberian Eskimos. Insignificant catches are made by aboriginal inhabitants of eastern and western Greenland (south of Thule). The total aboriginal harvest in Canada has approximately halved in recent years, owing primarily to the replacement of dog teams with motorized toboggans. Other factors may include a decreased reliance on "country food" and opportunities for employment other than subsistence hunting. Ivory acquisition appears to be the primary incentive for native hunting of walrus in Canada today. Only in the Thule district of Greenland (and possibly the Igloolik district in northern Foxe Basin, Canada) is walrus hunting a major element of native subsistence. Dog teams there still require large amounts of walrus meat and skin, and human consumption of meat and stomach contents is significant. Some trade in ivory and skin continued in Greenland until at least 1971.

Regulations. Canada established regulations in 1928 which limited the killing of walruses to Natives for food and clothing. These regulations have since been amended several times, but their main intent has not been changed. Walrus hunting regulations were established in Greenland in 1957. These limit hunting to Danish citizens who reside in Greenland.

From June 1 to January 1, all hunting for males in the West Ice is forbidden, and from April 1 to January 1, no females and calves may be taken in the same area. Hunting on land is forbidden in certain areas at certain times. Greenland National Park in northeastern Greenland encompasses most of the walrus' range on that coast and provides some protection for the animals.

In the Soviet Arctic, walrus hunting has been forbidden, with some exceptions, since 1949. Aboriginal hunting is still allowed but presumably under strict controls. The Soviet-Norwegian Sealing Agreement of 1958 forbade the hunt-

ing of walrus east of Cape Farewell by citizens of either country. Norway had instituted a Walrus Decree in 1952 which prohibited hunting by Norwegians. Nature reserves established by Norway in certain parts of Svalbard offer walrus some protection from human interference.

Current research. Except for those listed below, no field studies of the Atlantic walrus have been carried out since 1961. Modest, mainly opportunistic, monitoring programs are conducted by the Soviet and Norwegian Governments. The Grønlands Fiskeriundersogelser in Denmark collects catch statistics for all of Greenland. In addition, a field research program has been developed by Eric Bjorn and Theresa Christianson of the Zoological Museum, Copenhagen, Denmark. In Canada, the Fisheries and Marine Service reports estimated catches by settlement. In addition, Dr. Arthur Mansfield, Arctic Biological Station, is supervising behavioral and ecological studies of walrus, primarily in northern Hudson Bay.

West Indian manatee
(Trichechus manatus)

Distribution and migration. Trichechus manatus inhabits rivers, estuaries, and coastal areas of the tropical and subtropical regions of the New World Atlantic (fig. 8). It is commonly found from northern Florida in the United States to the northern coast of Brazil. Manatees are seasonally present in Georgia and rarely in South Carolina, North Carolina, and Mississippi. Occasional stragglers have been reported as far north as Ocean View, Va. (lat. 36°55' N.) (fig. 8) and as far south as Espirito Santo, Brazil (lat. 20° S.).

Within the United States, the year-round range of T. manatus is largely confined to peninsular Florida, but distribution varies seasonally (fig. 9), and most manatees are grouped near sources of warm water during the winter. Along the west coast, they congregate in Crystal River and Homosassa River in Citrus County, in warm water effluents in Tampa Bay and the Alafia River in Hillsborough County, in the Caloosahatchee and Orange Rivers in Lee County, and along the southwest coast from Naples to the Everglades National Park.



Figure 7. A West Indian manatee captured at Blue Spring State Park, Volusia County, Fla., for radio-tracking studies. Measurements and blood samples are taken while the animal is restrained. Radio-tagged animals are followed by researchers of the University of Minnesota and the National Fish and Wildlife Laboratory to determine movements and behavior in relation to a variety of environmental factors. Photo by National Fish and Wildlife Laboratory.

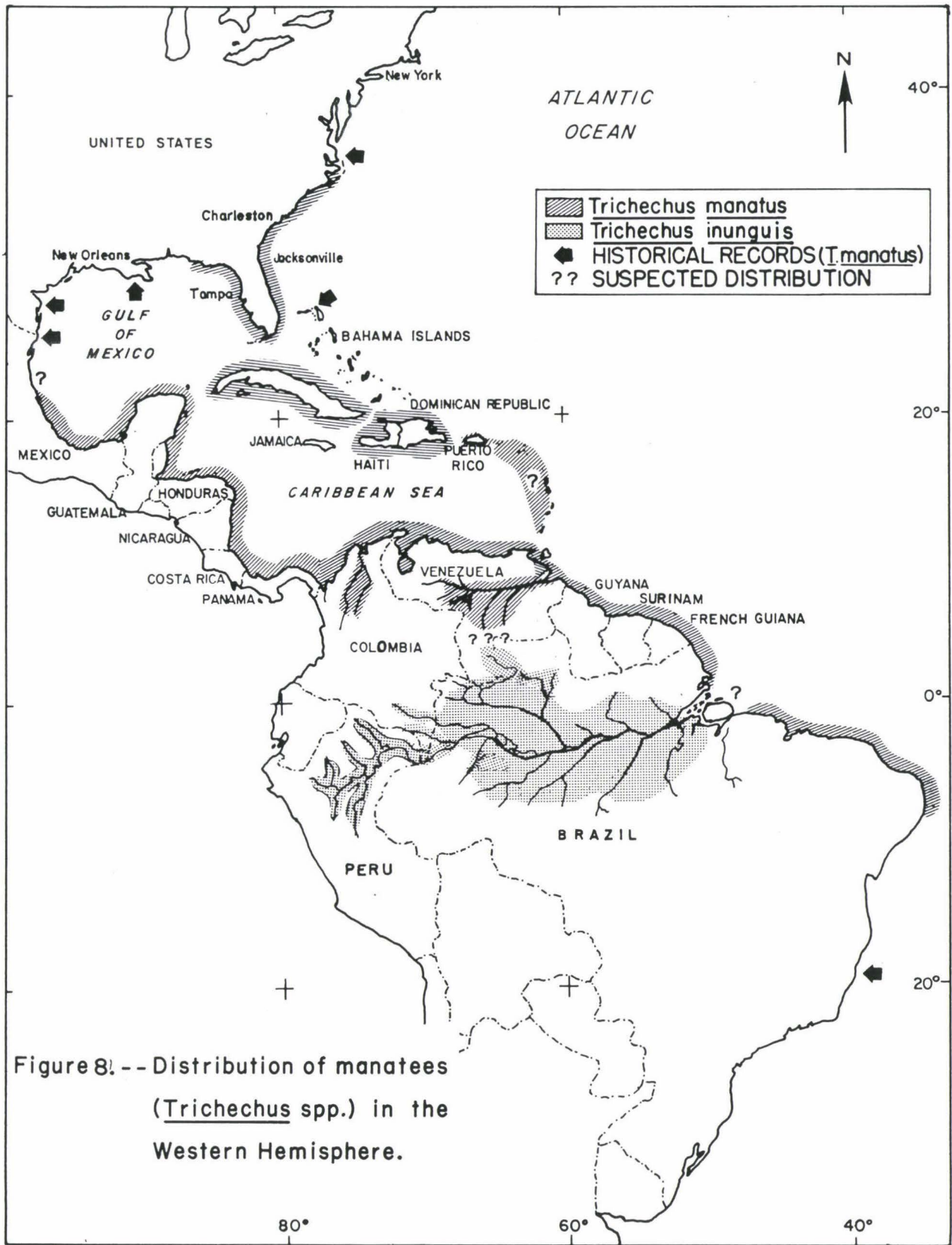


Figure 8. -- Distribution of manatees (*Trichechus* spp.) in the Western Hemisphere.

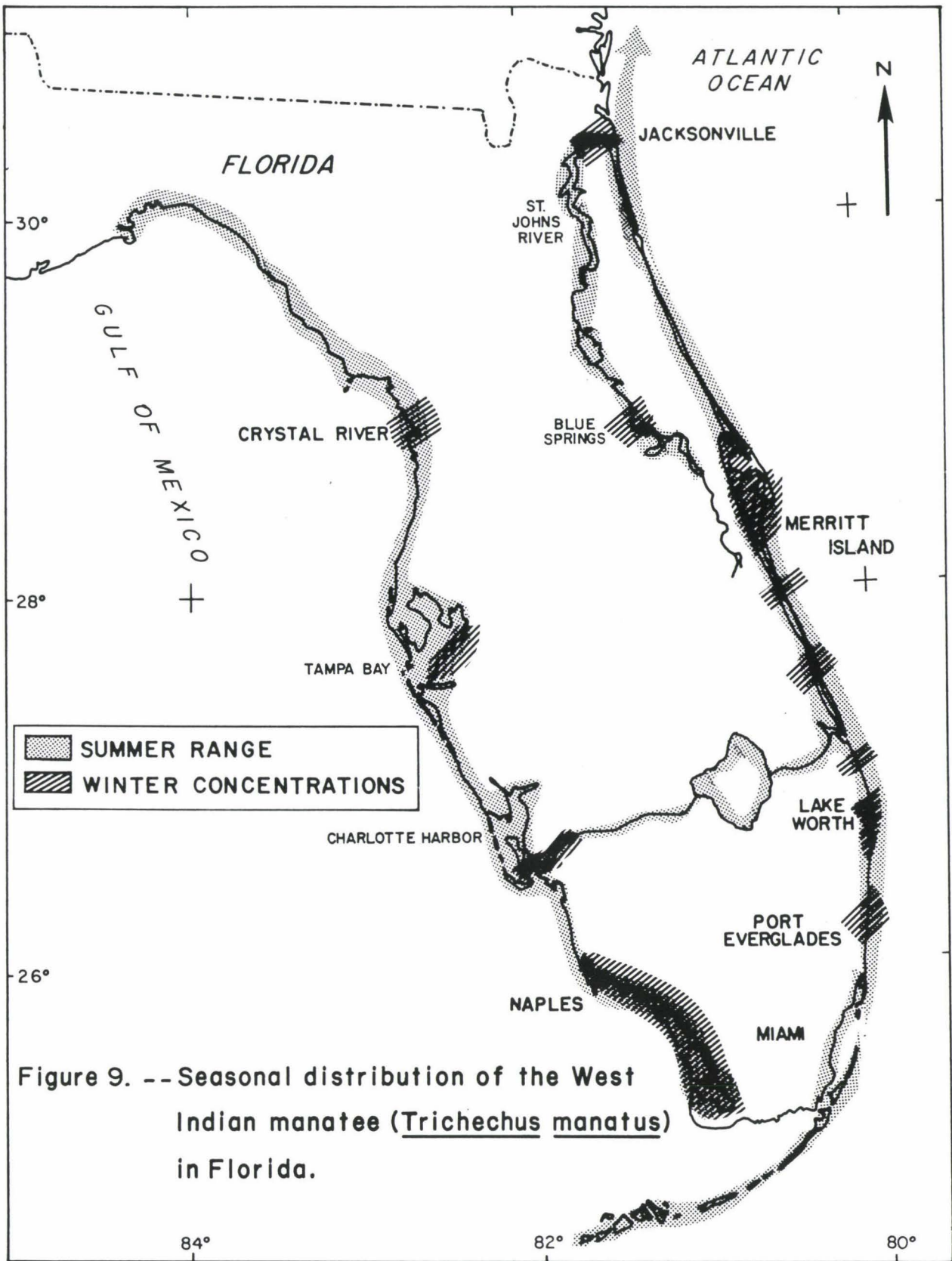


Figure 9. -- Seasonal distribution of the West Indian manatee (*Trichechus manatus*) in Florida.

On the east coast, large numbers of animals aggregate near Titusville, in Lake Worth near Riviera Beach, and in Port Everglades; smaller groupings are found in the upper reaches and near the mouth of the St. Johns River and at several points along the coast. Aggregation sizes fluctuate as members leave to forage, especially during warm periods.

The winter distribution of manatees appears to have expanded in recent years. Historical records suggest that manatees formerly wintered in southern Florida, below approximately latitude 27°52' N. (Sebastian Inlet). Today, more than 100 manatees winter on the east coast in Brevard County. Approximately 100 animals winter in the Crystal and Homosassa Rivers of Citrus County on the west coast.

As the water warms in spring, manatees disperse along the Florida coast. Some animals move north into Georgia, while others are occasionally found along the Florida Panhandle--generally no farther west than the Aucilla and Port St. Joe Rivers, although recent single sightings have been reported from Pensacola, Fla., Biloxi, Miss., and Lake Pontchartrain, La. Offshore sightings along the Florida coast are sometimes reported.

In the western Gulf of Mexico, manatees occasionally range along the coast of Mexico and rarely into Texas. They are more commonly found south of Tamaulipas or Veracruz, within the Bay of Campeche, and on both sides of the Yucatan Peninsula. Distribution appears to be continuous along the coast from Belize to Costa Rica, including Lago Isabella in Guatemala. Only isolated populations are thought to remain in Panama, presumably in Chiriqui Bay, the Changuinola River, Gatun Lake, the Sicaola River, and possibly the Cocle River. Manatees occur along the eastern coast of Colombia and in the Atrato, Leon, Suriqui, and Meta Rivers and the Magdalena River and its tributaries. *T. manatus* frequents the lower Orinoco drainage of Venezuela, including its tributaries, the Apure, Arauca, Payara, Capanaparo, and Claro Rivers, as well as Lake Maracaibo. In Guyana and Surinam, manatees occur primarily in the rivers of the coastal plain. In Brazil, they range along the coast as far south as Mangue Seca (lat. 12° S.), but they may not be continuous along the north coast, owing to unsuitable habitat.

Manatees are found in the Bahamas and throughout the Caribbean Sea, usually in small numbers in coastal regions near rivers. They occur on both coasts of Cuba and are seen most frequently at the Hatiguanico River in the Zapata Swamp, and in the Ensenada de la Bara. In Jamaica, they are found along the entire coast but most frequently in the Black River area in the southwest and in the Portland Point area of the south-central coast. The distribution in the Dominican Republic seems to be concentrated around the Manzanillo-Miches area on the north coast and the Rio Ocoa-Oviedo area on the south coast. Nothing is known of them in Haiti, but at least some animals probably interchange with those from the Dominican Republic. In Puerto Rico, small groups are frequently sighted on the south coast near Guanica, Guayanilla, La Parguera, Jobos Bay, Roosevelt Roads Naval Station, the mouth of the Fajardo River on the east coast, and near Guanajibo on the west coast. Manatees are also reported from Trinidad.

Abundance and trends. Interview data and aerial surveys along Florida coasts and rivers during 1974-78 indicate that the manatee population numbers at least 1,000 animals. A total of 738 manatees was counted in a concentrated aerial survey in early 1976, but the percentage of the total population observed is unknown. Documented mortality and limited reproductive potential suggest a decreasing population, but the high rate of mortality would indicate a larger population than has been assumed.

In Mexico, interviews with local fishermen indicate that manatee numbers have drastically declined from past population levels. Sighting reports are rare, and the status of the population is unknown. Populations in Belize seem to be decreased but stable. Manatees are reported to be rapidly decreasing in Guatemala but are still present at least in Lago Isabella. Their numbers in Honduras are low and probably decreasing, while estimates for Nicaragua range from a few score to several hundred. Few are believed to remain in Panama and Costa Rica.

Manatees are currently decreasing in many Colombian rivers and are extremely rare in the Santa Marta district and in the llanos of eastern Colombia. They have been extirpated from Taganga Bay, the Canal de Dique, and the Cienaga de Guajaro. In Venezuela, manatees are considered to be common in the lower Orinoco Basin, but hunting pressures are thought to be too severe to maintain a stable population in that country. Several thousand manatees have been estimated to occur in Guyana, but populations are reportedly reduced in both Guyana and Surinam.

In the Caribbean, manatees are uncommon in most areas and are thought to be declining. Past hunting pressures in the Caribbean, Mexico, and Central and South America are apparently responsible for the present diminished manatee populations. However, laws forbidding their slaughter, and probably also the scarcity of the animals, have reduced hunting to primarily a subsistence level, and little commercial exploitation occurs any longer. In Mexico, for example, 23 major central markets were visited, and only 1 sale of manatee meat was reported within the last 10 years.

General biology. The West Indian manatee is large, fusiform, thick skinned, and almost hairless. The forelimbs are paddle-like with rudimentary nails, and the tail is horizontally flattened. Adults range in length from 2.5 to over 4.0 meters, and adult weights vary from 200 to 1,000 kilograms. Sexual dimorphism in size has not been documented.

Breeding occurs throughout the year. A cow in estrous usually copulates with several bulls. Mating activity has been observed in water about 2.5 meters deep as well as in shallows less than 1 meter deep. The gestation period is about 365 to 400 days, and parturition is thought to occur in secluded shallows. Successful breeding has occurred under captive conditions only a few times, but full documentation and description of the event are lacking. A cow usually bears only one calf at a time, but twins and a case of foster parenthood have been suggested. Newborn calves are about 1 meter long and weigh between 11 and 27 kilograms. Suckling from the axillary teats occurs underwater. Calves may begin grazing within weeks of birth, but nursing may continue for over 18 months. Breeding occurs every 2.5 to 5 years.

Manatees have been classified into the following age groups: calves, any small animals associating with a cow; juveniles, independent animals not yet sexually mature; and adults, animals taking part in reproduction. Sexual maturity may not be attained until the animals are more than 6 to 8 years old. Manatee longevity in the wild is unknown, but a captive has been successfully maintained in Florida for over 31 years (as of May 1980).

Studies of social behavior indicate that the only prolonged association is between a cow and calf. Small groups consisting of an estrous female and her male consorts may remain together for several weeks. Groups of less than five animals are most commonly encountered, but the social structure of such groups is unknown. During cold winter periods, larger groups aggregate at warm water refugia in Florida.

Adult manatees may spend from 6 to 8 hours per day feeding. Manatees are mainly herbivorous, consuming a variety of food plants in the following order of preference: (1) submerged plants, (2) surface floating vegetation, and (3) emergents. Free-ranging and captive manatees have been reported to eat fish. Incidentally ingested insect larvae, mollusks, crustaceans, and other invertebrates probably provide protein for the manatee. Captive adults consume from 20 to 30 kilograms of vegetation each day. Manatees reportedly return to freshwater occasionally to drink.

Internal parasites of T. manatus include the trematodes Opisthotrema and Chiorchis and the nematode Plicatolabia. The copepod Harpacticus was also reported on the skin. Manatees in saltwater become covered with marine diatoms (Zygnema and Navicula) and barnacles (Chelonibia manati), while animals in freshwater develop a coat of algae (Lyngbya and Compsopogon).

There is little documentation of predation on the manatee by animals other than man, but attacks by alligators have been reported in Florida. Sharks have also been suggested as likely predators.

Ecological problems. In the United States, wounds inflicted by motorboats and barges are a major known cause of manatee mortality. Of 335 manatees salvaged from April 1974 through December 1979, at least 128 died from causes attributable to humans, and 74 of these were due to boat or barge collisions. Flood-control devices, accidental netting, poaching, and miscellaneous involvement with human paraphernalia are additional human-related causes of manatee mortality.

Manatees in northern Florida apparently cannot withstand cold winter temperatures, and warm water springs and industrial warm water discharges are the focus of winter congregations. Metabolic data suggest that manatees are strongly affected by water temperature below 20° C but not by air temperatures diminished temporarily to near freezing. Captives are known to feed erratically in 18° to 20° C water and to cease feeding in colder water. It has been suggested that powerplant effluents cannot provide adequately warm water temperatures during severe cold periods in northern areas. During severe winters (as in 1976-77), greatly increased manatee mortality may result from prolonged exposure to cold.

Programs to control weed growth may harm manatees. Some weeds, especially the exotics Hydrilla sp. and water hyacinth Eichornia crassipes, impede boat traffic and are sprayed with herbicides, such as 2, 4,-D, silvex, diquat, endothal, and copper compounds. Other chemicals are also used as carriers for herbicides. No direct effects have been documented, but it is certain that manatees are exposed to some of these chemicals in the diet as well as cutaneously. Food supplies may also be reduced by aquatic plant control. Oil spills from offshore drilling may also affect manatees' food supplies. Dredging (and motorboats) may detrimentally affect manatees by increasing water turbidity until submergent plants can no longer survive.

Manatees have very low concentrations of organochlorine pesticides, lead, and mercury in their tissues.

Blue Spring State Park (a winter aggregation site) is designated a manatee refuge by the Florida Department of Natural Resources. As many as 25 manatees have taken refuge in this spring during cold periods. Manatees also inhabit the Everglades National Park and several national wildlife refuges. Manatees are especially abundant around the Merritt Island National Wildlife Refuge. Foreign sanctuaries include Colombia's Parque Nacional Isla de Salamanca and Costa Rica's Tortuguero National Park. Manatee occurrence in other foreign reserves or sanctuaries is unknown.

Allocation problems. Manatees have long been hunted for their meat, hides, oil, and ivory. Protective legislation is now nearly complete throughout their range. The meat is still sold occasionally in local markets of Brazil, Colombia, and Venezuela, but kills are usually the result of fortuitous encounters by fishermen. T. manatus has been used in small-scale aquatic weed clearance projects in Florida, Guyana, Mexico, and Panama. The manatee has also been suggested as a potential meat resource, to be farmed like cattle. However, current decimated populations and the species' low reproductive rate make these projects unrealistic.

Regulations. Protective legislation for the manatee now exists in the following countries or commonwealths: Belize, Brazil, Colombia, Costa Rica, Cuba, the Dominican Republic, Guyana, Haiti, Jamaica, Panama, Puerto Rico, Trinidad, the United States, and Venezuela.

In July 1978, the Florida Manatee Sanctuary Act took effect. This State legislation declares the entire State of Florida a "refuge and sanctuary for the manatee." The act also provides for the regulation of boat speeds in 13 manatee winter aggregation areas between November 15 of one year and March 31 of the following year. Boat speed regulations in summer use areas have been promulgated in 1980 at Merritt Island and Chassahowitzka National Wildlife Refuges.

Current research. The National Fish and Wildlife Laboratory (NFWL) of the FWS Division of Wildlife Ecology Research initiated a research program on T. manatus in Florida in 1974. Two of the major areas of the NFWL Sirenia Project's research program are the salvage of manatee carcasses and long-term field studies of key populations. In addition, the Service has contracts

and cooperative agreements with individuals and other institutions to conduct further manatee research. The laboratory also plays a major role in coordinating manatee research efforts in the United States and overseas, and has conducted preliminary studies on manatees in cooperation with others in Brazil, Colombia, Honduras, Jamaica, Mexico, Panama, Puerto Rico, Surinam, and Venezuela.

The NFWL salvage program for the southeastern United States is conducted jointly with cooperators at the University of Miami. The purpose of the program is to determine the causes of manatee mortality through necropsies on every carcass recovered in Florida and adjoining regions; by identifying the major causes of death, management actions to reduce mortality can follow. The program also supplies tissues and organs for scientific study to over 20 cooperators. Specimens are used for pathological, anatomical, and biochemical studies as well as for pesticide and heavy metal residue analysis.

NFWL field studies concentrate on long-term studies of the ecology and behavior of populations of known individuals. The goal of these studies is to establish knowledge of the basic life history parameters necessary for an understanding of manatee population dynamics. Research also focuses on habitat use and the distribution and daily and seasonal movements of manatees in relation to factors such as temperature and human activity. NFWL researchers under contract to Florida Power and Light have completed a study of the use of powerplant effluents in Brevard County, Fla., and radio-tagging studies are being conducted on manatees in the St. Johns River by cooperators from the University of Minnesota.

Amazonian manatee
(Trichechus inunguis)

Distribution and migration. Amazonian manatees are strictly fluviatile, apparently being confined to the Amazon Basin and possibly the Orinoco drainage (fig. 8). In Brazil, they occur in the Amazon River and the following tributaries: Rio Tocantins, Rio Xingu, the Tapajos, the Nhamunca, Rio Madeira, and Rio Negro. They have also been reported in Rio Branco, which is almost continuous with the Essequibo and Rupununi Rivers of Guyana during flooding, thus allowing the animals access to these rivers. T. inunguis is also thought



Figure 10. Female Amazonian manatee captured near Macapá, on north side of Amazon River near its mouth, Brazil. Note lack of nails on right flipper, in contrast to the rudimentary nails on the West Indian manatee. Photo by Daryl P. Domning.

to inhabit the upper Orinoco and the Cano Casiquiare of Venezuela, but records are lacking. In Colombia, Amazonian manatees may be found in the Amazon and the Putumayo River (west to the Araracuara rapids); they may also frequent the Apaporis River. Peruvian rivers supporting manatees are: Rio Napo, Rio Tigre, Rio Marañon (as far as its confluence with Rio Pastaza), Rio Samiria, and Rio Pacaya. These animals also inhabit the Ucayali and Huallaga River drainages but are absent from both the Madre de Dios and the Purus systems. No information is available on migration of this species.

Abundance and trends. Amazonian manatees were formerly abundant in the Brazilian Amazon. Thousands of skins were brought yearly to Manaus for trade in the 1930's and 1940's. T. inunguis is consequently less abundant today in most of the Amazon and its tributaries. It is, however, still fairly common in some lakes on the lower Tapajos and in the Nhamunca River. In general, it is regarded as rare in Colombia. This species is nearer extinction in Peru than is any other mammal, although modest numbers do remain in Rio Samiria and Rio Pacaya. All reports indicate a dramatic decline in numbers of Amazonian manatees throughout their range. Population estimates are not available, but extinction has been predicted within the next few decades if local hunting pressures continue.

General biology. T. inunguis is a large, fusiform, and nearly hairless marine mammal with paddlelike flippers and a spatulate tail. It is distinct from other manatee species (T. manatus and T. senegalensis) in both appearance and habitat. Characteristically, it is more slender and has elongated flippers lacking nails, and it is marked by a unique white breast patch. This species is the only entirely fluviatile manatee. Adults may reach lengths of 2.8 meters and estimated weights between 125 and 250 kilograms. The gestation period is thought to be about 1 year, and usually a cow gives birth to only one calf at a time. Newborn calves are less than 1 meter long and weigh less than 20 kilograms. Further information on reproduction, ontogenetic variation, and population structure is lacking. Longevity in nature is unknown, but a captive pair survived 12-1/2 years before they died.

Amazonian manatees feed upon varied aquatic vegetation, including Statiotes, Potamogeton, Vallisneria, Ceratophyllum, Ulva, Myriophyllum, and Zostera. Daily consumption of food plants has not been measured under natural conditions, but captive adults generally require 9 to 15 kilograms of lettuce and vegetables daily. Natural predation on T. inunguis is not documented, but jaguars, sharks, piranhas, and caimans have been suggested to be likely predators. The trematode Chiorchis fabaceus, occurring in the large intestine, is the only internal parasite reported for this species. Bronchial disorders, pneumonia, and skin problems have been noted in captives, and one captive developed osteomyelitis as a result of a harpoon wound.

Allocation problems. Many Indian tribes of Amazonia have hunted manatees in the past for both meat and the hides which were used to make shields. Animals were captured with harpoons and nets, but the final killing was done by driving wooden plugs into their nostrils, causing suffocation. In the 1930's and 1940's, the Amazonian manatee was commercially exploited for the skins, which

were shipped to Portugal and Rio de Janeiro where they were used primarily to make machine belting and water hoses. A meat preparation called "mixira," consisting of meat boiled in its own fat, was canned and also shipped abroad. Thousands of manatees were slaughtered yearly. Protective legislation has since been enacted, and the present rate of exploitation is reportedly reduced. However, poaching continues at a reduced rate, and manatee meat is still occasionally available in Colombia and Brazil.

Regulations. T. inunguis is totally protected in Brazil (1968), Colombia (1969), Guyana (1961), Peru (1973), and Venezuela (1970).

Current research. The Projeto Peixe-boi of the Instituto Nacional de Pesquisas da Amazonia (INPA), Manaus, Brasil, continues to be the principal center for research on the Amazonian manatee. Robin C. Best and an active group of seven biologists and students are undertaking a wide range of research projects, including aspects of historical exploitation, food habits, growth and ontogeny, husbandry, genetics, ecosystem relationships, aging techniques, physiology, behavior, and distribution. They have published several papers and reports dealing with some of these topics (see Amazonian manatee section in "Partial Bibliography").

West African manatee
(Trichechus senegalensis)

Distribution and migration. The West African manatee occurs in coastal waters and adjacent rivers of West Africa--from the mouth of the Senegal River (lat. 16° N.) to the mouth of the Cuanza River in Angola (fig. 11). This species has been reported from the Faleme, Gambia, and Casamance Rivers of Senegal and Gambia and from the coasts of Guinea. Other rivers known to support manatees are the Sierra Leone, the Missunado, the St. Paul's, and the Cavalla. In Ghana, the species is now apparently restricted to Lake Volta and the upper reaches of the Volta River. Manatees have been taken at Benin and Lagos, Nigeria, occur in the Doro River Forest Reserve, and are numerous in most of the larger rivers of southern Nigeria. They occur in the Niger River and are common as far upriver as Idah, on the western border; however, they travel even farther upriver and have been noted in Segou, Mali, about 320 kilometers southwest of Timbuktu. Manatees also ascend the Benue River, a large tributary of the Niger; they have been reported in this waterway as far east as Numan (lat. 9° N., long. 12° W.). Manatees are not thought to occur in Lake Chad, although specimens have been collected from its principal tributaries, the Baniangi, the Bahr Keeta, and the River Shari. In Cameroon, they are found within the Korup and Campo Reserves and have been reported from the Mungo and Wouri Rivers; they also probably inhabit the Campo River in southern Cameroon. Specimens have been taken from the Rio Muni, Gabon, and Ogooue Rivers and may also be found in the Loeme River of Congo Brazzaville. In Zaire, T. senegalensis occurs in the lower Congo River and also in the upper drainage of the Uele River, east to Kibali. The Loge, Dnade, Bengo, and Cuanza Rivers of Angola all reportedly contain manatees. No data are available on migrational movements.

Abundance and trends. No population estimates are available for this species. The West African manatee was reported to be rare in the Senegal, Faleme, and Casamance Rivers of Senegal as early as 1900. Recent reports of manatee abundance in Senegal, Guinea, and Portugese Guinea are lacking. Manatees remain common enough in the Sierra Leone River estuaries today to be trapped for food, but no information is available on their current status along the coast from Liberia to Nigeria. Manatees have been extirpated from the Mekrou River of Benin and the portion of the Niger River on the Niger-Benin border, although they are thought to be still numerous in most of the larger rivers of southern Nigeria. Populations seem to be stable in the lower Niger, the Benue River, and the Anambra system of creeks, but manatees are rare in the Izichi River of Nigeria. T. senegalensis has apparently been extirpated in Lake Chad and is classified as rare in the Cameroons. The lower reaches of the Congo River reportedly support numerous animals, but populations have diminished in the upper rivers. In general, the manatee population of Zaire is much reduced. T. senegalensis is classified as a threatened species, but little information is available on the recent distribution or abundance of this animal.

General biology. Externally, this manatee is indistinguishable from the West Indian manatee. It too is large, fusiform, and nearly hairless and has paddlelike flippers and a spatulate tail. Average adults measure from 2.5 to

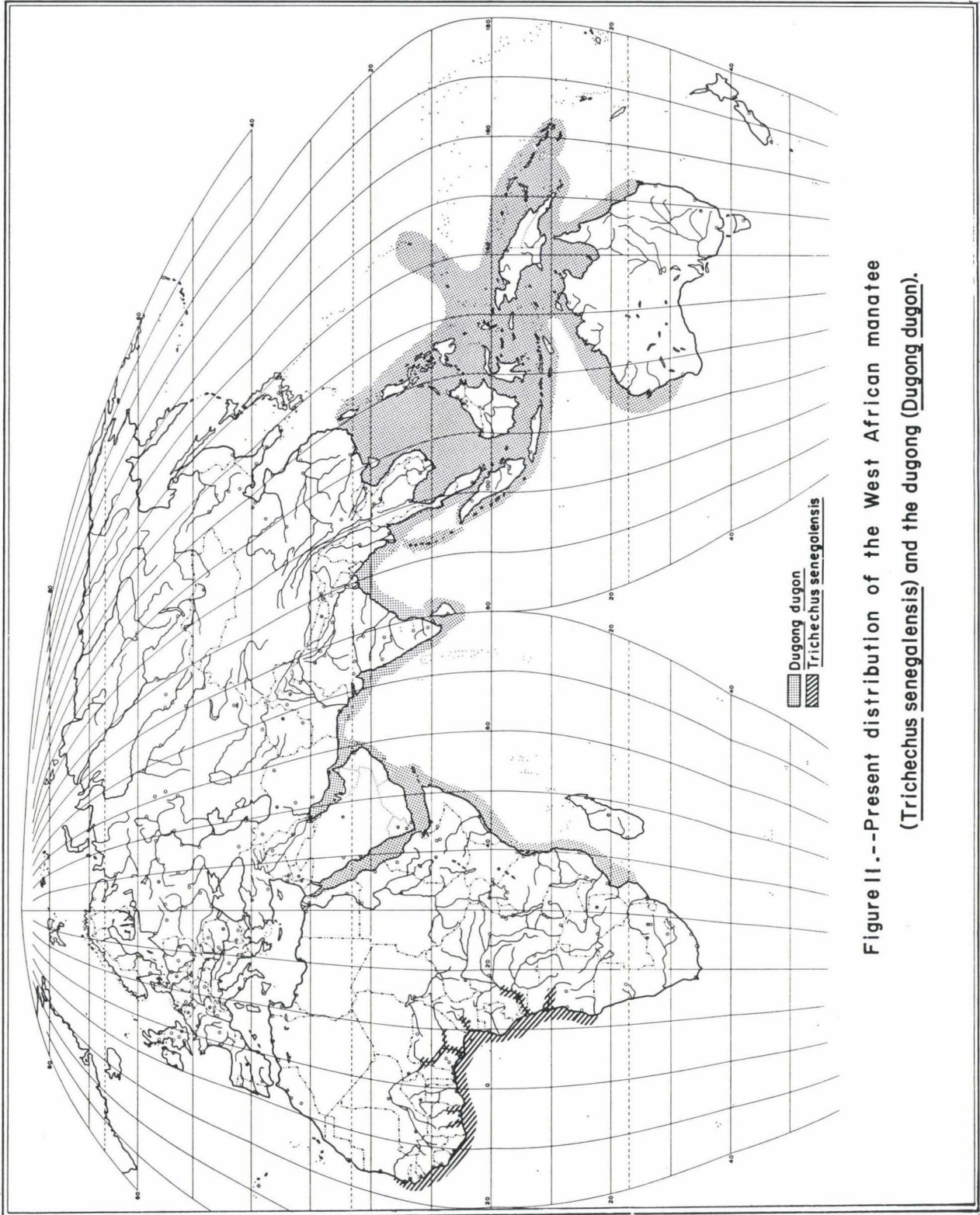


Figure 11.--Present distribution of the West African manatee (Trichechus senegalensis) and the dugong (Dugong dugon).

3.4 meters in length and weigh from 400 to 500 kilograms. It has been hypothesized that breeding occurs during the late dry season in weedy swamps and lagoons, but documentation is lacking. The gestation period is unknown but is probably about 1 year, and a cow usually gives birth to a single calf. Newborn calves are approximately 1 meter long, and they are believed to remain with the parent cow for a long time. No further information is available on reproductive or population biology of this species.

West African manatees favor weedy swamps and mirigots. They are believed to be active throughout the day but feed mostly at night. Their diet includes the aquatic vascular plants Cymodocea nodosa, Polygonum sp., and Eichornia crassipes, but they also reportedly feed on leaves of the mangrove Rhizophora, a terrestrial plant whose leaves often hang over water. A 1.85-meter-long captive male consumed 12 kilograms of vegetables daily. When 2.4 meters long, he regularly ate 17 to 18 kilograms of vegetables, Elodea, and legumes daily. The only information available on the social behavior of T. senegalensis is that groups of four animals, including half-grown calves, have been observed.

Chiorchis fabaceus, a trematode found in the large intestine, is the only internal parasite reported for the West African manatee. No diseases of this species have been reported from the wild, but one captive died of acute enteritis. There is no evidence of predation on T. senegalensis by species other than man.

Ecological problems. Propellers and keels of boats striking submerged manatees may inflict mortal wounds. While there is no evidence that this is as real a problem in West Africa as it is in Florida, the Ijaw fishermen of the Anambra system of creeks in Nigeria considered manatees a nuisance to their boat traffic. In 1932, they began trapping and killing manatees, and they exterminated the local population within 3 years. Killing of manatees for food reportedly reduced this species in rivers in Ghana after the water became clearer following the construction of dams. These dams are also believed to have isolated populations and may disrupt normal movement patterns. Manatees inhabit the recently formed Lake Volta in Ghana and Lake Kainje in Nigeria, which are currently being overgrown with aquatic weeds. Use of herbicides on the weeds which are consumed by the manatees presents a potential threat to the animals. Pollution of waters in areas of human development would be expected to adversely affect the food sources of manatees.

Allocation problems. The West African manatee has long been hunted throughout its range, largely for its meat. Hunting is done at night with nets, harpoons, and guns, and such hunting has been a regular occupation in the lower Congo, Angola, and in northern Nigeria. No estimates of current take are available. Manatees are also accidentally caught and die in shark nets, which are set along many coastal areas of West Africa. T. senegalensis has been considered to be a potential solution to the problem of aquatic weed control in manmade lakes and river systems. Experiments with the West Indian manatee indicate that that species can successfully control weeds under certain specialized circumstances and that manatees plus alternative mechanical weed removers may provide the best non-chemical means of control.

Regulations. The West African manatee is currently protected in Angola, Benin, Cameroon, Congo Brazzaville, Gabon, Ghana, Guinea, Ivory Coast, Liberia, Nigeria, Senegal, Sierra Leone, Togo, and Zaire. In July 1979, the species was listed as threatened under the U.S. Endangered Species Act.

Current research. No survey programs are currently underway to determine the status and distribution of this species, but the U.S. Fish and Wildlife Service's Division of Wildlife Ecology Research considers this to be a critical area for research.

Dugong
(Dugong dugon)

Distribution and migration. Dugongs occur in tropical and subtropical Indo-Pacific waters (fig. 11). They are totally marine and are usually found in nearshore coastal waters from 3.7 to 4.0 meters (about 2 fathoms) deep. Along the east coast of Africa, they range from the Red Sea coast of Egypt south to Delagoa Bay (lat. 26° S.), Mozambique, but this distribution is discontinuous owing to local extirpation in certain areas. Dugongs have been reported from the Persian Gulf, and they also range along the west coast of India, south of the Gulf of Kutch. They occur in Sri Lankan waters and are present in the Andaman Islands, the Mergui Archipelago, Burma, Malaysia, the Moluccas, and Sumatra. They are still found in the Ryukyu Archipelago, and specimens have been taken in Taiwan and Hong Kong. The present range extends south and east to include the Palau Islands (western Caroline Islands), New Britain, New Guinea, the Solomons, New Caledonia, and the New Hebrides. In Australia, dugongs occur all along the northern coast from Perth (lat. 32° S.) on the west coast to Brisbane in the east. They are absent from the Marshall, Gilbert, Ellice, and Fiji Islands.

Long-distance migrations of this species are unknown, but local, offshore movements are apparent. These may be correlated with the changing monsoon seasons and possibly with resulting shifts in abundance of food sources. During the season of rough seas and extremely strong winds, the animals move to shore, apparently seeking shelter. Such movements have been reported in east Africa, India, and the Philippines. Similar migrations have not been noted in Australia.

Abundance and trends. Populations are thought to be much reduced and still declining throughout much of the range, except in Australia and Papua New Guinea. No numerical estimates of dugongs are available, except for those in northeastern Australia where an estimated 1,000 to 2,000 animals dwell along the Queensland coast.

Dugongs are more abundant in Kenya and the Somali Republic than elsewhere along the coast of Africa. They are now extremely rare in the Red Sea and the Gulf of Aqaba. They were once abundant enough in the Gulf of Mannar (between Sri Lanka and India) to support a large commercial dugong fishery. The only remaining segments of this population are restricted to the region near the Mannar Peninsula of Sri Lanka, from Jaffna to Puttalam. Numbers have declined along the Sarawak coast of Malaysia, and few dugongs can be found today in the Ryukyu Archipelago. The only stable populations occur along the northern Australia coast--Shark Bay, Broome, the Gulf of Carpentaria, and the northern coast of Queensland--and perhaps along the coast of Papua New Guinea. These stocks appear to be maintaining themselves.

General biology. A dugong is a large fusiform marine mammal with flipperlike forelimbs and a broadly notched, horizontal tail fluke. Young adults range in length from 2.4 to 2.7 meters, in weight from 230 to 360 kilograms. The thick, nearly hairless skin is deep slate gray to brown and is frequently marked with numerous scars and scratches. Dugongs were highly social in the past, forming large herds of several hundred animals. Today, groups usually

include no more than 6 animals, although groups of up to 50 animals are still seen along the coast of Australia. Breeding apparently occurs throughout the year. The gestation period is thought to be about 1 year, and a cow usually bears only one calf at a time; twins have been reported rarely. Newborn calves are about 1.1 meter long. Calves begin grazing within 3 months of birth but continue to nurse for over 1 year, when they may have grown to a length of 1.8 meters. Animals reach sexual maturity at an approximate length of up to 2.4 meters, which corresponds to an estimated age of 5 to 10 years. Sexual dimorphism in size of adults is not evident. Longevity of the dugong in the wild is unknown, but analysis of tooth growth layers suggests a maximum of 30 to 60 years, depending on whether growth rings are annual or biannual. Two captives were successfully maintained for 10 years in India.

Dugongs are largely herbivorous and feed primarily on marine sea grasses of the families Potamogetonaceae and Hydrocharitaceae; these particular grasses occur in upper subtidal and lower intertidal waters with a year-round temperature range between 21° C and 28° C. Diplanthera and Cymodocea are most heavily utilized, but the brown algae, Sargassum, may also be consumed in significant amounts when sea grasses are locally scarce. Dugongs reportedly prefer to feed at night or with the rising tide.

There are few observations of predation upon the dugong by animals other than man. Fishermen have claimed that the shark is a predator, and some dugongs netted and drowned in Queensland showed signs of attack by sharks or other predators. Large saltwater crocodiles are known to eat dugongs occasionally, but the extent of this predation is unknown.

Internal parasites include 10 species of trematodes and 2 species of nematodes. Barnacles and green filamentous algae have been observed on dugongs but do not appear to be harmful. No diseases have been reported.

Allocation problems. Man is the major threat to the dugong's existence. Boat traffic in offshore areas may inflict mortal wounds. Increased marine fishery activities in the India-Sri Lanka and East Coast African areas have resulted in accidental dugong nettings, which have drowned substantial numbers of animals. Dynamiting for fish presumably also adversely affects dugongs. In Queensland, Australia, a shark-netting program has resulted in large dugong mortality; similar netting programs exist in Africa.

Dugongs have been hunted throughout their range. Their meat is similar to veal or pork and "keeps" for long periods of time. Adults of average size yield from 19 to 30 liters of oil similar to cod liver oil, and the hide makes excellent leather, which is especially suitable for sandalmaking. Tusks and bones are used as ivory, and several body parts were once thought to have medicinal or aphrodisiac properties. Today, hunting pressures are much reduced, owing partly to the decline of dugongs. In spite of legislative protection, however, poaching continues. In Australia, the aborigines and Torres Islanders may still legally hunt the animals. One village of 250 people caught an average of about 70 animals per year during the early 1960's. In Papua New Guinea, at least one animal is killed each week for local consumption along the southwestern coast.

Regulations. The dugong is totally protected in Anglo-Egyptian Sudan, Egypt, Ethiopia, India, Japan, Kenya, Madagascar, Mozambique, Natal, New Caledonia, Philippines, Sabah, Sarawak, Somalia, South Africa, Sri Lanka, Taiwan, Tanzania, and the Trust Territory of the Pacific Islands; in Australia and Papua New Guinea, only aborigines and natives may hunt the dugong for their own local consumption and use. Although protection is nearly complete, effective enforcement is virtually impossible in most areas.

Current research. George Heinshon, Helene Marsh, and Alister Spain and their associates at James Cook University, Townsville, are continuing their study of dugongs in Queensland, Australia. Animals accidentally drowned in shark nets provide population and reproduction data, as well as information on food habits. Studies of nutrition, general ecology and behavior, and histology are also being conducted. Paul Anderson of the University of Calgary is undertaking a study of dugong behavioral ecology in the Shark Bay region. Brydget Hudson of the Wildlife Division, Department of Natural Resources, Papua New Guinea, is continuing her study of dugongs throughout the waters of that area. The FWS Division of Wildlife Ecology Research's National Fish and Wildlife Laboratory continues to survey dugongs in the waters around Palau, Trust Territory of the Pacific Islands.

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Appendix A

Notice of disapproval of change in
Alaska State walrus regulations and management program

Federal Register, volume 44, number 150, pages 45562-45564,

Thursday, August 2, 1979 (44 F.R. 45562-45564)

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

Change in Alaska State Walrus Regulations and Program

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Notice of disapproval.

SUMMARY: The Director, U.S. Fish and Wildlife Service, hereby disapproves Alaska's walrus regulations and management program as modified by the State's emergency regulation repealing most of its walrus-related hunting regulations, and by the State's simultaneous termination of its walrus management and associated law enforcement programs. On June 27, 1979, the Alaska Board of Game adopted an emergency regulation, effective on July 1, that repealed the permit requirement for recreational hunters and the registration requirement for subsistence hunters; removed restrictions on possession, transportation, importation, or exportation of walrus or walrus parts; eliminated the requirement on sealing raw walrus ivory; and abolished closed seasons and bag limits except for most of the Walrus Islands State Game Sanctuary, which remains closed to hunting. These changes allow almost totally unlimited and unregulated taking of walrus which, with the State's voluntary termination of a walrus management program, cause the State's laws and regulations to be inconsistent with the Marine Mammal Protection Act of 1972, relevant Service regulations, and the terms of the waiver of the moratorium and return of walrus management to the State that were implemented in 1976. The Director's disapproval of Alaska's emergency regulation and the finding that the State's rules and management program are no longer in compliance with the Act are made after consultation with the Marine Mammal Commission and are being issued concomitantly with an emergency Federal rule to suspend all taking of walrus under the waiver except for that nonwasteful taking necessary for Native subsistence and the creation and selling of authentic native articles of handicrafts and clothing.

EFFECTIVE DATE: August 2, 1979.

FOR FURTHER INFORMATION CONTACT: Rupert R. Bonner, Marine Mammal Coordinator, Office of Wildlife Assistance, U.S. Fish and Wildlife Service, Washington, D.C. 20240 (202-632-2202).

SUPPLEMENTARY INFORMATION:

Background

On December 24, 1975, the Director, U.S. Fish and Wildlife Service, (hereinafter, the Director and the Service, respectively) published in the *Federal Register* (40 FR 59459-59461) a waiver of the moratorium imposed by the Marine Mammal Protection Act (the Act) on hunting and killing Pacific walrus in Alaska and adjacent waters. He did this under authority and subject to the conditions of section 101(a)(3)(A) of the Act (16 U.S.C. 1371(a)(3)(A)). The notice of waiver provided, however, that the waiver itself would not become effective until management of walrus was returned to Alaska after approval of relevant State laws and regulations (rules) and a revised State walrus management program. On April 5, 1976, the Service implemented the waiver and returned management authority to Alaska after approving such State rules and management program (41 FR 14372-14373).

The approved Alaska Department of Fish and Game (ADF&G) hunting regulations contained the following elements: general licensing requirements; State-issued special permits to hunt walrus (nontransferable permit needed by all hunters "other than residents dependent upon and utilizing walrus for food," who, however, were required to register as walrus hunters with the village council in the village of their residence), to export raw walrus skins, to buy, sell, barter, or export raw ivory, and to gain access to Round Island and adjacent waters within one-half mile of the island, which is part of the Walrus Islands State Game Sanctuary in Bristol Bay; requirements for reports on the above permitted activities, on all purchases or consignment- or barter-based acquisitions of walrus hides, and on all sales or purchases of raw ivory; specification of permissible methods and means of taking walrus; restrictions on possession, transportation, importation, and exportation of walrus and walrus parts, and special restrictions on exportation of walrus skins and trophies (including walrus tusks); special stipulations on the purchase and sale of raw ivory and the use of walrus parts for animal food and bait; identification of areas closed to walrus hunting and State game refuges and sanctuaries closed to all taking of game; walrus hunting seasons and bag limits; provisions for emergency taking of walrus during the closed season or in defense of life or property, and for

taking of walrus on the high seas; and general provisions related to ADF&G game management units and definitions. The Approved walrus management program was based on the State's "management policy," which recognized that:

"The greatest challenge to successful walrus management in the immediate future will involve manipulation of harvest to provide primarily for the food requirements of coastal residents and, secondarily, for a necessary but limited cash income based on ivory, other walrus products, and the returns derived from sport hunters. Based on our knowledge of population levels and productivity of the Pacific walrus, expanded commercial harvests by either American or Soviet hunters will be discouraged.

The State's "management policy" also articulated the State's commitment to cooperate in walrus research and to respond circumspcctly to requests for animals for public education and scientific study.

Federal Regulations and Changes in Alaska Regulations

Under the waiver-related Service regulations published on December 24, 1975, (40 FR 59442-59444)—specifically those in 50 CFR 18.56(c)(1), (d)-(f) that address proposed changes in State rules, the ADF&G has requested and the Service has approved two changes in State regulations: the first, on October 13, 1976, elaborating on minimum calibers of rifles that may be used to hunt walrus (41 FR 44875); the second, on May 20, 1977, revising walrus hunting seasons and bag limits (42 FR 25924-25925). In May 1978, the ADF&G proposed and subsequently adopted the following additional changes: (1) an emergency rule that substituted a definition of "sustenance" hunters for "subsistence" hunters, distinguished between traditional resident "sustenance" hunters and recreational hunters, and established a separate 100-animal quota for the latter which, together with the take for sustenance use, would still not exceed the maximum number of 3,000 retrieved animals per year that may be taken under the waiver; (2) an amendment that (a) would require all walrus hunters other than residents traditionally dependent on walrus for sustenance to first obtain a nontransferable permit, but (b) would allow those traditional resident sustenance hunters to hunt walrus without a permit, provided they are registered as walrus hunters with the village council of the village in which they reside; (3) a new regulation requiring the sealing of raw walrus ivory; and (4) deletion of a regulation

that empowered the ADF&G Commissioner to issue permits for buying, selling, bartering, or exporting raw ivory.

The revised waiver-related Service regulations currently in force, issued as final rulemaking on October 2, 1978, (43 FR 45370-45374) and amended on January 12, 1979, (44 FR 2597), require in 50 CFR 18.56(c) that:

Each State, having approved laws and regulations shall file a special report within 30 days, whenever any of the following occurs:

(1) A proposed change in a relevant State law or regulation . . . which, with the exception of emergency closings of seasons, shall not be effective until the Director [determines in consultation with the Marine Mammal Commission that it is in compliance with the Act and relevant Federal regulations];

(2) A significant natural or manmade occurrence affecting the marine ecosystems or the species or stocks of marine mammals to which a waiver applies; or

(3) A significant violation of the State management program including any quotas established thereby.

New Changes in Alaska Regulations

On June 27, 1979, the Alaska Board of Game adopted an emergency regulation that effectively terminated the State's walrus management program and relevant law enforcement by repealing most of the walrus-related hunting regulations in effect before that date. Specifically, the emergency regulation made the following changes in Alaska regulations, effective on July 1, 1979: repealed the permit requirement for recreational hunters and the walrus-hunter registration requirement for sustenance hunters; removed the restrictions on possession, transportation, importation, or exportation of walruses and walrus parts; and eliminated the requirement on sealing raw walrus ivory. It also abolished closed seasons and bag limits in all six walrus-inhabited game management units except for most of the Walrus Islands State Game Sanctuary, which remains closed to hunting. The overall effect of these changes is to allow almost totally unlimited and unregulated taking of walruses. As of July 1, the State also terminated its walrus management and enforcement activities except for field monitoring of the harvest through July 31.

In letters of March 19, June 4, and June 22 to the Service's Director, ADF&G Commissioner Ronald O. Skoog cited the following reasons for the State's actions: (1) apparent Federal disregard for the health and stability of the marine ecosystem of which walruses are a

component; (2) total State agreement with the principle of optimum sustainable population (OSP), but dissatisfaction with the Service's explanation of the OSP definition, as published on January 11, 1979 (44 FR 2541-2542); (3) the inflexibility of fixed annual quotas and the desirability for average annual harvest limits that take into account the varied availability and importance of different species in different years due to variable climatic conditions, varying ice-dependent animal distribution, and other factors; (4) a belief, based on indications of population stress, that the walrus quota is too low, that the population may well be above the optimum carrying capacity of the environment, and that continuation of the present quota (3,000 retrieved animals per year) will ultimately disadvantage the population and contribute to its imminent crash; (5) a clear State intent that all user groups be included under one management regime; (6) undue constraint by Service rules and regulations, preventing maintenance of the walrus population within the biologically safe range of OSP; (7) a belief that continuation of the rules and regulations presently imposed likely will result in significant deterioration of the health and stability of the marine environment utilized by walrus; (8) the view that present procedures for reaching important management decisions are so cumbersome as to raise an unacceptably high risk of failure from undue delays; (9) the belief that continued bureaucratic delays have potentially placed the entire hearing records for the waiver in jeopardy for being biologically antiquated; (10) the State's wish to implement a sound ecosystem management program for all marine species has been consistently thwarted; and (11) the conclusion that "the present legal, political, and bureaucratic environment has created conflicts and confusion that make the management situation intolerable" (June 22 letter).

Amplifying on the last cited reason, Commissioner Skoog noted in his June 22 letter that:

Alaskans are aware . . . that current State regulations, permissible under terms of the existing waiver, are becoming less satisfactory in meeting the biological intent of the Act. In addition, the preliminary [April 2, 1979] legal finding of Judge Harold Greene [that the State may not regulate Native hunting of nondepleted walrus in a nonwasteful manner for the purposes specified in the Act] has prompted serious objection to regulations of the State. Consumptive users of the walrus resource have been informed erroneously . . . that our regulations are invalid and violators cannot

be prosecuted. The results of such misinformation are that many walrus users are disregarding State regulations and thus unknowingly are placing themselves in jeopardy; eventually, State walrus regulations are going to be unenforceable. This situation is quite unacceptable and can be rectified only by the return of walrus to Federal management until there is a satisfactory resolution.

Commissioner Skoog also observed, however,

Nevertheless, I wish to emphasize once again that this action in no way implies the State's disinterest in managing marine mammals. We will continue to pursue vigorously the return to the State of management authority for all of our marine mammals, and will work cooperatively with the Departments of Interior and Commerce to achieve this end via the waiver [on nine marine mammal species] currently being negotiated.

Federal Review and Disapproval of New Changes in Alaska Regulations

Under section 109(a)(3) of the Act (16 U.S.C. 1379(a)(3)) and relevant Service regulations (50 CFR 18.56), the Director, acting under delegation from the Secretary of the Interior, is bound to continuously monitor and review all waiver-associated State rules and conservation programs to insure their continued consistency with Federal law and rules. After consultation with the Marine Mammal Commission, in accordance with 50 CFR 18.56, the Director has determined that Alaska's emergency regulation, which became effective on July 1, is not consistent with the Act and its implementing regulations, that the State's action must therefore be disapproved, and, pursuant to section 109(a)(1) of the Act, that its laws and regulations related to the taking of walrus are void.

The Director is compelled to make this determination because section 3(2) of the Act (16 U.S.C. 1362(2)) and 50 CFR 18.55(a) state that "conservation" and "management," the underlying objectives of Title I of the Act, "include the entire scope of activities that constitute a modern scientific resource program, including, but not limited to, research, census, law enforcement, and habitat acquisition and improvement." However, Commissioner Skoog announced in his June 22 letter to the Director that "effective July 1, . . . [t]he State will end its enforcement, research, ivory sealing, and other management activities concerning this species except for the present contract commitment for field monitoring of the walrus harvest through July 31, 1979." The State has thereby abandoned the "conservation" and "management" obligations it assumed under the 1976 waiver and return of management. In addition, as Commissioner Skoog stated elsewhere

in his June 22 letter, the changes in the State's regulations "will not be in compliance with all the original regulations in the waiver." Taken together, the changes in the State's regulations and the termination of its management program allow almost unlimited and unregulated taking of walrus and, as such, fail to provide a basis to satisfy the requirement of 16 U.S.C. 1373(a) that the Director insure that taking under a waiver be regulated so as not to disadvantage the species or population stock for which the moratorium has been waived. As a result of the State's actions, which became effective on July 1, 1979, there is no longer in effect "an overall State program regarding the protection and management of [walrus]" as required by 50 CFR 18.53(d)(3). In the absence of any management or enforcement activities, the State of Alaska no longer has an adequate walrus management program, and it is prohibited by 16 U.S.C. 1379(a) from adopting or attempting to enforce any State law or regulation relating to the taking of walrus. The Director therefore acknowledges the State's termination of its walrus management program and disapproves of all State laws and regulations relating to the taking of walrus.

The Service fully recognizes that the State has taken these actions in the belief that: the walrus population is above the optimum carrying capacity of the environment and might crash in the near future—with severe consequences to both the population and the subsistence hunters dependent on it; the walrus food supply may not be adequate to support the population, and the stability of the marine ecosystem may be seriously threatened; and the 3,000-animal waiver quota, formulated in 1975 on the basis of an estimated population level appreciably lower than the one now believed to exist, precludes reduction of the population to a lower level. However, data supporting or confirming these beliefs have never been introduced into the record for the waiver of the moratorium relating to walrus. The Act (16 U.S.C. 1373(d)) and Service regulations (50 CFR 18.70) clearly require that only evidence presented and evaluated in a formal hearing process may be considered in a determination to waive the moratorium. The evidence that served as the basis for the walrus waiver and return of management to Alaska was taken in formal public hearings in 1975 and presumably comprised the "best scientific evidence available" (16 U.S.C. 1371(a)(3)(A)). The State offered no new evidence the following year when

additional information could have been introduced at the 1976 formal hearings on waiving the moratorium for eight other Alaskan marine mammal species as well as continuing the already implemented walrus waiver, nor has the State ever requested the opportunity to do so. Lacking any new data presented "on the record," the Service has been compelled to consider only the information in the walrus waiver hearing record. This evidence does not justify an annual retrieved walrus harvest of more than 3,000 animals.

The service is also fully aware of the management difficulties posed by Native subsistence hunting, and it is continuing to meet and work with State and Native representatives to solve them. Troublesome as they are, however, the Service does not believe that these difficulties justify the ADF&G's actions. The single act of removing the ivory-sealing requirement warrants special concern since it eliminates the most significant and reliable source of information on the walrus harvest—information that is as indispensable to protection of the resource as is a reliable estimate of the animals' abundance.

State's Procedural Rights

If the State of Alaska desired to contest the Director's disapproval of its rules and the resumption of Federal management responsibility over walruses, it would have the right to notice in the **Federal Register** of a preliminary determination of disapproval and an opportunity for written comment or an informal hearing on the preliminary determination (16 U.S.C. 1379(a)(3) and 50 CFR 18.56(e)-(h)). In the present situation, however, the State has voluntarily terminated its walrus program and desires the immediate resumption of Federal management. Accordingly, the State, through its Attorney General's Office in Anchorage, advised the Department's Office of the Solicitor on July 13, 1979, that it agrees with the Service that its rights to notice and opportunity for comment or hearing are not applicable to the present determination and resumption of Federal management.

This notice was prepared by Jackson E. Lewis, Marine Biologist, Office of Wildlife Assistance, U.S. Fish and Wildlife Service, and Ronald E. Swan, Office of the Solicitor, Department of the Interior.

Dated: July 24, 1979.

Robert S. Cook,
Acting Director, Fish and Wildlife Service.

[FR Doc. 79-23843 Filed 8-1-79; 8:45 am]

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Appendix B

Final rule on suspension of
hunting and killing of walrus in Alaska
under the 1976 waiver of the MMPA moratorium

Federal Register, volume 44, number 150, pages 45565-45566,

Thursday, August 2, 1979 (44 F.R. 45565-45566)

DEPARTMENT OF INTERIOR

Fish and Wildlife Service

50 CFR Part 18

Marine Mammals; Suspension of Hunting and Killing of Walrus Under the 1976 Waiver of the Moratorium

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: This emergency final rule suspends all taking and other activities involving Pacific walrus that are contingent on the waiver of the Marine Mammal Protection Act moratorium that was implemented in April 1976. The activities involving walrus that are contingent on the waiver, and which are therefore prohibited by this suspension, include all sport hunting and killing but do not include nonwasteful taking by Alaska Natives for purposes of subsistence or the creation and selling of authentic native articles of handicrafts and clothing. The Director issues the rule, after consultation with the Marine Mammal Commission, because effective on July 1, 1979, the Alaska Department of Fish and Game repealed most of the walrus-related regulations that had been approved by the Director, and it simultaneously terminated its walrus management and associated law enforcement programs. In a separate notice in this issue of the *Federal Register* and also after consultation with the Marine Mammal Commission, the Director acknowledges the State's termination of its approved walrus management program and finds the resulting State laws and regulations to be inconsistent with the Marine Mammal Protection Act, relevant Service regulations, and the terms of the 1976 waiver. This finding is necessary because the State rules allow almost totally unlimited and unregulated taking of walrus and because the State purports to adopt laws and regulations in the absence of an approved management program. This emergency final rule must be effective immediately because of the serious threat posed to walrus by the present essentially uncontrolled waiver on hunting and killing them and to protect them from the harmful effects of unregulated taking under the waiver which would occur in the absence of this rule. The suspension will remain in effect until the relevant section of the Service's regulations is amended to effectively control taking and otherwise implement the waiver.

EFFECTIVE DATE: August 2, 1979.

FOR FURTHER INFORMATION CONTACT: Rupert R. Bonner, Marine Mammal Coordinator, Office of Wildlife Assistance, U.S. Fish and Wildlife Service, Washington, D.C. 20240 (202-632-2202).

SUPPLEMENTARY INFORMATION: Pursuant to the Fish and Wildlife Service Director's decision and the Service regulations published in the *Federal Register* on December 24, 1975 (40 FR 59459-59461 and 40 FR 59442-59444), on April 5, 1976, the Service issued final regulations (50 CFR 18.94) waiving the moratorium imposed by the Marine Mammal Protection Act (the Act) on hunting and killing walrus in Alaska and adjacent waters (41 FR 14372-14373). Implementation of the waiver was contingent upon the Service's approval of Alaska's relevant laws and regulations (rules) and its walrus management program, and continuation of the State's management authority and all taking under the waiver was contingent upon those rules and management program remaining in effect and in compliance with the Act and the Service's waiver-related regulations.

On July 5 and 6, 1979, the Service received notification that the Alaska Department of Fish and Game (ADF&G), in conjunction with termination of its walrus management and enforcement activities, issued an emergency regulation, effective on July 1, that repealed most of the approved walrus-related hunting regulations in effect before that date. Specifically, the State's emergency regulation repealed the permit requirement for recreational hunters and the registration requirement for subsistence hunters; removed restrictions on possession, transportation, importation, and exportation of walrus and walrus parts; eliminated the requirement on sealing raw walrus ivory; and abolished closed seasons and bag limits in all six walrus-inhabited State game management units except for most of the Walrus Islands State Game Sanctuary in Bristol Bay, which remains closed to hunting. The overall effect of these changes is to allow almost totally unlimited and unregulated taking of walrus because, effective on July 1, 1979, the State also terminated all of its walrus management and enforcement activities other than field monitoring of the harvest through July 31, 1979.

For the reasons set forth in a separate notice published today in the *Federal Register*, the Director, after consultation with the Marine Mammal Commission,

has determined that the ADF&G's emergency regulation is not consistent with the Act, and he has therefore formally disapproved the State's actions and any State laws and regulations relating to the taking of walrus. Because taking under the 1976 walrus waiver is contingent upon approved State rules and an approved State management program, disapproval of the ADF&G's changes in its regulations and termination of the approved management program necessitate suspension of the effectiveness of the waiver. While the suspension is in effect, all recreational hunting, killing, and other activities contingent on the waiver must cease (16 U.S.C. 1371(a), 1372). However, as stated earlier, the suspension does not apply to nonwasteful taking by Alaska Natives for subsistence purposes or for the creation and sale of authentic native articles of handicrafts and clothing, since such taking is not contingent on a waiver.

It is the Service's hope that Alaska will soon be able to resume management authority over walrus and reinstate an approved management program so that this suspension of the waiver may be lifted. Toward this end, the Service is continuing to meet and work with State and Native representatives to solve the problems that the State believed necessitated its emergency regulation and termination of its management and enforcement activities.

If Alaska desired to contest the suspension of the waiver, disapproval of its laws and regulations, and the resumption of Federal management responsibility over walrus, it would have the right to notice in the *Federal Register* of a preliminary determination of disapproval of its emergency regulation, termination of its management authority, and resumption of Federal responsibility (16 U.S.C. 1379(a)(3) and 50 CFR 18.56(e)-(h)). It would also have the right to the opportunity for written comment or an informal public hearing on such preliminary determination. In the present situation, however, the State has voluntarily terminated its walrus program and desires the immediate resumption of Federal regulations and management. Accordingly, the State, through its Attorney General's Office in Anchorage, advised the Department's Office of the Solicitor on July 13, 1979, that it agrees with the Service that its rights to notice and opportunity for comment or hearing are not applicable to the present determination of

disapproval or to the resumption of Federal management responsibility.

Aside from the procedural rights that the Act confers on Alaska, the Administrative Procedure Act and the Department's regulations governing rulemaking generally require a notice of proposed rulemaking and an opportunity for public comment on rules adopted by the Service (5 U.S.C. 553(b)). However, an exception to this requirement is provided if it is found for good cause that notice and an opportunity for comment are impracticable or contrary to the public interest (5 U.S.C. 553(b)(B)). Because of the need to take emergency action to counter the serious threat posed to walrus by what at present is, essentially an uncontrolled waiver of the Act's moratorium on hunting and killing, the Service for good cause finds that notice and public procedure on this rule is impracticable and contrary to the public interest. The need to take immediate action to protect walrus from the harmful effects of unregulated taking also caused the Service to find, for good cause, that this rule must be effective on August 2, 1979.

This rule was prepared by Jackson E. Lewis, Marine Biologist, Office of Wildlife Assistance, U.S. Fish and Wildlife Service, and Ronald E. Swan, Office of the Solicitor, Department of the Interior.

Note.—The Department has determined that this document is not a significant rule and does not require the preparation of a regulatory analysis under Executive Order 12044 and 43 CFR 14. The Service has also determined that this final rule suspending the effectiveness of the current waiver of the Marine Mammal Protection Act moratorium on the hunting and killing of walrus will not have a significant impact on the human environment, and it therefore does not require preparation of an environmental impact statement under section 102(2)(C) of the National Environmental Policy Act of 1969 (42 U.S.C. 4332(2)(C)) and 40 CFR 1508.13.

Accordingly, subchapter B of chapter I, Title 50, Code of Federal Regulations, is amended as follows:

§ 18.94 [Amended]

1. By deleting from § 18.94, paragraph (a), the last four lines beginning with "* * * effective with publication of * * *" and ending with "* * * terms and conditions:" and by adding in their place: "provided that beginning August 2, 1979 this waiver shall not be effective, and no taking or importation under the waiver shall be allowed, until this section is amended to establish regulations to effectively control taking and otherwise implement the waiver."

2. By deleting from section 18.94 subparagraphs (1)–(8) of paragraph (a), and paragraphs (b) and (c).

Dated: July 30, 1979.

Robert S. Cook,

Acting Director, Fish and Wildlife Service.

[FR Doc. 79-23844 Filed 8-1-79; 8:45 am]

BILLING CODE 4310-55-M

Appendix C

Final rule listing the West African manatee

Trichechus senegalensis

as a threatened species

Federal Register, volume 44, number 141, pages 42910-42911,

Friday, July 20, 1979 (44 F.R. 42910-42911)

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Final Threatened Status for West African Manatee

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

SUMMARY: The Service determines that the West African manatee (*Trichechus senegalensis*) is a threatened species. This action was prompted by a petition and supporting data submitted by the Marine Mammal Commission, a federal body created in part to study the status of marine mammals. This rule brings into effect certain measures that may benefit the species and result in its restoration.

DATES: This rule becomes effective on October 16, 1979.

FOR FURTHER INFORMATION CONTACT: John L. Spinks, Jr., Chief, Office of Endangered Species, U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240, (703/235-2771).

SUPPLEMENTARY INFORMATION:**Background**

The West African manatee occurs in the coastal waters and adjacent rivers along the west coast of Africa from the mouth of the Senegal River (16° N), south to the mouth of the Cuanza River (9° S) in Angola. Its range includes parts of the following countries: Senegal, Gambia, Guinea-Bissau, Upper Volta, Niger, Guinea, Sierra Leone, Liberia, Ivory Coast, Ghana, Togo, Benin, Mali, Nigeria, Cameroon, Chad, Equatorial Guinea, Gabon, Congo (Brazzaville), Zaire and Angola. Its present range is thought to be comparable with its historic range.

On November 18, 1977, the Service was petitioned by the Marine Mammal Commission to list the West African manatee as a threatened species pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531-1543). The Service considered the data provided by the Marine Mammal Commission to constitute substantial evidence under section 4(c) of the Act, and on May 17, 1978, published in the *Federal Register* (43 FR 21338) a proposal to list the West African manatee as a threatened species.

Summary of Factors Affecting the Species

Section 4(a) of the Act states:

General.—(1) The Secretary shall by regulation determine whether any species is an endangered species or a threatened species because of any of the following factors:

- (1) The present or threatened destruction, modification or curtailment of its habitat or range;
- (2) overutilization for commercial, sporting, scientific or educational purposes;
- (3) disease or predation;
- (4) the inadequacy of existing regulatory mechanisms; or
- (5) other natural or man-made factors affecting its continued existence."

The authority to list species has been delegated to the Director.

The West African manatee is threatened as a result of factors (1), (2), (4) and (5). The appropriate portion of the petition from the Marine Mammal Commission detailing these factors is reproduced below:

"The West African manatee is known from the coastal waters and adjacent rivers along the west coast of Africa from the mouth of the Senegal River (16° N) [between Mauritania and Senegal], southward to the mouth of the Cuanza River (9° S) in Angola. Its range includes parts of the following countries: Senegal, Gambia, Guinea-Bissau, Upper Volta, Guinea, Sierra Leone, Liberia, Ivory Coast, Ghana, Togo, Benin, Mali, Nigeria, Cameroon, Chad, Equatorial Guinea, Gabon, Congo (Brazzaville), Zaire, and Angola. Its present range is thought to be comparable to its historic range.

"Husar (Mammalian Species, in press) has summarized what is known of the status of this species. No estimates of past or present population size are available. In at least one area, the Niger and Mekrou Rivers along the northern boundary of Benin (formerly Dahomey), it has been exterminated by local hunting (Poache, *Oryx* 12(2): 216-22, 1973). Manatees are taken by guns and harpoons in Liberia and Sierra Leone, where existing protective regulations are routinely ignored (Robinson, *Oryx* 11(2-3): 117-121, 1971). Ritual hunting for manatees still takes place in Ghana (Cansdale, *Oryx* 7(4): 168-171, 1964). In Nigeria, the species has traditionally been hunted by use of grass-baited traps (Dollman, *Nigeria Nat. Hist. Mag.* 4: 117-125, 1933; Allen, *Am. Comm. for Intern. Wildl. Protect.*, Spec. Publ. No. 11, 620 pp., 1942), a practice which continues there "unrestrained" despite legal prohibitions (Sikes, *Oryx* 12(4): 465-470, 1974). Native hunting in Zaire and Angola, on the lower Congo, was said to be reducing the manatee population (Derscheid, *Rev. Zool. Africaine Bull. Cercle Congolaise* 14(2): 23031, 1928; Allen *Loc. cit.*) and hunting continued as recently as 1952 (Bouveignes, *Zoolo* 41(4): 237-244, 1952). For most areas, it seems fair to assume that subsistence hunting is, or has been intense, and that many local stocks are depressed. Fortunately, large-scale

commercial exploitation has never been directed at *T. senegalensis* (Husar, *loc. cit.*).

"In addition to direct hunting by natives, other factors may have a negative impact on the species. Wood (*Nigerian Field* 6(1): 23-28, 1937) described the way Nigerian fishermen, in 1932, trapped 46 manatees in the Anambra creek system, apparently exterminating them from the area. The men did it because they regarded the animals as a nuisance to canoe traffic. Manatees are susceptible to accidental drowning in fish nets, particularly those set for sharks; this phenomenon has been documented in Senegal by Cadenat (*Bull. Inst. F. Afr. Noire* 19 A(4): 1358-1383, 1957). The extent of shark netting in West African waters is not known, so its impact on manatees there cannot be assessed (Husar, *loc. cit.*). Likewise, the degree to which manatees are injured by accidentally collisions with motor-boats in West Africa is unknown (Husar, *loc. cit.*); experience in Florida with *T. manatus* (Hartmen, PhD Thesis, Cornell University, 1971) suggests that it could contribute substantially to mortality in heavily trafficked areas.

"The West African manatee is currently protected under Class A of the African Convention for the Conservation of Nature and Natural Resources, 1969. However, enforcement of this convention is reported to be ineffective (Husar, *loc. cit.*). Some forms of additional legal protection exist in most countries where the West African manatee occurs, but the problems of enforcement and education are seemingly universal. The presence of the species in reserves gives some guarantee of protection (see Howell, *Nigerian Field* 33(4): 32-35, 1968; Dupuy and Verschuren, *Oryx* 14(1): 36-46, 1977). The West African manatee is listed as vulnerable by the IUCN, whose Red Data Book notes that 'the high value of the meat has been an irresistible incentive for killing.' *T. senegalensis* is also included in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora.

"If hunting and habitat modification continue uncontrolled, this species will become more seriously depleted. Damming of rivers and increased boat and ship traffic in many areas may contribute to its decline. Assuming that it is not one already, *T. senegalensis* is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Therefore, the Commission recommends that it be classified as 'threatened' under the Endangered Species Act of 1973, until more is known about its status."

Effects of the Rulemaking

The West African manatee is already protected by the Marine Mammal Protection Act. (16 U.S.C. 1362 (5)-(6); 50 CFR 18.3). Among other things, that Act imposes significant restriction on importation of the Species into the United States. (16 U.S.C. 1371(a), 1372(b)-(c); 50 CFR 18.12). Listing the manatee as a threatened species under the Endangered Species Act will not only provide an additional prohibition

against importation, but will also restrict transportation or sale in interstate or foreign commerce. (16 U.S.C. 1533(d), 1538(a)(1)(C); 50 CFR 17.31(a). Under each Act, permits are available in certain instances for scientific and zoological display purposes. (16 U.S.C. 1371(a)(1), 1372(b), 1374(c); 50 CFR 17.32, 18.31). Listing of the West African manatee as threatened will allow the United States to try to: (1) Make the countries in which it is resident aware of the importance of manatee protection; (2) make available to scientists of other countries the results of manatee research undertaken under U.S. sponsorship in such form as to be helpful to them in developing their own research plans; (3) encourage other countries to establish reserves; (5) encourage reintroductions to other areas once they are well established in protected habitat; and (6) encourage the acquisition of study specimens, that might not otherwise be available, for purposes of scientific research of animals taken incidental to net fisheries.

Endangered Species Act Amendments of 1978

The Endangered species Act Amendments of 1978 specify that the following be added at the end of subsection 4(a)(1) of the Endangered Species Act of 1978:

"At the time any such regulation [any proposal to determine a species to be an Endangered or Threatened species] is proposed, the Secretary shall by regulation,

to the maximum extent prudent, specify any habitat of such species which is then considered to be critical habitat."

Since the West African manatee is a foreign species for which critical habitat may not be designated, this amendment does not apply.

The Endangered Species Act Amendments of 1978 further state the following:

"(B) In the case of any regulation proposed by the Secretary to carry out the purposes of this section with respect to the determination and listing of endangered or threatened species and their critical habitats in any State (other than regulations to implement the Convention), the Secretary,—

"(i) shall publish general notice of the proposed regulation (including the complete text of the regulation), not less than 60 days before the effective date of the regulation;

"(I) in the Federal Register, and

"(II) if the proposed regulation specifies any critical habitat, in a newspaper of general circulation within or adjacent to such habitat;

"(ii) shall offer for publication in appropriate scientific journals the substance of the Federal Register notice referred to in clause (i)(I);

"(iii) shall give actual notice of the proposed regulation (including the complete text of the regulation), and any environmental assessment or environmental impact statement prepared on the proposed regulation, not less than 60 days before the effective date of the regulation to all general local governments located within or adjacent to the proposed critical habitat, if any; and

"(IV) shall—

"(I) if the proposed regulation does not specify any critical habitat, promptly hold a public meeting on the proposed regulation within or adjacent to the area in which the endangered or threatened species is located,

if request therefore is filed with the Secretary by any person within 45 days after the date of publication of general notice under clause (i)(I), and

"(II) if the proposed regulation specifies any critical habitat, promptly hold a public meeting on the proposed regulation within the area in which such habitat is located in each State, and, if requested, hold a public hearing in each such State."

The Service has complied with each of the applicable requirements.

Accordingly, the Service is proceeding at this time with a final rule to determine this species as threatened pursuant to the Endangered Species Act of 1973.

National Environmental Policy Act

An environmental assessment has been prepared and is on file in the Service's Washington Office of Endangered Species. It addresses this action as it involves the West African manatee. The assessment is the basis for a decision that issuance of this rule is not a major Federal action which would significantly affect the quality of the human environment within the meaning of Section 102(2)(c) of the National Environmental Policy Act of 1969.

The primary author of this rulemaking is John L. Paradiso, Office of Endangered Species (703/235-1975).

Regulations Promulgation

Accordingly, Part 17, Subpart B, Chapter I of Title 50 of the U.S. Code of Federal Regulations is amended as follows:

In § 17.11, add the following in alphabetical order under "Mammals" to the List of Endangered and Threatened Wildlife:

§ 17.11 Endangered and threatened wildlife.

Species		Range			Status	When listed	Special rules
Common name	Scientific name	Popula-tion	Known distribution	Portion endangered			
Manatee, West African.....	<i>Trichechus senegalensis</i>	N/A	Coast and rivers of West Africa..	Entire.....	T	None

Dated: June 25, 1979.

Robert S. Cook,

Deputy Director, Fish and Wildlife Service.

[FR Doc. 79-22416 Filed 7-20-79; 8:45 am]

BILLING CODE 4310-55-M

Appendix D

Final rule providing for
the establishment of manatee protection areas

Federal Register, volume 44, number 205, pages 60962-60965,
Monday, October 22, 1979 (44 F.R. 60962-60965)

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Final Rulemaking Providing for the Establishment of Manatee Protection Areas

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final Rulemaking.

SUMMARY: The Fish and Wildlife Service issues a final rule providing for the establishment of manatee protection areas.

The West Indian Manatee, *Trichechus manatus*, is a protected marine mammal which has also been listed as an Endangered species. The only sizeable manatee population in the United States inhabits inland and coastal waters of the State of Florida, although in warmer months some of the animals move into the waters of neighboring States. Research indicates that the manatee population is undergoing a serious decline, and that a major factor in this decline is mortality caused by human activity, particularly the operation of motor boats. The regulation provides a procedure for the Director to establish manatee protection areas. Within these areas, certain activities would be prohibited or restricted.

EFFECTIVE DATE: November 21, 1979.

FOR FURTHER INFORMATION CONTACT: Mr. Marshall L. Stinnett, Special Agent in Charge, Branch of Regulations and Penalties, Division of Law Enforcement, U.S. Fish and Wildlife Service, P.O. Box 19183, Washington, D.C., telephone: 202-343-9242.

SUPPLEMENTARY INFORMATION: On January 23, 1979, the Service published a proposed rulemaking at 44 FR 4745. The proposal provided a procedure for the Director to establish manatee protection areas. Within these areas, certain activities would be prohibited or restricted. The proposal invited public comment, and on March 23, 1979, the comment period was extended until April 24, 1979 (44 FR 17762).

The Service has received a total of 37 comments. Of these, ten were submitted by Federal agencies, one was submitted by a State agency, one was submitted by a commercial interest, nine were submitted by wildlife and conservation groups, and sixteen were submitted by individuals with no apparent affiliations. The Service wishes to express its appreciation to all who submitted comments. Some of the

comments contained specific recommendations for changes in the rule, and where appropriate, those recommendations have been adopted.

The Marine Mammal Commission, a governmental body created by the Marine Mammal Protection Act of 1972, suggested that the terms "act" and "harass" be defined in the rulemaking. The term "acts", meaning the Endangered Species Act of 1973 and the Marine Mammal Protection Act of 1972, is now defined in § 17.102. The term "harass" is already defined in § 17.3 of Part 17. Because several comments questioned the meaning of the word "take", § 17.102 has been clarified to indicate that the definitions found in the acts, in Part 10 of Title 50, and in § 17.3 of Part 17 are applicable to the new subpart.

The Commission also suggested that the rule make clear that the term "States" includes Puerto Rico and the Virgin Islands, both of which are areas where manatees might be found. Because the Endangered Species Act includes both of these jurisdictions within the definition of "State" (16 U.S.C. 1532 (17)), further definition of the term here is unnecessary.

The Commission was concerned that § 17.104(c), which makes it unlawful to violate State laws which protect manatees, would be inappropriate if the State laws had not been found consistent with the provisions of the Marine Mammal Protection Act of 1972. The Service agrees that State laws which may be otherwise pre-empted by Federal law should not be adopted by these regulations. Section 17.104(c) has been changed to make it unlawful to violate State laws only if those laws have been approved as consistent with the Marine Mammal Protection Act of 1972 (16 U.S.C. 1379) or are determined to be in accordance with the State cooperation provisions of the Endangered Species Act of 1973 (16 U.S.C. 1535(c)).

The Commission suggested that the Service maintain a library of State laws affecting manatees, and provide copies of these laws to the public. While it would be convenient to have all State laws affecting manatees available from a central source, the Service is concerned that because of changes in State laws the information the Service would be providing would not be current. This would create problems if the State tried to prosecute for the violation of its laws and the defendant claimed he acted on information provided by the Service. For this reason, the Service believes that the best sources of State laws are the States themselves.

Finally, the Commission suggested that permit and exemption provisions be discussed in the same section, and that the permit provisions specify the types of permits that can be issued. Section 17.105 now incorporates these suggestions.

The United States Coast Guard suggested that the rule include procedures to aid in the enforcement of the regulations. Section 17.107 of the proposal has been renumbered § 17.108, and a new § 17.107 adopting the Coast Guard's recommendations has been included. The section requires persons operating water vehicles in sanctuaries and refuges to cooperate with officers enforcing the regulations, and to allow boarding and inspection of their vehicles.

The Department of the Navy, in written comment and in discussions with the Service, expressed its concern that naval operations might be hampered by the designation of a protection area. Several naval operating stations are located near manatee habitats. Patrick Air Force base in Florida expressed similar concerns.

The Service is fully cognizant of the hardship the designation of a protection area could place on military operations. On the other hand, the Service believes that the purpose of the Endangered Species Act is not to be taken lightly. The final regulations provide for an exception for activities necessary for reasons of national security, but only if the Secretary of Defense makes a finding that the activities are necessary for that reason, as provided in the 1978 amendments to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1536(j)). Other Federal agencies, including the National Aeronautics and Space Administration, expressed concern that the designation of manatee protection areas would interfere with their operations. The Service will take the needs of these agencies into account, but in the end under its statutory obligations must put the welfare of manatees first. If a Federal agency proposes an activity which may affect the manatee or its critical habitat, either in the designated areas or otherwise, section 7 of the Endangered Species Act would be applicable.

The U.S. Army Corps of Engineers submitted an extensive comment to the proposal. The Corps first questioned the meaning of the term "substantial evidence" in sections 17.103 and 17.106. It considered the term vague and ambiguous, and suggested that more specific criteria be provided. The Service believes the term is an appropriate one. It is found in both the Endangered Species Act (16 U.S.C. 1540)

and the Administrative Procedure Act (5 U.S.C. 556(d)) and has been the subject of judicial interpretation "fleshing out" its meaning. It would be impossible to draft completely objective criteria that would be appropriate for every situation requiring the establishment of a protection area. The requirement of, "substantial evidence that the establishment of a protection area is necessary to prevent a taking", is a strong enough requirement to prevent the Service from acting arbitrarily and capriciously.

The Corps suggests that a hearing be held prior to the establishment of a protection area. The Service did not include this as a provision of the regulations for two reasons. First, there may be instances where a hearing would be inappropriate, such as the designation of an area not normally subject to waterborne activity. Second, § 17.103 provides that the Director shall act in accordance with 43 CFR Part 14. That Part requires the Director to provide for adequate public participation, including the holding of hearings if considered appropriate.

The Corps commented that § 17.105 was unclear as to the basis for issuing permits. As discussed above, § 17.105 has been rewritten to indicate for what purposes permits may be issued.

The comment questioned the provision allowing for the emergency establishment of protection areas as permitting the arbitrary exercise of government power. Again, the requirement that substantial evidence be found, and for emergency establishment, that the feared taking be imminent, will prevent the abuse of governmental authority. Further, § 17.106 has been amended to require the Director to begin regular designation procedures within 10 days after the emergency establishment of a protection area.

The Corps of Engineers considers this regulation premature. It believes the Service should wait for State experience in the field. The Service agrees that State experience would be helpful. These regulations, however, are not establishing any protection areas. They are procedural regulations with no effect until areas are designated. Thus, State experience is being gained, but in the meanwhile Federal regulations will be ready to implement if necessary. Additionally, considering the decline in the manatee population, no protective regulation could be premature.

Finally, the Corps challenged the Service's determination that the proposal did not require the preparation

of an environmental impact statement and that it is not a significant rulemaking. As discussed above, until an area is designated, these regulations will have no effect. It would be impossible to predict the environmental impact of a designated area until the location and size of a proposed area is determined. Likewise, because no areas have been proposed, at this time there would not be any effects on the criteria set forth in 43 CFR 14.3. As areas are proposed, the Service will determine whether environmental impact statements are required for each of them and the Department will determine whether each proposal is a significant rulemaking.

The Southeast Regional Office of the National Park Service submitted comments from several of the National Parks in its region. All of the comments supported the proposal. One comment questioned whether the language "water under the jurisdiction of the United States" in § 17.100 meant only waters controlled by the Federal government or all waters within the physical boundaries of the United States. The Office of the Solicitor in the Department of the Interior has rendered an opinion construing the latter definition as correct. The Service is thus adding language to § 17.100 specifying that "waters under the jurisdiction of the United States" includes coastal and inland waters.

The Florida Game and Fresh Water Fish Commission submitted a comment in which it stated its opposition to the proposal. The Commission believes that Federal action in this area is unnecessary, and that the proposal will result in an anti-regulatory backlash, doing harm to manatees rather than protecting them. The Commission believes the statutory protection Florida allows manatees is sufficient, and requests the Service to continue to act through its cooperative agreement with the State.

The Service disagrees with the Commission's opinion. The existence of a Federal mechanism for protecting manatees will not duplicate the State provisions. The Federal regulation will be made effective only if it appears that the State regulations are not doing enough to protect the manatees. The existence of Federal regulations will put more enforcement tools at the disposal of Federally deputized State Fish and Game Agents. Federal regulations will allow the invocation of the criminal and civil sanctions of both the Marine Mammal Protection Act of 1972 and the Endangered Species Act of 1973. The sanctions of these Acts can be more

severe than the penalty under the Florida manatee protection law, which provides for a maximum 1-year prison term and/or \$100.00 fine (Fla. Stat. §§ 370.12(2)(b), 775.082, 775.083). The Service must also point out that although manatees primarily occur in Florida, it would be possible that manatee protection areas might be necessary in other States, Puerto Rico, or the Virgin Islands. Federal regulations might be the only protective regulations in these areas.

Among wildlife and conservation groups, Defenders of Wildlife submitted the lengthiest comment. The comment suggested that there be only one type of protection area—sanctuaries. Defenders believes that all areas where manatees are found should be completely closed to people. The Service feels that there will be areas where restriction of activities, as opposed to complete closure, will be sufficient to protect the manatees. The Service believes that allowing the Director some discretion in issuing the restrictions placed in manatee refuges will provide more enforceable rules than will closing all waters which have manatees. Similar suggestions were made by the Florida Wildlife Rescue Team and the Committee for Humane Legislation.

Defenders suggested that standards were necessary to establish what kind of activities would be allowed, and that the types of activities to be allowed by permit should be spelled out. Again, the Service believes that the use of the term "substantial evidence that it is necessary to prevent the taking of one or more manatees" (§ 17.103) provides a sufficient standard by which the Director may determine what kind of activities will be allowed in manatee refuges. Section 17.105 now provides that permits may be issued only for scientific purposes or for the enhancement of survival or propagation.

Finally, Defenders suggests that after the Director makes an emergency establishment of a protection area, the establishment should continue for more than 120 days if regular establishment procedures are commenced. The Endangered Species Act of 1973 states that emergency regulations shall expire after 120 days, unless regular rulemaking procedures are complied with. The Service interprets this to mean that the final rulemaking would have to be issued before the close of the 120-day period for the rulemaking to be effective beyond that time (16 U.S.C. 1533(f)(2)(B)(ii)). Thus, there is no statutory authority for Defenders' suggestion. A requirement that the Director begin regular designation

proceedings within 10 days after an emergency designation has been added to § 17.106, however.

The Environmental Defense Fund, in its comment, recommended that the rule require the Director to establish areas, rather than allow the Director to do so. The Service believes, as stated above, that the retention of some discretion on the part of the Director will result in the most enforceable regulations.

The Miami Marine Institute, Incorporated, questioned some of the definitions used in the rule, including that of the word "take." The question of definitions has been resolved as discussed above.

Aware Incorporated and the Florida Audubon Society went on record in favor of the proposal, as did the Miami Seaquarium.

Sixteen individuals submitted comments on the proposal. Fifteen of them support it, and several of them made suggestions as to where areas should be established. One of the sixteen opposed the proposal.

The Service has determined that this rulemaking is not a major Federal action affecting the quality of the human environment, and does not require the preparation of an environmental impact statement. The Department of Interior has determined that this document is not a significant rule under Executive Order 12044 and 43 CFR Part 14 and does not require the preparation of a regulatory analysis.

The primary author of this final rulemaking is Kenneth J. Hirsh, Legal Specialist, Division of Law Enforcement, U.S. Fish and Wildlife Service, telephone: 202-343-9242.

Regulation Promulgation

Accordingly, Title 50, Chapter I, Subchapter B, Part 17, is amended in the following manner:

1. The table of sections for Part 17 is amended by adding the following, after Subpart I.

* * * * *

Subpart J—Manatee Protection Areas

- 17.100 Purpose.
- 17.101 Scope.
- 17.102 Definitions.
- 17.103 Establishment of protection areas.
- 17.104 Prohibitions.
- 17.105 Permits and exceptions.
- 17.106 Emergency establishment of protection areas.
- 17.107 Facilitating enforcement.
- 17.108 List of designated manatee protection areas [Reserved].

Authority: Marine Mammal Protection Act of 1972, 86 Stat. 1027, as amended, §§ 101(a), 102(a)(2), 104, 105, 112(a) [16 U.S.C. §§ 1371(a), 1372(a)(2), 1374, 1375, and 1382(a)]; Endangered Species Act of 1973, 87

Stat. 884, as amended, §§ 4 (d) and (f), 9(a)(1)(G), and 11(a)(1) [16 U.S.C. §§ 1533 (d) and (f), 1538(a)(1)(G), and 1540(a)(1)].

2. Part 17 is amended by adding the following new subpart immediately after § 17.95:

* * * * *

Subpart J—Manatee Protection Areas

§ 17.100 Purpose.

This subpart provides a means for establishing manatee protection areas without waters under the jurisdiction of the United States, including coastal waters adjacent to and inland waters within the several States, within which certain waterborne activities will be restricted or prohibited for the purpose of preventing the taking of manatees.

§ 17.101 Scope.

This subpart applies to the West Indian manatee (*Trichechus manatus*), also known as the Florida manatee and as the sea cow. The provisions of this subpart are in addition to, and not in lieu of, other regulations contained in this Chapter I which may require a permit or prescribe additional restrictions on the importation, exportation, transportation, or taking of wildlife, and the regulations contained in Title 33, Code of Federal Regulations, which regulate the use of navigable waters.

§ 17.102 Definitions.

In addition to definitions contained in the Acts, Part 10 of this subchapter, and § 17.3 of this part, and unless the context otherwise requires, in this subpart:

"Acts" means the Endangered Species Act of 1973, as amended (87 Stat. 884, 16 U.S.C. 1531-1543) and the Marine Mammal Protection Act of 1972, as amended (86 Stat. 1027, 16 U.S.C. 1361-1407);

"Authorized officer" means any commissioned, warrant, or petty officer of the United States Coast Guard, or any officer or agent designated by the Director of the U.S. Fish and Wildlife Service, the Secretary of the Interior, the Secretary of Commerce, or the Secretary of the Treasury, or any officer designated by the head of a Federal or State agency which has entered into an agreement with the Secretary of the Interior, Secretary of Commerce, Secretary of the Treasury, or Secretary of Transportation to enforce the Acts, or any Coast Guard personnel accompanying and acting under the direction of a person included above in this definition;

"Manatee protection area" means a manatee refuge or a manatee sanctuary;

"Manatee refuge" means an area in which the Director has determined that certain waterborne activity would result in the taking of one or more manatees, or that certain waterborne activity must be restricted to prevent the taking of one or more manatees, including but not limited to a taking by harassment;

"Manatee sanctuary" means an area in which the Director has determined that any waterborne activity would result in a taking of one or more manatees, including but not limited to a taking by harassment;

"Waterborne activity" includes, but is not limited to, swimming, diving (including skin and scuba diving), snorkeling, water skiing, surfing, fishing, the use of water vehicles, and dredging and filling operations;

"Water vehicle" includes, but is not limited to, boats (whether powered by engine, wind, or other means), ships (whether powered by engine, wind, or other means), barges, surfboards, water skis, or any other device or mechanism the primary or an incidental purpose of which is locomotion on, across, or underneath the surface of the water.

§ 17.103 Establishment of protection areas.

The Director may, by regulation issued in accordance with 5 U.S.C. 553 and 43 CFR Part 14, establish manatee protection areas whenever there is substantial evidence showing such establishment is necessary to prevent the taking of one or more manatees. Any regulation establishing a manatee protection area shall state the following information:

(a) Whether the area is to be a manatee sanctuary or refuge.

(1) If the area is to be a manatee sanctuary, the regulation shall state that all waterborne activities are prohibited.

(2) If the area is to be a manatee refuge, the regulation shall state which, if any, waterborne activities are prohibited, and it shall state the applicable restrictions, if any, on permitted waterborne activities.

(b) A description of the area sufficient enough so that its location and dimensions can be readily ascertained without resort to means other than published maps, natural or man-made physical reference points, and posted signs.

(c) Whether the designation is to remain in effect year-round, and if not, the time of year it is to remain in effect.

§ 17.104 Prohibitions.

Except as provided in § 17.105,

(a) *Manatee sanctuary*. It is unlawful for any person to engage in any

waterborne activity within a manatee sanctuary.

(b) *Manatee refuge.* It is unlawful for any person within a particular manatee refuge to engage in any waterborne activity which has been specifically prohibited within that refuge, or to engage in any waterborne activity in a manner contrary to that permitted by regulation within that area.

(c) *State law.* It is unlawful for any person to engage in any waterborne activity prohibited by, or to engage in any waterborne activity in a manner contrary to that permitted by, any State law or regulation the primary purpose of which is the protection of manatees: *Provided:* that such State law or regulation has been issued as part of a program which is determined to be in accordance with the Endangered Species Act of 1973, pursuant to section 6(c) of that Act (16 U.S.C. 1535(c)) or has been approved as consistent with the Marine Mammal Protection Act of 1972 in accordance with section 109 of that Act (16 U.S.C. 1379) and 50 CFR 18.53.

§ 17.105 Permits and exceptions.

(a) The Director may issue permits allowing the permittee to engage in any activity otherwise prohibited by this subpart. Such permits shall be issued in accordance with the provisions of § 17.22 of this part. Such permits shall be issued only for scientific purposes or for the enhancement of propagation or survival. All of the provisions of section 17.22 shall apply to the issuance of such permits, including those provisions which incorporate other sections by reference. Compliance with this paragraph does not by itself constitute compliance with any applicable requirements of Part 18.

(b) Any authorized officer may engage in any activity otherwise prohibited by this subpart if:

- (1) The officer is acting in the performance of his or her official duties; and
- (2) The activity is being conducted to directly protect any manatees, to enhance the propagation or survival of manatees, or is reasonably required to enforce the other provisions of this subpart.

(c) Any person may engage in any activity otherwise prohibited by this subpart if such activity is reasonably necessary to prevent the loss of life or property due to weather conditions or other reasonably unforeseen circumstances, or to render necessary assistance to persons or property.

(d) Any waterborne activity which would otherwise be prohibited by this subpart may be engaged in if it is conducted by or under a contract with a

Federal agency and if the Secretary of Defense, in accordance with section 7(j) of the Endangered Species Act of 1973 (16 U.S.C. 1536(j)) makes a finding that such activity is necessary for reasons of national security. Such a finding must be made prior to the beginning of the activity or the designation of the protection area, whichever occurs later; except that in the case of an emergency establishment of a protection area under § 17.106, the finding must be made within 10 days after the beginning of the activity or the designation of the protection area, whichever occurs later.

§ 17.106 Emergency establishment of protection areas.

(a) The Director may establish a manatee protection area under the provisions of subsections (b) and (c) below at any time he determines there is substantial evidence that there is imminent danger of a taking of one or more manatees, and that such establishment is necessary to prevent such a taking.

(b) The establishment of a manatee protection area under this section shall become effective immediately upon completion of the following requirements:

- (1) Publication of a notice containing the information required by § 17.103 above in a newspaper of general circulation in each county, if any, in which the protection area lies; and
- (2) Posting of the protection area with signs clearly marking its boundaries.

(c) Simultaneously with the publication required by paragraph (b) of this section, the Director shall publish the same notice in the *Federal Register*. If simultaneous publication is impractical, because of the time involved or the nature of a particular emergency situation, failure to publish notice in the *Federal Register* simultaneously shall not delay the effective date of the emergency establishment. In such a case, notice shall be published in the *Federal Register* as soon as possible.

(d) No emergency establishment of a protection area shall be effective for more than 120 days. Termination of an emergency establishment of a protection area shall be accomplished by publishing notice of the termination in the *Federal Register* and in a newspaper of general circulation in each county, if any, in which the protection area lies.

(e) Within 10 days after establishing a protection area in accordance with this section, the Director shall commence proceedings to establish the area in accordance with § 17.103.

§ 17.107 Facilitating enforcement.

Water vehicles operating in manatee sanctuary or refuge waters are subject to boarding and inspection for the purpose of enforcing the Acts and these regulations.

(a) The operator of a water vehicle shall immediately comply with instructions issued by authorized officers to facilitate boarding and inspection of the water vehicle.

(b) Upon being approached by an authorized officer, the operator of a water vehicle shall be alert for signals conveying enforcement instructions.

(c) A water vehicle signaled for boarding shall:

- (1) Guard channel 16, VHF-FM, if equipped with a VHF-FM radio;
- (2) Stop immediately and lay to or maneuver in such a manner as to facilitate boarding by the authorized officer and his or her party;
- (3) When necessary to facilitate the boarding, provide a safe ladder, manrope, safety line and illumination of the ladder; and
- (4) Take such other actions as may be necessary to ensure the safety of the authorized officer and his or her party and to facilitate the boarding and inspection.

(d) It is unlawful for any person to assault, resist, oppose, impede, intimidate, or interfere with any authorized officer or member of his or her party.

§ 17.108 List of designated manatee protection areas [Reserved].

Dated: October 11, 1979.

Lynn A. Greenwalt,
Director.

[FR Doc. 79-32586 Filed 10-19-79; 8:45 am]
BILLING CODE 4310-55-M

Appendix E

Notice of emergency establishment of
a manatee refuge in Kings Bay, Crystal River, Fla.,
and notice of intent to establish
a permanent manatee protection area at this site

Federal Register, volume 45, number 28, pages 8675-8677,
Friday, February 8, 1980 (45 F.R. 8675-8677)

DEPARTMENT OF THE INTERIOR
50 CFR Ch. I**Fish and Wildlife Service****Intent To Establish Permanently a Manatee Protection Area in Kings Bay, Crystal River, Fla.****AGENCY:** Fish and Wildlife Service, Interior.**ACTION:** Notice of Emergency Establishment of a Manatee Refuge in Kings Bay, Crystal River, Florida; Advance Notice of Proposed Rulemaking.

SUMMARY: On January 11, 1980, the Fish and Wildlife Service established a manatee refuge in Kings Bay, Crystal River, Florida on an emergency basis under 50 CFR 17.106 effective through March 31, 1980, to prevent the harassment of manatees in the area by swimmers and divers. That action provides manatees with temporary protection from harassment during this winter season. For subsequent years the Service announces its intention to propose rules permanently establishing a manatee protection area in Kings Bay. The West Indian manatee, *Trichechus manatus*, is a protected marine mammal which is also listed as an endangered species. In the winter months the manatee is dependent upon warm water sources for survival during periods when cold water temperatures prevail in the surrounding environment. This emergency establishment of a manatee refuge is in a natural warm water spring

area where up to 79 manatees have been known to congregate during the winter months. Florida State law, The Florida Manatee Sanctuary Act, provides for the restriction of motorboat activity in designated areas, and the Florida Department of Natural Resources has designated the emergency manatee refuge area as a "Motorboats Prohibited Zone" (effective November 15, 1979). Large signs delineating the area have resulted in the attraction of swimmers, divers, and boaters to the designated area to seek out and observe manatees which they presume are in the area. This concentration of divers and swimmers has resulted in the harassment of manatees by frightening all but the tamest individuals from the area. A critical cold weather period may occur during which it is essential that the manatees have the use of the warm spring areas.

ADDRESSES: Comments regarding the permanent establishment of a manatee protection area are welcomed. Submit comments to John C. Oberheu, Area Office, U.S. Fish and Wildlife Service, 900 San Marco Boulevard, Jacksonville, Florida 32207.

FOR FURTHER INFORMATION CONTACT: John C. Oberheu, Area Office, U.S. Fish and Wildlife Service, 900 San Marco Boulevard, Jacksonville, Florida 32207, 904-791-2267, or Robert R. Prather, Senior Resident Agent, U.S. Fish and Wildlife Service, 2639 N. Monroe Street, Box 56, Tallahassee, Florida 32303, 904-386-8079.

SUPPLEMENTARY INFORMATION: The headwaters of Crystal River in Kings Bay, Citrus County, Florida, are one of only six natural warm water refuges used by West Indian manatees (*Trichechus manatus*) during the winter months. Concentrations of up to 79 manatees have been counted in this area during recent years. Kings Bay has been developed extensively for residential and recreational use. Boating activity is heavy and the area is known nationally by divers and underwater photographers. Four dive shops are supported by this activity.

The main attraction to divers and photographers, in addition to the clear warm waters, is the presence of manatees. Some manatees have become conditioned to accept the presence of divers and are believed to seek out contact with them. However, this attitude does not extend to the entire manatee population. Most of the animals attempt to leave areas associated with human activity. The manatees are sought after by boaters, swimmers and divers wherever they are located. They have virtually no area in

the vicinity of the warm water spring where they are totally free from disturbance. This activity is probably not intended to harm the manatees, but it does involve the danger of taking one or more manatees, within the meaning of the term "take" as defined by the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), the Marine Mammal Protection Act of 1972 (16 U.S.C. 1361-1407), and regulations promulgated under each.

On October 22, 1979 (44 FR 60962), the Service promulgated regulations (50 CFR 17.100-17.108) providing a means for establishing manatee protection areas. Under § 17.106 the Director may establish a manatee protection area on an emergency basis " * * * at any time he determines there is substantial evidence that there is imminent danger of a taking of one or more manatees, and that such action is necessary to prevent such taking."

The term "take" (*i.e.*, taking) is defined by the Endangered Species Act of 1973 (16 U.S.C. 1532(19)) as meaning to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct."

The term "take" is similarly defined in the Marine Mammal Protection Act of 1972 (16 U.S.C. 1362(13)) as meaning "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal. That Act also defines the term "marine mammal" to include all members of the order Sirenia, which includes the West Indian manatee.

The terms "harass" and "harm" are further defined in regulations promulgated under the Endangered Species Act of 1973, 50 CFR 17.3, as follows:

"Harass" in the definition of "take" in the Act means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding or sheltering.

"Harm" in the definition of "take" in the Act means an act or omission which actually injures or kills wildlife, including acts which annoy it to such an extent as to significantly disrupt essential behavioral patterns, which include, but are not limited to breeding, feeding or sheltering; * * *"

The Term "take" is defined in regulations promulgated under the Marine Mammal Protection Act of 1972, 50 CFR 18.3, to mean "to harass, hunt, capture, collect, or kill, or attempt to harass, hunt, capture, collect, or kill any marine mammal, including, without limitation, any of the following: The

collection of dead animals or parts thereof; the restraint or detention of a marine mammal, no matter how temporary; . . . or the negligent or intentional operation of an aircraft or vessel, or the doing of any other negligent or intentional act with results in the disturbing or molesting of a marine mammal.

As noted above, under 50 CFR 17.106 the Director may establish manatee protection areas on an emergency basis whenever there is substantial evidence showing establishment is necessary to prevent the taking of one of more manatees. Observations made by Fish and Wildlife Service personnel and other researchers have shown that manatees are being harassed to such an extent that their normal use of the warm water areas around the springs at the headwaters of Crystal River is being disrupted. This disturbance is caused by all forms of waterborne activity, including boating, swimming and diving (both scuba and snorkle diving). This disruption is affecting their normal sheltering behavior and may directly effect their breeding and calf-rearing activities. It may also directly effect their well-being by forcing them use colder waters during critical periods, subjecting them to cold-related stress and disease.

Such human activity involves imminent danger of a taking, or the actual taking of one or more manatees as the term "take" is variously defined.

The effectiveness of the "Motorboats Prohibited Zone" established by the State of Florida is being severely impaired by the increased use of the designated area by swimmers and divers. People are presuming that manatees are concentrated in the designated area and are going there to see them. This is done by tying or anchoring the boat outside of the zone and swimming in, or by paddling boats into the zone and diving from them.

As defined in 50 CFR 17.102, a "manatee refuge" means an area in which the Director has determined that certain waterborne activity would result in a taking of one or more manatees, or that certain waterborne activity must be restricted to prevent the taking of one or more manatees, including but not limited to a taking by harassment. "Waterborne activities" includes, but is not limited to, swimming, diving (including skin and scuba diving), snorkeling water skiing, surfing, fishing, the use of water vehicles, and dredging and filling operations.

In accordance with 50 CFR 17.106, therefore, the Director on January 11, 1980, established on an emergency basis a manatee refuge in Kings Bay to

provide the manatees with an area totally free from human disturbance. Under § 17.106 the emergency establishment of a manatee protection area becomes effective upon completion of the following requirements; (1) publication of a notice containing the information required by § 17.103 in a newspaper of general circulation in each county, if any, in which the protection area lies; and (2) posting of the protection area with signs clearly marking its boundaries.

On December 23, 1979, the required notice was published in the *Tampa Tribune*, Tampa, Florida, and subsequently repeated in the *Chronicle-Press-Sentinel*, Crystal River, Florida on December 30, 1979. The manatee refuge was posted by January 11, 1980, with four signs clearly marking its boundaries. Simultaneous publication of notice in the *Federal Register*, as required by § 17.106(c), was determined under that section to be impractical because posting of the area occurred after publication of notice in the local newspapers. Also, unanticipated delay occurred in properly marking the boundaries of the manatee refuge. In addition, variable winter weather conditions threatened to aggravate the potential harm to manatees by continued harassment. Therefore, the effective date of the emergency establishment of the manatee refuge in Kings Bay is January 11, 1980, the date on which the refuge was properly posted.

Also in accordance with § 17.106(e), the Director announces that the Service intends to propose rules permanently establishing a manatee protection area in Kings Bay.

National Environmental Policy Act

An environmental assessment will be prepared by the Service in conjunction with the proposal to establish a manatee protection area in Kings Bay on a permanent basis. Upon completion of the environmental assessment a determination will be made as to whether this is a major Federal action which would significantly affect the quality of the human environment within the meaning of section 102(2)(C) of the National Environmental Policy Act of 1969.

The primary author of this notice is Mr. John C. Oberheu, Area office, Fish and Wildlife Service, Jacksonville, Florida.

Note.—The Department of the Interior has determined that the emergency designation of this manatee refuge is not a significant rule under Executive Order 12044 and 43 CFR Part 14 and does not require the preparation of a regulatory analysis.

Notice

1. Notice is hereby given that, in accordance with the requirements of 50 CFR 17.106, a manatee refuge has been established on Kings Bay, Crystal River, Citrus County, Florida effective from January 11, 1980, through March 31, 1980, as follows: That part of Kings Bay, Crystal River, Citrus County, Florida, starting at the southwest corner of Warden Key then 65 degrees to a point of intersection with a line drawn 180 degrees from the southeasterly corner of Warden Key, thence 360 degrees to the southeasterly corner of said Key, thence westerly along the shoreline of Warden Key to the point of beginning. Swimming, diving (including skin and scuba diving), and snorkeling are prohibited within the refuge.

2. Notice is hereby given that, as required by 50 CFR 17.106, the Service intends to propose rules permanently establishing a manatee protection area in Kings Bay, Crystal River, Citrus County, Florida under 50 CFR 17.103.

Dated: January 30, 1980.

Lynn A. Greenwalt,

Director, Fish and Wildlife Service.

[FR Doc. 80-4056 Filed 2-7-80; 8:45 am]

BILLING CODE 4310-55-M

Appendix F

Final special regulations limiting
public entry and use,
Chassahowitzka National Wildlife Refuge, Fla.

Federal Register, volume 44, number 95, page 28330,
Tuesday, May 15, 1979 (44 F.R. 28330)

DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 26

Public Entry and Use; Chassahowitzka National Wildlife Refuge Florida

AGENCY: Fish and Wildlife Service, Department of the Interior.

ACTION: Special regulations.

SUMMARY: The Service proposes to restrict boat speeds in designated areas within the boundaries of the Chassahowitzka National Wildlife Refuge to minimize potential harm to manatees. The intent is to make boating on the Chassahowitzka River consistent with the primary purposes for which the refuge was established.

DATES: The regulations will be effective from the date of publication through August 15, 1979. Enforcement will not begin until appropriate signs have been posted.

FOR FURTHER INFORMATION CONTACT: John C. Oberheu, Area Office, U.S. Fish and Wildlife Service, 900 San Marco Boulevard, Jacksonville, Florida 32207. Telephone (904) 791-2267.

SUPPLEMENTARY INFORMATION: The primary author of this document is John C. Oberheu.

Background

Recent observations and surveys by the U.S. Fish and Wildlife Service have shown that limited numbers of manatees utilize the Chassahowitzka River during the months of April through July. The reaches of the river most frequently used by these endangered animals are within the boundaries of the Chassahowitzka National Refuge. The river is used by fishermen and pleasure boaters for access to the open waters of the Gulf. Research by the National Fish and Wildlife Laboratory has shown that boat-related accidents are responsible for 34 percent of those manatee mortalities where cause of death could be determined. When given adequate time, manatees can move out of the path of approaching boats and thereby avoid being struck. Therefore, to minimize the risk of manatee mortality from collision with boats or boat propellers, boat speeds will be restricted to "Slow Speed/Minimum Wake" in the Chassahowitzka River from the east boundary of the refuge downstream to the Hernando County line, a distance of about 2 miles. Maps delineating the restricted areas are available at the Refuge Headquarters. The restriction zone will be conspicuously posted with signs.

The Refuge Recreation Act of 1962 (16 U.S.C. 460k) authorizes the Secretary of the Interior to administer certain areas for public recreation (as an appropriate incidental or secondary use), only to the extent that it is practicable and not inconsistent with the primary objectives for which the refuge was established. In addition, the Refuge Recreation Act required (1) that any recreational use permitted will not interfere with the primary purpose for which the refuge was established; and (2) that funds are available for the development, operation, and maintenance of the permitted forms of recreation.

Discussion

The recreational use authorized by these regulations will not interfere with the primary purposes for which the Chassahowitzka National Wildlife Refuge was established. This determination is based upon consideration of, among other things, the Service's Final Environmental Statement on the Operation of the National Wildlife Refuge System published in November 1976, and the Refuge Manager's analysis of compatibility dated March 30, 1979. Funds are available for the administration of the recreational activities permitted by these regulations.

The provisions for these special regulations supplement the regulations which cover boating on National Wildlife Refuge areas which are set forth in Title 50, Code of Federal Regulations, § 27.32. Part 27 of 50 CFR provides that U.S. Coast Guard Regulations, Titles 33 and 46 CFR, are also applicable on navigable waters.

A public meeting was held in the town of Chassahowitzka on March 20, 1979, to inform the public about the proposed regulations, and to seek public views regarding them. The 45 persons attending questioned the necessity for restrictions since no manatee mortality from boat collision has been documented in the Chassahowitzka River. It was explained that boat strikes have been documented. Though hazards to manatees in the refuge are no greater than for other waters frequented by similar numbers of manatees, refuge habitat must provide greater security, especially for endangered species. The Service is compelled by law to permit only those public uses that do not conflict with refuge objectives, in this instance, protection of an endangered wildlife species.

Several individuals questioned whether the regulations would apply in case of emergencies involving foul weather or risk to human life. An exception has been added to the

regulations to accommodate any such emergency.

The proposed regulations have been coordinated with the Florida Department of Natural Resources, the Florida Game and Fresh Water Fish Commission, the U.S. Army Corps of Engineers and the U.S. Coast Guard. Several suggestions of the Coast Guard have been incorporated in the definition of "Slow-Speed/Minimum Wake".

As provided by 50 CFR 26.33, the Service hereby issues the following regulations:

§ 26.34 Special regulations concerning public access, use and recreation for Chassahowitzka National Wildlife Refuge, Florida.

Beginning on May 15, 1979 and continuing through August 15, 1979, all power boats will be restricted to SLOW SPEED/MINIMUM WAKE on the main channel of the Chassahowitzka River between the east refuge boundary and the Hernando County line. The restricted area will be posted with signs reading "MANATEE PROTECTION AREA, SLOW SPEED—MINIMUM WAKE." This speed restriction may be exceeded if it is reasonably necessary to prevent the loss of human life due to weather conditions or other reasonably unforeseen circumstances. Maps showing the restricted area are available from the Refuge Manager.

For the purpose of this regulation, the term "SLOW SPEED—MINIMUM WAKE" is defined as any through-the-water speed (not over-the-bottom speed) less than 8 MPH and slow enough that the boat is neither "planing" nor moving with an elevated bow. Through-the-water speed is created by a boat's power and is independent of any movement caused by water currents. A boat that is "on plane" is not at slow speed. A boat that has slowed until it is "off plane" but is still moving with an elevated bow is making an exaggerated wake, not "minimum wake." When the moving position of a shallow-draft boat is similar to its normal resting position, it is moving at "slow speed" and "minimum wake."

The provisions of this regulation supplement the regulations which govern public access, use and recreation on wildlife refuges generally, which are set forth in Title 50, Code of Federal Regulations Part 26. The public is invited to offer suggestions and comments at any time.

Dated: May 7, 1979.

John C. Oberheu,
Acting Area Manager.

[FR Doc. 79-15129 Filed 5-14-79; 8:45 am]

BILLING CODE 4310-55-M

Appendix G

Renewed final special regulations limiting
public entry and use,
Chassahowitzka National Wildlife Refuge, Fla.

Federal Register, volume 45, number 37, pages 11813-11814,
Friday, February 22, 1980 (45 F.R. 11813-11814)

DEPARTMENT OF THE INTERIOR**Fish and Wildlife Service****50 CFR Part 26****Public Entry and Use; Chassahowitzka National Wildlife Refuge**

AGENCY: Fish and Wildlife Service, Department of the Interior.

ACTION: Special regulations.

SUMMARY: The Service is renewing seasonal regulations which restrict boat speeds in designated areas within Chassahowitzka National Wildlife Refuge for the protection of manatees.

DATES: The regulations will be effective during the period May 1 to August 31 in both 1980 and 1981.

FOR FURTHER INFORMATION CONTACT: John C. Oberheu, U.S. Fish and Wildlife Service, 900 San Marco Boulevard, Jacksonville, Florida 32207. Telephone: (904) 791-2267.

SUPPLEMENTARY INFORMATION: The primary author of this document is John C. Oberheu.

BACKGROUND: Surveys by the Fish and Wildlife Service have shown that significant numbers of manatees utilize the Chassahowitzka River during the months of May through August. Those reaches of the river most often used are within the boundaries of the Chassahowitzka National Wildlife Refuge. Boats traveling this river are a potential hazard to manatees, and reduced boat speeds can minimize these hazards (see *Federal Register* Vol. 44, No. 95, page 28330 dated May 15, 1979 for more detail). Boat speeds are, therefore, restricted to "Slow Speed/Minimum Wake" in a designated portion of the Chassahowitzka River.

The Refuge Recreation Act of 1962 (16 U.S.C. 460k) authorizes the Secretary of the Interior to administer certain areas for public recreation (as an appropriate incidental or secondary use), only to the extent that it is practicable and not inconsistent with the primary objectives for which the refuge was established. In addition, the Refuge Recreation Act requires (1) that any recreation use permitted will not interfere with the primary purpose for which the refuge was established; and (2) that funds are available for the development, operation, and maintenance of the permitted forms of recreation.

DISCUSSION: The recreational use authorized by these regulations will not interfere with the primary purpose for which the Chassahowitzka National Wildlife Refuge was established. This determination is based upon

consideration of, among other things, the Service's Final Environmental Statement on the Operation of the National Wildlife Refuge System published in November 1976, and the Refuge Manager's analysis of compatibility dated March 30, 1979. Funds are available for the administration of the recreational activities permitted by these regulations.

The provisions for these special regulations supplement the regulations which cover boating on National Wildlife Refuge areas which are set forth in Title 50, Code of Federal Regulations, § 27.32. Part 27 of 50 CFR provides that U.S. Coast Guard Regulations, Title 33 and 46 CFR, are also applicable on navigable waters.

As provided by 50 CFR 26.33, the Service hereby issues the following regulations:

§ 26.34 Special regulations governing public access, use and recreation within the Chassahowitzka National Wildlife Refuge, Florida

Effective May 1 and continuing through August 31, 1980 and 1981, all power boats will be restricted to SLOW SPEED/MINIMUM WAKE on the main channel of the Chassahowitzka River between the east refuge boundary and the Hernando County line. The restricted area will be posted with signs reading "MANATEE PROTECTION AREA, SLOW SPEED—MINIMUM WAKE". This speed restriction may be exceeded if it is reasonably necessary to prevent the loss of human life due to weather conditions or due to other reasonably unforeseen circumstances. In addition all boating is subject to the regulations in 50 CFR 26.

For the purpose of this regulation, the term "SLOW SPEED—MINIMUM WAKE" is defined as any through-the-water speed (not over-the-bottom speed) less than 8 MPH and slow enough that the boat is neither "planing" nor moving with an elevated bow. Through-the-water speed is created by a boat's power and is independent of any movement caused by water currents. A boat that is "on plane" is not at slow speed. A boat that has slowed until it is "off plane" but is still moving with an elevated bow is making an exaggerated wake, not "minimum wake." When the moving attitude of a shallow-draft boat is similar to its normal resting position, it is moving at "slow speed" and "minimum wake".

All air-thrust boats are required to have a special refuge airboat permit which is issued annually on July 1. Airboats are restricted to certain, designated routes of travel within the refuge as described on the refuge permit.

The provisions of this regulation supplement the regulations which govern public access, use and recreation on wildlife refuges generally, which are set forth in Title 50, Code of Federal Regulations Part 26. The public is invited to offer suggestions and comments at any time. For maps and further information contact Refuge Manager, Chassahowitzka National Wildlife Refuge, Route 2, Box 44, Homosassa, FL 32646. Telephone: (904) 628-2201.

Dated: February 13, 1980.

John C. Oberheu,
Acting Area Manager.

[FR Doc. 80-5618 Filed 2-21-80; 8:45 am]

BILLING CODE 4310-55-M

Appendix H

Final special regulations limiting
public entry and use,
Merritt Island National Wildlife Refuge, Fla.

Federal Register, volume 45, number 27, pages 8306-8307,
Thursday, February 7, 1980 (45 F.R. 8306-8307)

DEPARTMENT OF THE INTERIOR**Fish and Wildlife Service****50 CFR Part 26****Public Entry and Use; Merritt Island National Wildlife Refuge**

AGENCY: Fish and Wildlife Service, Department of the Interior.

ACTION: Special regulations.

SUMMARY: The Service implements new water-related public use regulations within the boundaries of Merritt Island National Wildlife Refuge. The primary purpose for the regulations is to minimize potential harm to manatees and other wildlife, and to make all water-related public use activities on the refuge consistent with the primary purposes for which it was established.

DATES: The regulations will become effective February 7, 1980. Enforcement will not begin until appropriate signs have been posted.

FOR FURTHER INFORMATION CONTACT: John C. Oberheu, U.S. Fish and Wildlife Service, 900 San Marco Boulevard, Jacksonville, Florida 32207. Telephone 904/791-2267.

SUPPLEMENTARY INFORMATION: The primary author of this document is Dorn A. Whitmore, Merritt Island National Wildlife Refuge, P.O. Box 6504, Titusville, Florida 32780. Telephone 305/867-4820.

BACKGROUND: Extensive surveys by the Fish and Wildlife Service have shown that significant numbers of manatees utilize portions of Merritt Island National Wildlife Refuge, particularly during the months of April through mid-November. The areas open to public entry and use which are most frequently used by this endangered species are the Haulover Canal (which is part of the Atlantic Intracoastal Waterway), Bairs Cove, Banana Creek, Kennedy Athletic and Recreation Society (KARS) Marina and channel and approximately a two-square mile area in the Banana River east of the Saturn Barge Canal and south of the NASA Parkway. At the present, all of the above locations are open to public entry and are used by fishermen and pleasure craft.

Research by the National Fish and Wildlife Laboratory has shown that boat-related accidents are responsible for 40 percent of those manatee mortalities where cause of death could be determined, and 60 percent of those that are human-related. When given adequate time, manatees can move out of the path of approaching boats and thereby avoid being struck. Therefore, to minimize the risk of manatee mortality

from collision with boats or propellers, speed restrictions and closed areas will be designated in locations most frequented by manatees. Maps delineating the restricted zones are available at Merritt Island NWR headquarters. The restricted area will be conspicuously posted with appropriate signs.

All other water areas within the boundaries of Merritt Island NWR but outside NASA security areas will remain open to public entry and use in accordance with the Refuge Recreation Act of 1962 and other regulations listed below.

The Refuge Recreation Act of 1962 (16 U.S.C. 460k) authorizes the Secretary of the Interior to administer certain areas for public recreation (as an appropriate incidental or secondary use) only to the extent that it is practicable or not inconsistent with the primary objectives for which the refuge was established. In addition, the Refuge Recreation Act requires: (1) that any recreational use permitted will not interfere with the primary purpose for which the refuge was established; and (2) that funds are available for the development, operation, and maintenance of the permitted forms of recreation.

DISCUSSION: The recreation use authorized by these regulations will not interfere with the primary or major purposes for which the Merritt Island NWR was established. This determination is based upon consideration of, among other things, the Service's Final Environmental Impact Statement on the Operation of the National Wildlife Refuge System published in November 1976, and the Environmental Assessment of Water-oriented Public Use on Merritt Island National Wildlife Refuge. Funds are available for the administration of the recreational activities permitted by these regulations.

The provisions for these special regulations supplement the regulations which cover boating on national wildlife refuge areas which are set forth in Title 50, Code of Federal Regulations, 27.32. Part 26 of 50 CFR provides that U.S. Coast Guard Regulations, Titles 33 and 46 CFR are also applicable on navigable waters.

On June 26, 27 and 28, 1979, Merritt Island NWR hosted a special meeting for various agencies and conservation organizations to discuss problems relating to manatee protection on the refuge. Those attending included representatives for the Fish and Wildlife Service, National Aeronautics and Space Administration, U.S. Army Corps of Engineers, U.S. Coast Guard, National

Park Service, Florida Department of National Resources, Defenders of Wildlife, Florida Audubon Society, and Florida Wildlife Federation. Following the meeting, regulations were proposed to provide additional manatee protection on the refuge. On September 24, 1979, a public meeting was held in the City of Titusville to inform the public about the proposed regulations and to seek public views regarding them. The 33 persons in attendance were supportive of the proposals and offered only positive comments.

§ 26.34 Special regulations concerning public entry and use for water-related activities.

Water-related public use, including boating, canoeing, swimming, fishing, crabbing, clamming, oystering, and shrimping, is permitted on Merritt Island NWR subject to the following special regulations:

1. Boating speeds are restricted to "Idle Speed" in Bairs Cove and KARS Marina.
2. Boat speeds are restricted to "Slow Speed/Minimum Wake" in Haulover Canal, KARS Marina channel, and Banana Creek.
3. The portion of the Banana River bounded on the east by the river shore; on the south by the spoil islands immediately south of the Air Force Turning Basin and channel; on the west by the spoil islands immediately east of Saturn Barge Canal; and on the north by the south side of NASA Parkway; is closed to all public use of motorized watercraft during the period of April 1 through November 14 annually.
4. Coast Guard approved life preservers shall be worn by persons in small craft less than 16 feet in length while these boats are under power in the Indian River, Banana River, and Mosquito Lagoon within refuge boundaries.
5. Boat launching on the refuge between sunset and sunrise is permitted only at Beacon 42 Fish Camp and Bairs Cove.
6. Air thrust boats are not allowed on the refuge waters.
7. Portions of the refuge may be closed to public entry at certain times due to NASA's space launching and shuttle operations. Local news sources will carry closure schedules.

Note.—The speed restrictions in 1. and 2. above may be exceeded if it is reasonably necessary to prevent the loss of human life due to weather conditions or other reasonably unforeseen circumstances.

Definitions

For the purpose of this regulation, the term "Idle Speed" and "Slow Speed/Minimum Wake" are defined as follows:

Idle Speed means the minimum speed that will maintain the steerage way of a motorboat.

Slow Speed/Minimum Wake is defined as any through-the-water speed (not over-the-bottom speed) less than eight mph and slow enough that the boat is neither "planing" nor moving with an elevated bow. Through-the-water speed is created by a boat's power and is independent of any movement caused by water currents. A boat that is "on plane" is not at slow speed. A boat that has slowed until it is "off plane" but is still moving with an elevated bow is making an exaggerated wake, not "minimum wake." When the moving position of a boat is similar to its normal resting position, it is moving at "slow speed" and "minimum wake."

The provisions of this regulation supplement the regulations which govern public access and use and recreation on wildlife refuges generally, which are set forth in Title 50, Code of Federal Regulations, Part 26. The public is invited to offer suggestions and comments at any time.

Dated: January 31, 1980.

John C. Oberheu,
Acting Area Manager.

[FR Doc. 80-3872 Filed 2-6-80; 8:45 am]

BILLING CODE 4310-55-M

Appendix I

Final rule providing for
the humane handling, care, treatment, and
transportation of captive marine mammals

Federal Register, volume, 44, number 122, pages 36868-36883,
Friday, June 22, 1979 (44 F.R. 36868-36883)

DEPARTMENT OF AGRICULTURE

Animal and Plant Health Inspection Service

9 CFR Parts 1 and 3

Marine Mammals; Humane Handling, Care, Treatment, and Transportation

AGENCY: Animal and Plant Health Inspection Service (USDA).

ACTION: Final rule.

SUMMARY: This document sets forth regulations and standards under the Animal Welfare Act to govern the humane handling, care, treatment, and transportation of warmblooded aquatic animals or marine mammals. Such regulations and standards were proposed and published in the Federal Register on September 19, 1978. The public comment period ended November 20, 1978. Comments and recommendations were received from the public, interested industry groups, and the Marine Mammal Commission. This Department has evaluated the comments and recommendations and has prepared the regulations and standards which appear herein as final rulemaking.

EFFECTIVE DATE: September 20, 1979.

FOR FURTHER INFORMATION CONTACT: Dr. Dale F. Schwindaman, Senior Staff Veterinarian, Animal Care Staff, Veterinary Services, Animal and Plant Health Inspection Service, United States Department of Agriculture, Room 703, Federal Building, 6505 Belcrest Road, Hyattsville, MD 20782, telephone number (301) 436-8271.

SUPPLEMENTARY INFORMATION: On September 19, 1978, the Animal and Plant Health Inspection Service (APHIS) published a proposed rulemaking under the Animal Welfare Act which contained regulations and standards for the humane handling, care, treatment, and transportation of marine mammals when maintained in captivity (43 FR 42200). This rulemaking proposed an amendment to Parts 1 and 3, Subchapter A, Chapter 1, of the Code of Federal Regulations. The Animal Welfare Act, as amended, 7 U.S.C. 2131 *et seq.*, requires the Secretary to promulgate regulations and to set standards governing the humane handling, care, treatment, and transportation of animals by dealers, research facilities, exhibitors, operators of auction sales, carriers, and intermediate handlers. Such standards must include minimum requirements with respect to handling, housing, feeding, watering, sanitation,

and other areas specified in section 13 of the Act (7 U.S.C. 2143).

Following publication of the proposed rulemaking on September 19, 1978, the 60-day period designated for the purpose of inviting public comment ended on November 20, 1978. A total of 186 comments was received within the comment period. Most comments received were from the private sector of the public, including individuals who apparently do not have any direct interest in marine mammals. The major comments are summarized as follows: One was opposed to APHIS proposals as too lenient; one was opposed to them as being too stringent; there were 143 which generally agreed with the proposals and suggested that several areas be strengthened; and there were four which agreed but suggested modifications in one specific area. Comments from the various humane and conservation groups consisted of 12 which agreed with the intent of the proposals but suggested several areas be clarified and/or strengthened, one which challenged the legality of the Department of Agriculture administering the marine mammal regulations, and one which generally opposed maintaining cetaceans in captivity. Twenty comments were received from the industries involved with animals, such as zoos, circuses, traveling acts, universities, research facilities, carriers, and other related groups. All of these comments requested modifications and/or clarification of one or more areas. The Department of Commerce, the Department of the Interior, and the Marine Mammal Commission supported the basic concept of the proposal but strongly urged modification and/or clarification of various areas.

The various comments that were received with regard to the proposed rulemaking and the recommendations of the Marine Mammal Commission were evaluated by this Department, and because of questions which were raised and valid suggestions which were made, some changes from the proposed regulations and standards are warranted. Certain other editorial changes were also made for accuracy and clarification.

Notice is hereby given in accordance with the administrative provisions in 5 U.S.C. 553, that, pursuant to the provisions of the Animal Welfare Act (7 U.S.C. 2131 *et seq.*), the regulations and standards (9 CFR 1.1, *et seq.*) are amended in the following respects: (1) The definition of "animal" is revised to include marine mammals; the term "pool" is added to the definition of "primary enclosure"; and the term

"minimum horizontal dimension" is added to the definitions. (2) New standards are provided at 9 CFR 3.1, *et seq.*, regarding the humane handling, care, treatment, and transportation of marine mammals.

Discussion of Comments

Comments Regarding Proposed Operating Standards and Proposed Standards Governing Facilities

There were numerous comments received pertaining to proposed section 3.100, "Special considerations regarding compliance." Most of these comments were from private individuals and humane/conservation groups requesting that the time limit for deviation from the standards or variance from full compliance be reduced from 4 years to either 1, 2, or 3 years. One comment from industry indicated that the variance from full compliance should be for a longer time period since marine mammals are being maintained successfully in existing facilities which do not meet all the requirements of the proposed standards. Another comment from industry indicated that compliance with the proposed standards would be financially unrealistic for tax supported facilities. There was also a suggestion that the Federal Government should defray the increased cost of compliance when awarding research grants to nonprofit facilities.

The Marine Mammal Commission and the Department of Commerce requested clarification of proposed § 3.100 with regard to the mechanism for granting variance or permission to operate as a licensee or registrant for up to 4 years without meeting all the requirements of the standards, whether or not the variance would be renewable at the end of 4 years and, if so, under what conditions; whether specific applicants would be granted continual variance from specific portions; and whether or not consideration would be given to those facilities engaged in research other than that concerned with maintenance of marine mammals. The Marine Mammal Commission also asked whether or not a list of those facilities granted a variance would be published in the Federal Register. Several comments were received from humane groups and industries suggesting that a review committee be appointed by the Secretary to review the applications for variance and to advise the Department concerning their validity.

After due consideration of all of these comments, the Department has determined that 3 years is sufficient time to attain full compliance. In the case of

unforeseen circumstances or in unusual situations, such as where facilities dependent upon public funds do not receive such funds in time, the Deputy Administrator may grant a maximum extension of 1 year if he determines that such extension is justified and necessary.

The regulations and standards will not make specific provisions for a continual variance or permission to deviate from the standards. The term "variance" shall be adopted herein in lieu of "deviation from the standards" which was used in the proposal. The 3- or 4-year period during which such variance may be granted to facilities housing marine mammals should provide sufficient time for the regulated industry to come into compliance with the standards. Such time period should also provide the Department an opportunity to observe the practical application of these provisions and to make appropriate changes, as deemed necessary, based on experience.

In addition, whether licensed as exhibitors or not, research facilities subject to the Animal Welfare Act must become registered under the provisions of section 6 of the Act (7 U.S.C. 2131-2156) and part 2, § 2.25 of the regulations. Upon registration, variance from specific sections of the standards may be granted during the specified time period the animal or animals are involved in research, provided that such variance is fully addressed and justified in the experimental design. Facilities which are required to become registered as research facilities shall not be limited to the type of research they may perform. Unless such variance from the regulations and standards is written into the experimental design of the research protocol, the marine mammals used in research projects shall be provided all the essentials of husbandry and care as stated in the regulations and standards. Those facilities operating specifically as rehabilitation centers for stranded or beached marine mammals will be individually assessed to determine if they are subject to the Act. Facilities determined by this Department to be subject to the Act will be required to become licensed or registered. The Department realizes that variance for research purposes as explained in the preceding discussion is different from that which was presented in the proposal. However, in order to be consistent with other sections of these standards, § 3.100(c) has been rewritten to reflect the appropriate intent of the paragraph.

With reference to appointing a review committee, the Secretary presently has

authority to utilize consultants when expertise in a specific area is needed. Therefore, in keeping with governmental policy, the Department has decided against appointing a standing committee to advise on applications for variance. However, consultants will be utilized when it is apparent that additional expertise is necessary.

All persons subject to the Animal Welfare Act who maintain or otherwise handle marine mammals will be required to become licensed or registered after the effective date of these regulations and standards. It is the intent of the Department to periodically list such licensees and registrants in the Federal Register, and those granted a variance other than for research will be identified.

In the comments relative to proposed § 3.101, "Facilities, general," several changes were requested for clarification. It was suggested that the word "employee" be deleted and the phrase "attendant responsible to management" be used in order to include those persons that assist on a voluntary basis without compensation. For the sake of clarification, it has been decided that the term "employee" and the phrase "attendant responsible to management" shall be used interchangeably in these regulations and standards.

Several comments indicated that the reference to "non-porous, waterproof surface" in proposed § 3.101(a)(3) should be deleted as it was unnecessary in the context of the section. It is the intent of the Department to describe as clearly as possible the type of surface which must be present when manmade materials are utilized. The description will therefore remain unchanged. It should be noted that natural areas are exempt from such requirement.

Another comment indicated that the word "rapidly" in proposed § 3.101(c)(1) should be deleted or clarified, as draining a pool too rapidly could be traumatic to the marine mammals housed therein. It was not the intent of this section to require that the pool must be drained rapidly, only that the capability to do so be available if needed, and the wording has therefore been changed accordingly.

In response to a comment, the phrase "or food preparation" has been deleted from proposed § 3.101(d) to clarify that toxic substances shall not be stored in food storage areas. The methods of storing toxic or potentially toxic substances such as detergents and sanitizing agents in food preparation areas are now prescribed by § 3.107(b).

With respect to proposed § 3.102, several comments were received

requesting that the vertical air space be increased from 1.83 meters (6 feet) to 2.44 meters (8 feet). The Department had originally proposed that the vertical air space must average 2.44 meters (8 feet) and subsequently reduced that requirement to 1.83 meters (6 feet) in response to previous comments and on the advice of technical and scientific advisers. It is therefore decided that the proposed minimum vertical air space requirement of 6 feet will remain unchanged.

A single comment regarding lighting indicated that the terms "optimum" and "excessive" were vague and subject to different interpretations. In an effort to clarify the intent of these terms, the term "optimum" has been changed to "adequate" and an explanatory footnote has been added to the section.

Various comments were received regarding proposed § 3.103, "Facilities, outdoor." One suggested expanding the content of the first paragraph to ensure protection from adverse environmental conditions, but it is the opinion of the Department that the content is sufficient as is.

Several comments indicated that clarification was needed regarding the proposed requirements for outdoor pools housing ice or cold water dwelling species and warm water dwelling species of marine mammals. Therefore for the sake of clarity, paragraph (a) of proposed § 3.103 has been restructured into three subparagraphs. The content of the proposed paragraph has been slightly altered in response to valid requests contained in the comments. As requested, cold water dwelling species of pinnipeds have been included in paragraph (a)(1). However, a request to add ice dwelling species of cetaceans to paragraph (a)(1) is rejected since the requirements for outdoor pools housing cetaceans appear in paragraph (a)(2). Warm water dwelling species of cetaceans have been included in paragraph (a)(3) as requested.

There was one comment which generally agreed with the intent of proposed § 3.103 but stated that marine mammals can survive and remain in good health without the use of direct shade. The Department realizes that structures, trees, canvas, etc., are not present in the natural habitat of these animals. However, there are other means by which they can escape direct sunlight in the wild which are not available to them in captivity. Therefore, it is the opinion of this Department that marine mammals in captivity should have access to shade.

A total of 163 comments was received in regard to proposed § 3.104, "Space

requirements," for the various orders and species of marine mammals. Most of the comments (145) were from private individuals and humane organizations which indicated that the proposed space requirements were too small. Most were of the opinion that the proposed primary enclosure size should be doubled, especially for the cetaceans. Others thought the enclosure size should be tripled. One comment stated that it should be enlarged 10 times. A marine mammal trainer commented that the proposed primary enclosure pool for cetaceans was larger than necessary. Of the remaining 18 comments regarding space requirements, 9 were from elements representing industry, universities, and other government agencies and 9 were from circuses and circus fan organizations.

The comments regarding the primary enclosure sizes being too small did not include any persuasive evidence to support that contention. Also, there were no comments received that could provide a valid reason for disagreeing with what the Department had proposed as space requirements. The space requirements, as proposed, represent extensive efforts of the Department in which it consulted and received information from recognized authorities on the housing of marine mammals in captivity. The advice received was based on many years of acquired knowledge regarding acceptable space requirements. The Department wishes to establish minimum humane standards for the maintenance of marine mammals in captivity which would be consistent with their good health and well-being. Anyone wishing to provide more than the space required by the standards for marine mammals is free to do so without interference from the Department. With regard to the proposed space requirements, the Department is of the opinion that they are adequate, and they shall therefore remain unchanged.

The Marine Mammal Commission commented that there were no provisions for short-term holding facilities which do not meet the standards. The Department made allowances for this in proposed § 3.110, "Veterinary care." Special holding facilities are allowed for isolation, medication, and treatment. Since these facilities are less than minimal, the good health and well-being of animals contained therein should be under the supervision of the attending veterinarian. Enclosures smaller than required by the standards to be used for purposes other than veterinary care, such as training, transfer, etc., were not specifically provided for by the

proposal. However, the proposed standards were primarily intended to cover permanent housing facilities. To clarify this intent, appropriate language has been added to § 3.104, "Space requirements," to allow for temporary holding, training, transfer, etc. pools. These enclosures can be used for a variety of reasons, but they must not be used as permanent housing or for any periods longer than allowed by the attending veterinarian.

There were several comments from universities and research facilities regarding the lack of provisions for experimentation and research whereby other methods of housing and maintaining marine mammals could be developed. Any facility which wishes to make application to become a registered research facility can do so and can conduct experimentation and research involving marine mammals. However, marine mammals in research facilities must be given the same essentials as required by the regulations and standards for exhibitors, unless the research protocol specifically indicates the need for a variance from the minimum standards in order to obtain the desired results of such research. The research protocol shall be available to USDA inspectors when visiting the premises for inspection purposes.

There were several comments regarding the Minimum Horizontal Dimension (MHD) of the primary enclosure pools. One comment stated that the MHD was too restrictive and made no allowances for square and rectangular shaped pools. As stated in the supplemental information of the proposed rulemaking, a circular pool with the required MHD is the smallest pool which would meet the standards. The pool can be of any size and shape, but in that pool, there must be a place that will meet or exceed the MHD, depth, surface area, and volume requirements. Another comment requested clarification of the term "primary enclosure" as it relates to holding pools which are connected to a larger performance pool. In response to this request, it should be restated that enclosures smaller than required by the standards may be used for holding animals for short periods of time at the discretion of the attending veterinarian. However, if the animals are confined in the holding pools for extended periods of time and do not have access to the larger performing pool, except during their performance, then the holding pool would be considered the primary enclosure and must meet or exceed all of the minimum requirements. When the animals have free access to the larger

performing pool, other than during their performance, then the entire pool complex may be considered as the primary enclosure.

One comment stated that there was no mention of MHD for pools housing pinnipeds in the regulations although it was discussed in the supplementary information. This was an oversight and is now included. It was stated in the supplementary information of the proposal that "A pool of water whose MHD is twice the average adult length of the longest species of pinniped contained therein appears to have sufficient surface area for two such pinnipeds." After consideration of all relevant factors, this Department has decided to base the MHD on 1½ times the average adult length of the longest species of pinniped contained in a pool. This decision is partially based on the fact that pinnipeds spend a considerable amount of time outside of the water.

Several humane groups expressed the opinion that the MHD should be based on 4 times the average adult length for all cetaceans thereby making it the same for Group I cetaceans as for Group II cetaceans.

One government agency commented that pinnipeds should be measured from the tip of the nose to the rear-most part of the hind flipper. The information used by the Department in measuring pinnipeds is E. P. Walker's book, *Mammals of the World*, Volume II, 2nd Edition, John Hopkins Press, page 1283, 1968. Mr. Walker has done extensive research regarding mammals under sponsorship of the New York Zoological Society and the National Institutes of Health. He was Assistant Director of the National Zoological Park and is considered by the Department to be an authority on the subject of mammals. According to Mr. Walker, the pinniped should be measured from the tip of the nose in a straight line to the tip of the tail. Although the tail is vestigial, all pinnipeds have tails. There was also a comment from the Marine Mammal Commission that the *Monodon monoceros* (narwhale) should be spelled "narwhal." Webster's Dictionary states that both versions are acceptable. Mr. Walker also calls them narwhales. Therefore, in keeping with governmental policy that regulations be written in understandable language, the Department has determined that the term "narwhale" is preferable to narwhal.

There were two comments stating that the proposed formulas for computing MHD were wrong. There was a typographical error in the proposed rulemaking when it was published in the

Federal Register. In all the formulas where the symbol pi (π) should have been used, "0" was used instead. Most people evidently recognized this as a printing error since the Department received only two comments in this regard. Some comments expressed difficulty understanding the formulas as printed. Specifically, there were questions regarding the determination of the radius of a pool. In the case of Group I cetaceans (where MHD must be 2 times the average adult length of the longest marine mammal) and Group II cetaceans (where MHD must be 4 times the average adult length), the MHD also represents the required minimum diameter of the pool. Therefore, in pools housing Group I or Group II cetacean, one-half the MHD of the pool represents the radius for further mathematical computations.

One agency's comments indicated some confusion regarding the relationship of surface area to volume when making computations. While it is true that surface area is not a specified factor in the formula for calculating volume, it is very important in determining pool size. A pool which meets either Group I or Group II MHD and depth requirements will satisfy the surface area and volume requirements for up to two Group I or up to four Group II cetaceans. As additional animals of either group are added to the pool, both volume and surface area required must be calculated independently for each animal added and the dimensions of the pool adjusted to meet both total surface area and volume requirements respectively. If surface area requirements were not considered in determining pool dimensions when adding additional animals, it would be conceivable that a situation could be created whereby numerous animals would be stacked one upon the other, all competing for the same surface area, in a pool which otherwise would meet all the requirements regarding the MHD, depth, and volume. Therefore, when computing the size of the pool, the total surface area must be figured based on the required surface area for each cetacean in the pool. To avoid any further confusion, appropriate changes have been made in the wording of proposed § 3.104(b)(3).

There was a comment that the word "adult" should be dropped when computing the MHD because some facilities use adolescent or juvenile animals and never hold them till maturity. The Department is of the opinion that if MHD were based on various adolescent and juvenile sizes, as

well as adult sizes of marine mammals, the standards would become too indefinite and burdensome for the industry and would be difficult to enforce. Therefore this suggestion is rejected.

There were also some comments regarding the proposed depth of the primary enclosure pool. One comment stated that the depth of the pool should be at least $1\frac{1}{2}$ times the length of the marine mammal contained therein. Another comment stated that it is common to have primary enclosure pools with sloping bottoms, and that these pools can meet the volume and surface area requirements. Pools are usually most shallow at the edges and deepen toward the center where the drain is located. Some pools, other than circular ones, might also have a shallow end which is less than minimum. Only that part of the pool that meets or exceeds the minimum depth requirements can be used to compute the required space dimensions. Any part of the pool which is less than the minimum depth cannot be used when calculating pool size and cannot be used in calculating dry resting or socializing areas.

There were some comments that the formulas, working examples, and guidelines be published to assist in helping to understand the minimum space requirements. There was also a comment that the Department should furnish a list of the average adult lengths of all marine mammals maintained in captivity and give the dimensions for both the male and the female of the species.

The Department is planning to suggest guidelines and provide a better understanding of the space requirements formulas at a later date. However, there were very few comments with regard to interpretation of the formulas; therefore, the Department must assume that most people did not have difficulty in understanding them. Since the Department does not wish to delay implementing the regulations and standards, any additional supplemental information which is developed pertaining to formulas will be forthcoming at a later date. The list of the average adult lengths for species of marine mammals maintained in captivity has been compiled by the Maine Mammal Commission and is incorporated in these regulations as Table III. These are the lengths that are to be used when making computations under these standards. The average adult lengths of marine mammals indicated in Table III were determined after researching the literature on the

subject and after surveying and consulting with personnel at facilities which presently maintain the various species. Facilities which cannot presently meet the standards based on the lengths indicated by Table III and which question the accuracy of specific lengths as shown in Table III may apply for a variance. If such variance is granted, the facilities will have ample time to present evidence to the Department relevant to the lengths in question. If, after evaluation by the Department, it is determined that a length appearing in Table III should be changed, the regulations will be amended accordingly.

The Marine Mammal Commission has requested that the common name used for the Group II cetacean, *Stenella coeruleoalba*, be "striped dolphin" and that "blue-striped porpoise" as published in the proposed rulemaking not be used. The Department agrees with this recommendation and has made the appropriate change (see § 3.104).

Several comments were received with regard to the den requirements for female polar bears. One person stated that he had the best breeding success with polar bears if the den were small. Another stated that there was no need to provide dens to females of breeding age if they were not placed in contact with males of breeding age. The Department proposed a den size of $6' \times 6' \times 5'$ high. The comment regarding the smaller den suggested $5' \times 5' \times 5'$. One leading zoo commented on the den size and submitted a reprint from the *International Zoo Yearbook*, wherein the size of the dens are larger than the $6' \times 6' \times 5'$ proposed by the Department. In considering the size of adult polar bears, which can exceed 7 feet in length, the Department feels the den should adequately accommodate the animal and will therefore not reduce the proposed dimensions. The Department will not require a separate den for each female of breeding age in stationary exhibits unless such female is housed in the same primary enclosure with a male of breeding age.

There were nine comments received from circuses and circus fan groups expressing their concern that circuses and traveling marine mammal acts cannot survive because the regulations and standards as proposed would require these facilities to provide the traveling marine mammal with the same requirement as the permanently housed animal. A major concern expressed by these comments was that the space available in the vehicles transporting the marine mammals, such as railroad cars and trucks, would not legally

accommodate primary enclosures of such dimensions as required by the proposed standards. Also, there was concern that limited space on railroad car sidings at exhibition locations would prohibit the use of additional railroad cars for the purpose of transporting such enclosures. Other comments stated that the required dimensions in the proposed standards for primary enclosures for polar bears exceed those which are necessary for trained animals. The Department also received comments from humane groups which agreed that traveling animals should be provided with the same requirements as stationary animals. The Department has received input regarding this question from experts in the area of marine mammal care such as the Marine Mammal Commission, the Department of the Interior, Commerce, etc. They all agree that marine mammals in traveling exhibits should be subject to the same requirements as those marine mammals which are maintained in stationary exhibits. This requires that traveling exhibitors must comply with all the standards and regulations while their exhibit is en route, and each time the exhibit is set up at any location for a performance or other purpose. At this time, the Department does not intend to alter the requirements as stated in the proposed rulemaking for traveling marine mammal exhibits except that a separate den need not be provided for each female polar bear of breeding age until it is determined that she is pregnant. However, it is anticipated that traveling marine mammal exhibitors, who cannot presently comply with the standards as stated in the proposed rulemaking, will request a variance. If it is properly justified and consistent with the health and well-being of the animals concerned, it is expected that such variance would be approved. Exhibitors requesting a variance will then have sufficient time to present evidence to the Department supporting any contention they may have that trained traveling marine mammals need not be maintained under the same conditions as those which are part of a stationary exhibit. If, upon evaluation by the Department, the evidence submitted is found to be valid, the regulations will be amended accordingly.

Comments Regarding Animal Health and Husbandry Standards

There were several comments with regard to feeding which recommended that the maximum temperature for storing frozen fish and other frozen food should be reduced by varying degrees to as much as -30°C . One comment

quoted a reference. This reference is "The Draft Code of Practice for Frozen Fish" prepared for the Organization for Economic Cooperation and Development, International Institute of Refrigeration, Paris, 1969. In accordance with the quoted recommendation in the reference, the Department has decided to change the temperature requirement for maintaining frozen fish and other food from -15°C . to -18°C . (0°F).

Requests were also made to limit the length of time food can be stored to 3 months. Rather than setting a specified time period for the storage of food, this Department made a modification in paragraph (d) of proposed § 3.105. The intent of such modification is to make it management's responsibility to ensure the nutritive value and wholesome quality of the food being fed, thereby providing reasonable flexibility regarding storage time.

One comment requested exemption from the daily feeding requirement for experimental procedures and suggested that the proposed 24-hour time limit for feeding of thawing food be increased (§ 3.105(d)). As discussed previously, research facilities wishing to conduct research regarding feeding and nutrition may do so provided that such procedures are specified and described in their research protocol. Regarding the time period for feeding of thawing food, it is the Department's opinion that the requirement as stated is necessary to maintain marine mammals in good health.

Additional comments recommended that public feeding not be allowed and that diets should be required to be varied. These are both managerial decisions and must be based on good judgment with regard for the health and well-being of the animals. A final comment suggested that the content of the proposed section on feeding be expanded to include accepted practices for handling of frozen food in a manner consistent with those for handling food for human consumption. Since the intent of the section is to set standards for animal consumption, it does not seem appropriate to impose such standards.

With reference to water quality (proposed § 3.106), several comments were received requesting modification of the proposed coliform and pH testing requirements. Of these comments, two suggested that coliform monitoring be required daily, one suggested monitoring three times per week, one suggested weekly testing until a protocol is established and then monthly testing to check efficiency, and two suggested that natural seawater be exempted entirely from such monitoring. A single comment

indicated that the need to monitor polar bear pools for coliforms was unnecessary. In response to these comments, it is the Department's contention that all water may be subject to contamination by sewage and, therefore, must be monitored for coliforms. Management should be responsible for monitoring water quality frequently enough to ensure the health and well-being of the animals; however, in an effort to set minimal standards, it is determined that coliform monitoring once per week is not unreasonable. The Department has decided that the need to monitor natural seawater for pH and chemicals is questionable and therefore has deleted these requirements provided that chemicals are not added to maintain water quality. In keeping with the recommendation of the Marine Mammal Commission, the Department is in agreement that no exception will be made for water quality requirements of polar bear pools.

There were numerous comments recommending that all marine mammals without exception be maintained in natural or reconstituted seawater. Although the Department agrees in principle with these comments, there are many examples of apparently healthy pinnipeds presently being successfully maintained in nonsalinized water. Therefore, the Department does not intend to change the salinity requirement of proposed § 3.106. All cetaceans shall be required to be provided with salinized water. Other marine mammals shall be provided salinized water if it is required for their health and well-being. The reference to harp seals which are pinnipeds has been deleted since any pinniped must be provided salinized water when necessary. The question of salinity will be pursued further, and if scientific evidence so indicates, the regulations will be amended accordingly. A request by the Marine Mammal Commission to change the range of salinity for those pools that contain salinized water from 15-36 parts per thousand to 20-36 parts per thousand has been considered. Although references indicate that cetaceans presently in captivity are often maintained at the 20-36 parts per thousand concentration, it is the Department's contention that the seawater of the natural habitat of some captive marine mammals is less concentrated. Therefore, the proposed concentration of 15-36 parts per thousand is deemed adequate for the purpose of these standards.

Recommendations indicating that additional requirements, including the type of filter to be used, be included in

the regulations, have not been followed by the Department. These are the types of decisions that are best left to the discretion of management who will be held responsible for the quality of the water and for the health of the animals contained therein.

The only comment pertaining to the proposed section on sanitation (3.107) requested clarification of that section so as not to include areas where food is prepared for human consumption. In response to this comment, the wording has been changed to clarify the intent of the section.

A comment regarding proposed § 3.108, "Employees," recommended that provision be made for the education of new employees or students in working with marine mammals. The Department recognizes the validity of this comment, and this section is therefore changed to allow for training of marine mammals by new employees and students under the direct supervision of an experienced trainer.

Numerous comments pertaining to proposed § 3.109, "Separation," suggested clarification with respect to marine mammals having access to other animals. It was recommended that the Department require that marine mammals be always kept in groups of two or more. As was addressed in the discussion of the proposed rulemaking, the Department supports the principle of two or more marine mammals being maintained in the same primary enclosure if they are compatible. However, as previously stated in the proposed rulemaking, this Department does not have jurisdiction over the system by which additional marine mammals are added to a facility and therefore would not be justified in requiring, by regulation, that two or more such mammals be maintained together. The intent of the Department is to promote as much contact as possible between compatible species of marine mammals or between marine mammals and other animals. This intent is reflected in § 3.109.

With regard to isolation, the term "temporarily" has been added as suggested by one comment; however, two requests to include research in this section were rejected because variance for research purposes is addressed in the section pertaining to compliance.

Proposed § 3.110, "Veterinary care," indicated that a program be established under the supervision of a veterinarian, and although the Department encourages periodic visits to the facility by the veterinarian, it does not wish to establish the frequency of such visits as one comment suggested. This is a

decision that management and the veterinarian must make in order to meet their responsibility to ensure the health and well-being of the animals.

Three comments indicated that provision should be made to allow professionals, other than veterinarians, to perform necropsies. The standard for conducting necropsies as stated in the proposed rulemaking is not intended to preclude the participation by other professionals but is intended to require that a veterinarian conduct the necropsy and prepare the report. The Department feels the intent is valid and has determined that a provision for professionals other than a veterinarian to conduct the necropsy should not be included. This is because facilities maintaining marine mammals are required to have a program of veterinary care established and maintained under the supervision of an attending veterinarian and such necropsy is considered part of such program. Several comments suggested that the necropsy report should be submitted to APHIS with distribution to other involved governmental agencies and that it should be maintained for a period longer than 2 years. In response to these comments, the Department has extended the time period for retention of the reports from 2 years to 3 years but does not intend to require that the reports be submitted to APHIS or to other government agencies. It appears to the Department that submission is unnecessary since the reports will be on file at the facility and available when needed.

The Department, in the proposed rulemaking for handling, intended to allow for controlled public contact with marine mammals for such purposes as feeding and petting. Therefore, in response to a comment that the proposed section is unclear, the context has been changed to indicate that during those periods of limited contact for purposes of public feeding, petting, etc., a uniformed attendant will be present. This does not negate the fact that separation between the public and the marine mammal for other than controlled contact will be as described in the latter portion of the section. It should be noted that the word "uniformed" with reference to the attendant has been included in this section as requested by two comments. The type of uniform will be at the discretion of the facility, provided the attendant is readily identifiable by members of the public. Additional requests not to allow public feeding, to set specific time periods for display, and to expand the content of the section for

emphasis are rejected since it is the opinion of the Department that adequate parameters have been established regarding management's responsibility for the health and well-being of the marine mammals.

Comments Regarding Transportation Standards

On October 17, 1978, the Department published a notice of proposed rulemaking containing changes and additions to Part 3 of Subchapter A, Chapter 1, Title 9 of the Code of Federal Regulations, which amended the transportation standards for all animals under the Animal Welfare Act. The final rule amending the standards became effective on January 2, 1979. As the proposed amendments to the transportation standards were published after the proposed standards and regulations for marine mammals, the Department was unable to incorporate the changes in the proposal for marine mammals. In addition, several comments received made it apparent that the marine mammal transportation standards did not coincide with the format and, in some cases, content of the standards for other species under the Act. To rectify this situation, the transportation standards for marine mammals have been corrected in format and general content rearranged to make them consistent with the standards, as amended, for all other animals under the Animal Welfare Act. By virtue of these general changes, proposed § 3.119, "Ambient temperature within primary enclosures," has been eliminated and the requirements as proposed are now found in § 3.117, "Terminal facilities."

In response to a comment, and also to be consistent with standards for other animals under the Act, the provisions found in the standards for other animals stating that carriers or intermediate handlers may accept certificates pertaining to temperature acclimation and adequacy of primary enclosures have been incorporated herein (9 CFR 3.11, *et seq.*). Also, as several other comments requested, the term "live" instead of "wild" may now be used to describe animals on primary enclosures in transit, at the discretion of the shipper.

Of the comments relating to specific problems in the transportation of marine mammals, one suggested that primary enclosures for polar bears need not allow for space to freely turn about. As in the standards for other animals, a proviso that movement of certain species may be restricted according to professionally accepted standards has been incorporated.

With reference to care in transit, it is the intent of the Department to indicate that no marine mammal in need of veterinary care shall be transported in commerce, except for the specific purpose of receiving that care. However, because of apparent confusion regarding the intent, as reflected in one comment, the content of the section has been rearranged for clarity.

A comment indicating that it is not always possible or desirable to adjust the position of some species of cetaceans or sirenians while in transit because of size and that a time period for adjustment should not be specified, appears to be valid. The proposed section has been changed accordingly because it is the Department's opinion that adequate care in transit, when an attendant is present, is the responsibility of the shipper or receiver, and decisions regarding position adjustment and the frequency of such adjustments must be based on the shipper's knowledge of the specific animal involved to ensure the health and well-being of that animal.

Another comment requested that the proposed requirement pertaining to primary enclosures for sea otters not specify that one-half of the enclosure shall be a dry resting area. Because of supporting information, which was submitted to the Department, indicating that sea otters are presently being transported successfully in ice water only, the proposed requirement has been changed accordingly.

There were four comments relative to marine mammals being accompanied in transit. Two indicated that all marine mammals, except polar bears, should be accompanied regardless of time in transit; one indicated the time period when an attendant is necessary for pinnipeds and polar bears should be increased from 12 hours to 24 hours; and one suggested that sea lions did not require an attendant. After due consideration of all of these comments and with no evidence to the contrary, the Department has determined that 24 hours in transit without an attendant for pinnipeds and polar bears is not unreasonable and has changed the proposed requirements accordingly. This change does not alleviate the shipper's responsibility to ensure the health and well-being of the animal and the presence of an attendant if it is apparent in specific cases that an attendant is necessary.

A final comment requested that provisions be included for individuals and institutions to handle their own animals in terminal areas. It is not the intent of the regulations to preclude handling of marine mammals by

personnel other than carriers and intermediate handlers. However, it is the intent to hold carriers and intermediate handlers responsible for the movement of animals within the terminal areas regardless of who actually moves them.

- As indicated in part 2, § 2.100 of this subchapter, those persons who own or lease their own conveyances for transporting marine mammals must comply with the standards for transportation.

PART 1—DEFINITION OF TERMS

Accordingly, the regulations and standards (9 CFR 1.1 *et seq.*) are amended as follows:

§ 1.1 [Amended]

1. The second sentence in § 1.1(n) of the regulations (9 CFR 1.1(n)) is amended to delete the words "aquatic animals," following the word "birds" and before the word "rats".

2. § 1.1(gg) of the regulations (9 CFR 1.1(gg)) is amended by inserting a comma after the word "compartment" and adding the word "pool" immediately thereafter and before the word "or".

3. A new definition for minimum horizontal dimension (MHD) is added to the end of § 1.1 of the regulations (9 CFR 1.1) to read as follows:

* * * * *

(ss) "Minimum horizontal dimension" (MHD) means the diameter of a circular pool of water, or in the case of a square, rectangular, oblong or other shape pool, the diameter of the largest circle that can be inserted within the confines of such a pool of water.

PART 3—STANDARDS

4. The Table of Contents in Part 3—Standards of Title 9, Code of Federal Regulations, is amended by redesignating present Subpart E of the Table of Contents as Subpart F, and renumbering §§ 3.100 to 3.118 thereof to §§ 3.125 through 3.142, respectively, and by adding a new Subpart E as follows:

Subpart E—Specifications for the Humane Handling, Care, Treatment, and Transportation of Marine Mammals

Facilities and Operating Standards

- Sec.
- 3.100 Special considerations regarding compliance and/or variance.
- 3.101 Facilities, general.
- 3.102 Facilities, indoor.
- 3.103 Facilities, outdoor.
- 3.104 Space requirements.

Animal Health and Husbandry Standards

- 3.105 Feeding.
- 3.106 Water quality.
- 3.107 Sanitation.

- Sec.
- 3.108 Employees, or attendants.
- 3.109 Separation.
- 3.110 Veterinary care.
- 3.111 Handling.

Transportation Standards

- 3.112 Consignments to carriers and intermediate handlers.
- 3.113 Primary enclosures used to transport marine mammals.
- 3.114 Primary conveyances (motor vehicle, rail, air, and marine).
- 3.115 Food and water requirements.
- 3.116 Care in transit.
- 3.117 Terminal facilities.
- 3.118 Handling.
- 3.119-3.124 [Reserved]

5. Present Subpart E of Part 3—Standards (9 CFR Part 3, Subpart E) is redesignated as Subpart F and §§ 3.100 to 3.118 thereof are renumbered as §§ 3.125 through 3.142, respectively, and a new Subpart E is added to read as follows:

Subpart E—Specifications for the Humane Handling, Care, Treatment, and Transportation of Marine Mammals

(Secs. 3, 5, 6, 10, 11, 12, 16, 17, 21, 80 Stat. 351, 352, 353, 84 Stat. 1561, 1562, 1563, 1564, 90 Stat. 418, 419, 420, 423, (7 U.S.C. 2133, 2135, 2136, 2140, 2141, 2142, 2143, 2144, 2146, 2147, 2151); 37 FR 28464, 28477, 38 FR 19141.)

Facilities and Operating Standards

§ 3.100 Special considerations regarding compliance and/or variance.

(a) All persons subject to the Animal Welfare Act who maintain or otherwise handle marine mammals in captivity must comply with the provisions of this Subpart, unless they are granted a variance,³ by the Deputy Administrator, from one or more specified provisions. The provisions of this Subpart shall not apply, however, in emergency circumstances where compliance with one or more requirements would not serve the best interest of the marine mammals concerned.

(b) From the effective date of the requirements of this Subpart, all facilities housing marine mammals which are not in full compliance with the standards shall have 60 days during which they may apply to the Deputy Administrator for a variance: *Provided, however,* That such variance may only be granted if application is made to the Deputy Administrator, in writing, listing in detail each requirement of this Subpart which cannot be met, the time

³ Written permission from the Deputy Administrator to operate as a licensee or registrant under the Act without being in full compliance with one or more specified provisions of this Subpart.

period requested for the variance, and the justification for such variance.

(c) The Deputy Administrator shall deny any such application for variance if he determines that it is not justified under the circumstances or that allowing it will be detrimental to the health and well-being of the marine mammals concerned.

(d) Such variance shall not be granted for a period exceeding 3 years from the effective date of these provisions: *Provided, however,* That under circumstances deemed justified by the Deputy Administrator, a maximum extension of 1 year may be granted to attain full compliance. A written request for the extension must be received by the Deputy Administrator at least 60 days prior to the termination of the initial 3-year period.⁴

(e) A research facility may be granted variance from specified requirements of this Subpart when such variance is necessary for research purposes and is fully explained in the experimental design. The 3-year time limitation stated in paragraph (b) of this section shall not be applicable in such case.

§ 3.101 Facilities, general.

(a) *Construction requirements.* (1) Housing facilities for marine mammals shall be structurally sound and shall be maintained in good repair, to protect the animals from injury, to contain the animals, and to restrict the entrance of unwanted animals.

(2) All marine mammals shall be provided with protection from abuse and harassment by the viewing public by the use of a sufficient number of employees or attendants to supervise the viewing public, or by physical barriers, such as fences, walls, glass partitions, or distance, or both.

(3) Any primary enclosure pool, including ramps for entering or leaving the pool, shall be constructed of materials having a nonporous, waterproof finish, which shall facilitate proper cleaning and disinfection, and which shall be maintained in good repair as part of a regular ongoing maintenance program.

(4) Facilities which utilize natural water areas such as tidal basins, bays, or estuaries for housing marine mammals shall be exempt from the waterproof finish, nonporous surface construction, and drainage requirements of paragraphs (a)(3) and (c)(1) of this section, but they must meet the

⁴Consideration for extension by the Deputy Administrator will be limited to unforeseen or unusual situations such as when necessary public funds cannot be allocated in an appropriate time frame for a facility to attain full compliance within initial 3-year period.

minimum standards with regard to space, depth, and sanitation. The water must be monitored for coliforms and for pH and chemical content, if chemicals are added.

(b) *Water and power supply.* Reliable and adequate sources of water and electric power shall be provided by the facility housing marine mammals. Written contingency plans must be submitted to and approved by Veterinary Services regarding emergency sources of water and electric power in the event of failure of the primary sources, when such failure could reasonably be expected to be detrimental to the good health and well-being of the marine mammals housed therein.

(c) *Drainage.* (1) Adequate drainage shall be provided for all primary enclosure pools and shall be located so that all of the water contained in such pools may be rapidly eliminated when necessary for cleaning the pools or for other purposes. Drainage effluent from primary enclosure pools shall be disposed of in a manner that complies with all applicable Federal, State, and local pollution control laws.

(2) Drainage shall be provided for primary enclosures and areas immediately surrounding pools. Drains shall be located so as to rapidly eliminate excess water (except in pools). Such drainage effluent shall be disposed of in a manner that complies with all applicable Federal, State, and local pollution control laws.

(d) *Storage.* Supplies of food shall be stored in facilities which adequately protect such supplies from deterioration, molding, or contamination by vermin. Refrigerators and freezers shall be used for perishable food. No substances which are known to be or may be toxic or harmful to marine mammals shall be stored or maintained in the marine mammal food storage areas.

(e) *Waste disposal.* Provision shall be made for the removal and disposal of animal and food wastes, dead animals, trash, and debris. Disposal facilities shall be provided and operated in a manner which will minimize vermin infestation, odors, and disease hazards. All waste disposal procedures must comply with all applicable Federal, State, and local laws pertaining to pollution control, protection of the environment, and public health.

(f) *Washroom facilities.* Facilities such as washrooms, basins, showers, or sinks, shall be provided to maintain cleanliness among employees and attendants.

§ 3.102 Facilities, indoor.

(a) *Ambient temperature.* The air and water temperatures in indoor facilities shall be sufficiently regulated by heating or cooling to protect the marine mammals from extremes of temperature, to provide for their good health and well-being and to prevent discomfort, in accordance with the currently accepted practices as cited in appropriate professional journals or reference guides, depending upon the species housed therein. Rapid changes in air and water temperatures shall be avoided.

(b) *Ventilation.* Indoor housing facilities shall be ventilated by natural or artificial means to provide a flow of fresh air for the marine mammals and to minimize the accumulation of chlorine fumes, other gases, and objectionable odors. A vertical air space averaging at least 1.83 meters (6 feet) shall be maintained in all primary enclosures housing marine mammals, including pools of water.

(c) *Lighting.* Indoor housing facilities for marine mammals shall have ample lighting, by natural or artificial means, or both, of a quality, distribution, and duration which is appropriate for the species involved. Sufficient lighting must be available to provide uniformly distributed illumination which is adequate to permit routine inspections, observations, and cleaning of all parts of the primary enclosure including any den areas. The lighting shall be designed so as to prevent overexposure of the marine mammals contained therein to excessive illumination.⁵

§ 3.103 Facilities, outdoor.

(a) *Environmental temperatures.* Marine mammals shall not be housed in outdoor facilities unless the air and water temperature ranges which they may encounter during the period they are so housed do not adversely affect their health and comfort. A marine mammal shall not be introduced to an outdoor housing facility until it is acclimated to the air and water temperature ranges which it will encounter therein. The following requirements shall be applicable to all outdoor pools.

(1) The water surface of pools in outdoor primary enclosures housing polar bears and ice or cold water dwelling species of pinnipeds shall be kept sufficiently free of solid ice to allow for entry and exit of the animals.

⁵Lighting intensity and duration must be consistent with the general well-being and comfort of the animal involved. When possible, it should approximate the lighting conditions encountered by the animal in its natural environment. At no time shall the lighting be such that it will cause the animal discomfort or trauma.

(2) The water surface of pools in outdoor primary enclosures housing cetaceans and sea otters shall be kept free of ice.

(3) No sirenian or warm water dwelling species of pinnipeds or cetaceans shall be housed in outdoor pools where water temperature cannot be maintained within the temperature range to meet their needs.

(b) *Shelter.* Natural or artificial shelter which is appropriate for the species concerned, when the local climatic conditions are taken into consideration, shall be provided for all marine mammals kept outdoors to afford them protection from the weather or from direct sunlight.

§ 3.104 Space requirements.

(a) *General.* Primary enclosures, including pools of water housing marine mammals, shall comply with the minimum space requirements prescribed by this Part. They shall be constructed and maintained so that the animals contained therein are provided with sufficient space, both horizontally and vertically so that they are able to make normal postural and social adjustments with adequate freedom of movement, in or out of the water. An exception to these requirements is provided for in § 3.110, "Veterinary care." Primary enclosures smaller than required by the standards are also allowed to be used for temporary holding purposes such as training and transfer. Such enclosures shall not be used for permanent housing purposes or for periods longer than specified by an attending veterinarian.

(b) *Cetaceans.* Primary enclosures housing cetaceans shall contain a pool of water and may consist entirely of a pool of water. In determining the minimum space required in a pool holding cetaceans four factors must be satisfied. These are MHD, depth, volume, and surface area. For the purposes of this Subpart, cetaceans have been divided into the following groups:

Group I Cetaceans. This group shall consist of all cetaceans except those specified in Group II below.

Group II Cetaceans. This group shall consist of the following genera and species of cetaceans.

Genera, Species and Common name

- Delphinus*, all species, common dolphin
- Lissodelphis*, all species, right whale dolphin
- Stenella, plagiodon*, spotted dolphin
- Stenella, attenuata*, spotted porpoise
- Stenella, coeruleoalba*, striped dolphin
- Stenella, longirostris*, spinner porpoise
- Phocoenoides, dalli*, Dall's porpoise

(1) *The required minimum horizontal dimension (MHD) of a primary enclosure pool shall be based on the average adult body length of the longest species of cetacean housed therein.*

(i) The MHD of a pool for Group I cetaceans shall be two times the body length of the average adult of the longest species of cetacean to be housed therein, measured from the tip of its lower jaw to the notch in the tail fluke.*

(ii) The MHD of a pool for Group II cetaceans shall be four times the body length of the average adult of the longest species of cetacean to be housed therein, as measured from the tip of the lower jaw to the notch in the tail fluke.

(iii) In a pool where a mixture of both Group I and Group II cetaceans are to be housed, the MHD must be computed on the basis of both the average adult length of the longest species of Group I cetacean and of the longest species of Group II cetacean, and the required

MHD shall be either two times the body length of an average adult of the longest species of Group I cetacean to be housed therein or four times the body length of an average adult of the longest species of Group II cetacean to be housed therein, whichever is greater.

(iv) Once the required MHD has been satisfied, the pool size may be required to be adjusted to increase the surface area and volume when cetaceans are added. Examples of MHD and volume requirements for Group I cetaceans are shown in Table I, and for Group II cetaceans in Table II.

*The body length of a *Monodon monoceros* (narwhale) is measured from the tip of the upper incisor tooth to the notch in the tail fluke. If the upper incisor is absent or does not extend beyond the front of the head, then it is measured like other cetaceans, from the tip of the lower jaw to the notch in the tail fluke. Immature males should be anticipated to develop the "tusk" (usually left incisor tooth) beginning at sexual maturity.

Table I.—Group I Cetaceans

Average adult length		MHD		Minimum required depth		Volume of water required for each cetacean	
Meters	Feet	Meters	Feet	Meters	Feet	Cu. meters	Cu. feet
1.68	5.5	3.35	11	1.52	5	6.72	237.46
2.29	7.5	4.57	15	1.52	5	12.50	441.56
2.74	9.0	5.49	18	1.52	5	17.99	635.85
3.05	10.0	6.10	20	1.52	5	22.22	785.00
3.51	11.5	7.00	23	1.75	5.75	33.79	1,193.88
3.66	12.0	7.32	24	1.83	6	38.39	1,356.48
4.27	14.0	8.53	28	2.13	7	60.96	2,154.04
5.49	18.0	10.97	36	2.74	9	129.56	4,578.12
5.64	18.5	11.28	37	2.82	9.25	140.66	4,970.33
5.79	19.0	11.58	38	2.90	9.50	152.38	5,384.32
6.71	22.0	13.41	44	3.36	11	236.55	8,358.68
6.86	22.5	13.72	45	3.43	11.25	253.05	8,941.64
7.32	24.0	14.63	48	3.66	12	307.11	10,851.84
8.53	28.0	17.07	56	4.27	14	487.67	17,232.30

¹ All calculations are rounded off to the nearest hundredth. In converting the length of cetaceans from feet to meters, 1 foot shall equal .3048 meter. Due to rounding of meter figures as to the length of the cetacean, the correlation of meters to feet in subsequent calculations of MHD and additional volume of water required per cetacean, over two, may vary slightly from a strict feet to meters ratio. Cubic meters is based on: 1 cubic foot=0.0283 cubic meter.

Table II.—Group II Cetaceans

Average adult length		MHD		Minimum required depth		Volume of water required for each cetacean	
Meters	Feet	Meters	Feet	Meters	Feet	Cu. Meters ¹	Cu. Feet
1.83	6.0	7.32	24	1.52	5	16.00	565.20
2.13	7.0	8.53	28	1.52	5	21.77	769.30
2.29	7.5	9.14	30	1.52	5	24.99	883.13
2.44	8.0	9.75	32	1.52	5	28.44	1,004.80
2.59	8.5	10.36	34	1.52	5	32.10	1,134.33
2.74	9.0	10.97	36	1.52	5	35.99	1,271.70

¹ Converting cubic feet to cubic meters is based on: 1 cubic foot=0.0283 of a cubic meter

Table III.—Average Adult Lengths of Marine Mammals Maintained in Captivity ¹

Species	Common name	Adult length	
		In meters	In feet
Group I Cetaceans:			
<i>Delphinapterus leucas</i>	Beluga.....	4.27	14.0
<i>Inia geoffrensis</i>	Amazon Porpoise.....	3.05	10.0
<i>Lagenorhynchus obliquidens</i>	Pacific White-sided Dolphin.....	2.29	7.5
<i>Tursiops truncatus</i>	Bottlenose Dolphin.....	2.74	9.0

Table III.—Average Adult Lengths of Marine Mammals Maintained in Captivity¹—Continued

Species	Common name	Adult length	
		In meters	In feet
<i>Phocoena phocoena</i>	Harbor Porpoise.....	1.68	5.5
<i>Grampus griseus</i>	Risso's Dolphin.....	3.66	12.0
<i>Globicephala melana</i>	Long-finned Pilot Whale.....	5.79	19.0
<i>Globicephala macrorhynchus</i>	Short-finned Pilot Whale.....	5.49	18.0
<i>Orcinus orca</i>	Killer Whale.....	6.86	22.5
<i>Pseudorca crassidens</i>	False Killer Whale.....	5.64	18.5
Group II Cetaceans:			
<i>Lissodelphis borealis</i>	Northern Right Whale Dolphin.....	2.74	9.0
<i>Delphinus delphis</i>	Common Dolphin.....	2.59	8.5
<i>Stenella longirostris</i>	Spinner Dolphin.....	2.13	7.0
<i>Stenella attenuata</i>	Spotted Dolphin.....	2.59	8.5
<i>Stenella plagiodon</i>	Spotted Dolphin.....	2.29	7.5
<i>Phocoenoides dalli</i>	Dall's Porpoise.....	2.13	7.0
Pinnipeds:			
<i>Eumetopias jubatus</i>	Steller Sea Lion, Northern Sea Lion.....	3.05	10.0
<i>Zalophus californianus</i>	California Sea Lion.....	2.44	8.0
<i>Callorhinus ursinus</i>	Northern Fur Seal.....	2.44	8.0
<i>Odobenus rosmarus</i>	Walrus.....	3.66	12.0
<i>Phoca vitulina</i>	Harbor Seal.....	1.68	5.5
<i>Mirounga angustirostris</i>	Northern Elephant Seal.....	5.18	17.0
<i>Halichoerus grypus</i>	Gray Seal.....	2.90	9.5
<i>Sirenia: Trichechus manatus</i>	West Indian Manatee.....	3.51	11.5
<i>Mustelidae: Enhydra lutris</i>	Sea Otter.....	1.98	6.5

¹This table contains the species of marine mammals known by the Department to be presently maintained in captivity. Anyone who is subject to the Animal Welfare Act having species of marine mammals in captivity which are not included in this table should consult the Deputy Administrator with regard to the average adult length of such mammals.

(2) *The minimum depth requirements* for primary enclosure pools for all cetaceans shall be one-half the body length of the average adult of the longest species to be housed therein, regardless of Group I or Group II classification, or 1.52 meters (5 feet), whichever is the greater, and can be expressed as $d=L/2$ or 5 feet, whichever is greater. Those parts of the primary enclosure pool which do not meet the minimum depth requirements cannot be included when calculating space requirements for cetaceans.

(3) *Pool volume.* A pool of water housing cetaceans which satisfies the MHD and which meets the minimum depth requirement, will have sufficient volume and surface area to hold up to two Group I cetaceans or up to four Group II cetaceans. If additional cetaceans are to be added to the pool, the volume as well as the surface area may have to be adjusted to allow for additional space necessary for such cetaceans. See Tables I, II, and IV for volumes and surface area requirements. The additional volume needed shall be based on the number and kind of cetaceans housed therein and shall be determined in the following manner.

(i) The minimum volume of water (space) required for up to two Group I

cetaceans is based upon the following formula:

Volume =

$$\left(\frac{2 \times \text{average adult length of the longest species of cetacean}}{2} \right)^2$$

× 3.14 × depth (½ body length or 5 feet, whichever is greater, or:

$$V = \left(\frac{2L}{2} \right)^2 \times 3.14 \times d.$$

Dividing this figure by 2 would give the volume required for each individual Group I cetacean of a specified average adult length. This is the figure which is to be used for each additional Group I cetacean when more than two are to be kept in a pool and more space is required. See Table I for required volumes.

(ii) The minimum volume of water required for up to four Group II cetaceans is based upon the following formula:

Volume =

$$\left(\frac{4 \times \text{average adult length of the longest species of cetacean}}{2} \right)^2$$

× 3.14 × depth (½ body length or 5 feet, whichever is greater), or:

$$V = \left(\frac{4L}{2} \right)^2 \times 3.14 \times d.$$

Dividing this figure by 4 would give the volume required for each individual Group II cetacean of a specified average adult length. This is the figure which is to be used for each additional Group II cetacean when more than four are to be kept in a pool and more space is required. See Table II for required volumes.

(iii) When a mixture of both Group I and Group II cetaceans are housed together, the MHD must be satisfied as stated in § 3.103(b)(1), and the minimum depth must be satisfied as stated in § 3.103(b)(2). Based on these figures, the resulting volume must then be calculated

$$\left(\frac{\text{MHD}}{2} \right)^2 \times 3.14 \times \text{depth}.$$

Then the volume necessary for the cetaceans to be housed in the pool must be calculated (by obtaining the sum of the volumes required for each animal). If this volume is greater than that obtained by using the MHD and depth figures, then the additional volume required may be added by enlarging the pool in its lateral dimensions or by increasing its depth, or both. The minimum surface area requirements discussed next must also be satisfied.

(4)(i) *The minimum surface area* requirements for each cetacean housed in a pool, regardless of Group I or Group II classification, are calculated as follows:

Surface Area =

$$\left(\frac{\text{average adult body length}}{2} \right)^2$$

× 3.14 × 1.5, or:

$$SA = \left(\frac{L}{2}\right)^2 \times 3.14 \times 1.5.$$

In a pool containing more than two Group I cetaceans or more than four Group II cetaceans,⁸ the additional surface area which may be required when animals are added must be calculated for each such animal.

(ii) When a mixture of Group I and Group II cetaceans are to be housed in a pool, the required MHD, depth, and volume must be met. Then the required surface area must be determined for each animal in the pool. The sum of these surface areas must then be compared to the surface area which is obtained by a computation based on the required MHD of the pool.⁹ The larger of the two figures represents the surface area which is required for a pool housing a mixture of Group I and Group II cetaceans. Pool surfaces where the depth does not meet the minimum requirements cannot be used in determining the required surface area.

(iii) Surface area requirements are given in Table IV.

$$SA = \pi \times \left(\frac{MHD}{2}\right)^2.$$

Table IV.—Minimum Surface Area Required for Each Cetacean

Average adult length of each cetacean		Surface area required for each cetacean	
Meters	Feet	Sq. meters ¹	Sq. feet
1.68	5.5	3.31	33.62
2.13	7.0	5.36	57.70
2.29	7.5	6.15	66.23
2.59	8.5	7.90	85.07
2.74	9.0	8.86	95.38
3.05	10.0	10.94	117.75
3.51	11.5	14.47	155.72
3.66	12.0	15.75	169.56
4.27	14.0	21.44	230.79
5.49	18.0	35.44	381.51
5.64	18.5	37.43	403.00
5.79	19.0	39.49	425.08
6.71	22.0	52.94	569.91
6.86	22.5	55.38	596.11
7.32	24.0	63.01	678.24
8.53	28.0	85.76	923.16

¹ Square meter = square feet × 0.8361

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⁸ A pool containing up to two Group I cetaceans or up to four Group II cetaceans which meets the required MHD and depth will have the necessary surface area and volume required for the animals contained therein.

⁹ Since the MHD represents the diameter of a circle, the surface area based on the MHD is calculated by use of the following formula:

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(c) *Sirenians*. Primary enclosures housing sirenians shall contain a pool of water and may consist entirely of a pool of water. The required MHD shall be the same as the MHD for Group I cetaceans. Calculations shall be based on the average adult length of such sirenians as measured from the tip of the muzzle to the notch in the tail fluke of dugongs and from the tip of the muzzle to the most distal point in the rounded tail of the manatee. Depth, volume, and surface area requirements shall be calculated in the same manner as for cetaceans. A pool which satisfies the required MHD and depth shall be adequate for one or two sirenians.

(d) *Pinnipeds*. (1) Primary enclosures housing pinnipeds shall contain a pool of water and a dry resting or social activity area that must be close enough to the surface of the water to allow easy access for entering or leaving the pool. (2) The minimum size of the dry resting or social activity area of the primary enclosure for pinnipeds (exclusive of the

pool of water) shall be based on the average adult length of each pinniped contained therein, as measured in a horizontal or extended position in a straight line from the tip of its nose to the tip of its tail.¹⁰ The minimum size of the dry resting and social activity area shall be computed using the following method: List all pinnipeds contained in a primary enclosure by average adult length in descending order from the longest species of pinniped to the shortest species of pinniped. Square the average adult length of each pinniped. Multiply the average adult length squared of the longest pinniped by 1.5, the second longest by 1.4, the third longest by 1.3, the fourth longest by 1.2, and the fifth longest by 1.1, as indicated in the following examples. Square the average adult length of the sixth pinniped and all additional pinnipeds. Add the figures obtained for all the pinnipeds in the primary enclosure to determine the required minimum dry resting and social activity area required for such pinnipeds.

1st pinniped (ave. adult length)² × 1.5 = resting and social activity area required.

2nd pinniped (ave. adult length)² × 1.4 = resting and social activity area required.

3rd pinniped (ave. adult length)² × 1.3 = resting and social activity area required.

4th pinniped (ave. adult length)² × 1.2 = resting and social activity area required.

5th pinniped (ave. adult length)² × 1.1 = resting and social activity area required.

Over 5 (ave. adult length)² × 1.0 = resting and social activity area required for each additional animal.

Total minimum dry resting and social activity area for all pinnipeds housed in a primary enclosure.

If all the pinnipeds in the primary enclosure are the same species, the same descending order of calculation shall apply. Example: California sea lions—average adult length of 8 feet.

1st sea lion—(8 feet)² × 1.5.

2nd sea lion—(8 feet)² × 1.4, etc.

(3) The minimum surface area of a pool of water for pinnipeds shall be two-thirds of the total minimum dry resting and social activity area required for the pinnipeds contained therein. The MHD of the pool shall be at least one and one-half (1.5) times the average adult length of the largest species of pinniped to be housed in the enclosure. The pool of water shall be at least 0.91 meters (3

feet) deep or one-half the average adult length of the longest species of pinniped contained therein, whichever is greater. Parts of the pool that do not meet minimum depth requirements cannot be used in the calculation of either the resting and social activity area or as part of the pool.

(e) *Polar bears*. Primary enclosures housing polar bears shall consist of a pool of water, a dry resting and social activity area, and a den. A minimum of 37.16 square meters (400 square feet) of dry resting and social activity area shall be provided for up to two polar bears, with an additional 3.72 square meters (40 square feet) of dry resting and social activity area for each additional polar bear. The dry resting and social activity area shall be provided with enough shade to accommodate all of the polar

¹⁰ Walker, E. P., *Mammals of the World*, Vol. II, 2nd Edition, John Hopkins Press, Baltimore, page 1283, 1968.

bears housed in such primary enclosure at the same time. The pool of water shall be at least 2.44 meters (8 feet) by 3.66 meters (12 feet) with a minimum depth of 1.52 meters (5 feet), with the exception of any entry and exit area. This size pool shall be adequate for two polar bears. For each additional bear, the surface area of the pool must be increased by 3.72 square meters (40 square feet). In measuring this additional surface area, parts of the pool which do not meet minimum depth cannot be considered. The den shall be at least 1.83 meters (6 feet) in width and depth and not less than 1.52 meters (5 feet) in height. It will be so positioned that the viewing public shall not be visible from the interior of the den. A separate den shall be provided for each adult female of breeding age which is permanently housed in the same primary enclosure with an adult male of breeding age. Female polar bears in traveling acts or shows must be provided a den when pregnancy has been determined.

(f) *Sea otters.* (1) Primary enclosures for sea otters shall consist of a pool of water and a dry resting area. The MHD of the pool of water for sea otters shall be at least twice the length of the average adult sea otter contained therein (measured from the tip of its nose to the tip of its tail) and the pool shall be not less than 0.91 meters (3 feet) deep. When more than two sea otters are housed in the same primary enclosure, additional dry resting area as well as pool volume is required to accommodate the additional sea otters (Table V).

(2) The minimum volume of water required for a primary enclosure pool for sea otters shall be based on the sea otter's average adult length. The minimum volume of water required in the pool shall be computed using the following method. Multiply the square of the sea otter's average adult length by 3.14 and then multiply the total by 0.91 meters (3 feet). This volume is satisfactory for one or two sea otters. For more than two sea otters, multiply one-half of the square of the sea otter's average adult length by 3.14, then multiply by 0.91 meters (3 feet) (Table V).

(3) The minimum dry resting area required for one or two sea otters shall be based on the sea otter's average adult length. The minimum dry resting area for one or two sea otters shall be computed using the following method. Square the length of the average adult sea otter and multiply the total by 3.14. When the enclosure is to contain more than two sea otters, the dry resting area

for each additional animal shall be computed by multiplying one-half of the sea otter's average adult length by 3.14. Using 6.5 feet (the average adult length of a sea otter) the calculations for additional space will result in the following figures.

Table V.—Additional space required for each sea otter when more than two in a primary enclosure

Average adult length of sea otter		Resting area		Pool volume	
Meters	Feet	Square meters	Square feet	Cubic meters	Cubic feet
1.98	6.5	6.16	66.33	5.63	199.00

Animal Health and Husbandry Standards

§ 3.105 Feeding.

(a) The food for marine mammals shall be wholesome, palatable, and free from contamination, and shall be of sufficient quantity and nutritive value to maintain all of the marine mammals in a state of good health. The diet shall be prepared with consideration for age, species, condition, size, and type of marine mammal being fed. Marine mammals shall be offered food at least once a day, except as directed by veterinary treatment or professionally accepted practices.

(b) Food receptacles, if used, shall be located so as to be accessible to all marine mammals in the same primary enclosure and shall be placed so as to minimize contamination of the food contained therein. Such food receptacles shall be cleaned and sanitized after each use.

(c) Food, when given to each marine mammal individually, shall be given by an employee or attendant responsible to management who has the necessary knowledge to assure that each marine mammal receives an adequate quantity of food to maintain it in good health. Such employee or attendant is required to have the ability to recognize deviations from a normal state of good health in each marine mammal so that the food intake can be adjusted accordingly. Public feeding shall be only permitted if it is done in the presence and under the supervision of a uniformed employee or attendant. Such employee or attendant must assure that the marine mammals are receiving the proper amount and type of food. Only food supplied by the facility where the marine mammals are kept shall be fed to such mammals by the public.

(d) Food preparation and handling shall be conducted so as to minimize bacterial or chemical contamination and

to assure the wholesomeness and nutritive value of the food. Frozen fish or other frozen food shall be stored in freezers which are maintained at a maximum temperature of -18°C . (0°F). The length of time food is stored and the method of storage, as well as the thawing of frozen food, shall be conducted in a manner which will minimize contamination and which will assure that the food retains nutritive value and wholesome quality. The thawed product shall be kept iced or refrigerated until a reasonable time before feeding. All foods shall be fed to the marine mammals within 24 hours following the removal of such foods from the freezers for thawing.

§ 3.106 Water quality.

(a) *General.* The primary enclosure shall not contain water which would be detrimental to the health of the marine mammal contained therein.

(b) *Bacterial standards.* (1) The coliform bacteria count of the primary enclosure pool shall not exceed 1,000 MPN (most probable number) per 100 ml. of water. Should a coliform bacterial count exceed 1,000 MPN, two subsequent samples may be taken at 48-hour intervals and averaged with the first sample. If such average count does not fall below 1,000 MPN, then the water in the pool shall be deemed unsatisfactory, and the condition must be corrected immediately.

(2) When the water is chemically treated, the chemicals shall be added so as not to cause harm or discomfort to the marine mammals.

(3) Water samples shall be taken and tested at least weekly for coliform count and at least daily for pH and any chemical additives (e.g. chlorine and copper) that are added to the water to maintain water quality standards. Facilities using natural seawater shall be exempt from pH and chemical testing unless chemicals are added to maintain water quality. However, they are required to test for coliforms. Records must be kept documenting the time when all such samples were taken and the results of the sampling. Records of all such test results shall be maintained by management for a 1-year period and must be made available for inspection purposes on request.

(c) *Salinity.* Primary enclosure pools of water shall be salinized for marine cetaceans as well as for those other marine mammals which require salinized water for their good health and well-being. The salinity of the water in such pools shall be maintained within a range of 15–36 parts per thousand.

(d) *Filtration and water flow.* Water quality must be maintained by filtration, chemical treatment, or other means so as to comply with the water quality standards specified in this section.

§ 3.107 Sanitation.

(a) *Primary enclosures.* (1) Animal and food waste in areas other than the pool of water shall be removed from the primary enclosure at least daily, and more often when necessary to prevent contamination of the marine mammals contained therein and to minimize disease hazards.

(2) Particulate animal and food waste, trash, or debris that enter the primary enclosure pool of water shall be removed as often as necessary to maintain the required water quality and to prevent health hazards to the marine mammals contained therein.

(3) The wall and bottom surfaces of the primary enclosure pool of water shall be cleaned as often as necessary to maintain proper water quality.

(b) *Food preparation areas and food receptacles.* Containers, such as buckets, tubs, and tanks, as well as utensils, such as knives and cutting boards, or any other equipment which has been used for holding, thawing or preparing food for marine mammals shall be cleaned and sanitized after each feeding, if the marine mammals are fed once a day, and at least daily if the marine mammals are fed more than once a day. Kitchens and other food handling areas where animal food is prepared shall be cleaned at least once daily and sanitized at least once every week. Sanitizing shall be accomplished by washing with hot water (82° C., 180° F., or higher) and soap or detergent in a mechanical dishwasher, or by washing all soiled surfaces with a detergent solution followed by a safe and effective disinfectant, or by cleaning all soiled surfaces with live steam. Substances such as cleansing and sanitizing agents, pesticides, and other potentially toxic agents must be stored in properly labeled containers away from food preparation surface areas.

(c) *Housekeeping.* Buildings and grounds, as well as exhibit areas, shall be kept clean and in good repair. Fences shall be maintained in good repair. Primary enclosures housing marine mammals shall not have any loose objects, sharp projections, and/or edges which may cause injury or trauma to the marine mammals contained therein.

(d) *Pest control.* A safe and effective program for the control of insects, ectoparasites, and avian and mammalian pests shall be established and maintained. Insecticides or other

such chemical agents shall not be applied in a primary enclosure housing marine mammals except when deemed essential by an attending veterinarian.

§ 3.108 Employees or attendants.

A sufficient number of adequately trained employees or attendants responsible to management shall be utilized to maintain the prescribed level of husbandry practices set forth in this subpart. Such practices shall be conducted under the supervision of a marine mammal caretaker who has a background in marine mammal husbandry and care. Training of marine mammals shall be done by or under the direct supervision of experienced trainers without physical punishment or abuse being used or inflicted upon the marine mammals.

§ 3.109 Separation.

Marine mammals which are not compatible shall not be housed in the same enclosure. Marine mammals shall not be housed near animals that would cause them stress or discomfort, or interfere with their good health. Captive marine mammals must be given access to other animals except when they are temporarily maintained in isolation for such purposes as medical treatment or training and given special attention.

§ 3.110 Veterinary care.

(a) Programs of disease prevention, parasite control, euthanasia, and adequate veterinary care for all marine mammals shall be established and maintained under the supervision of an attending veterinarian.

(b) Marine mammals shall be observed daily by the person in charge of the care of the marine mammals or by someone working under his direct supervision. Sick or diseased, stressed, injured, or lame marine mammals shall be provided with adequate veterinary care or humanely destroyed, when necessary, unless such action is inconsistent with the research purposes for which the marine mammal was obtained and is being held.

(c)(1) In the case of a research facility, the program of adequate veterinary care shall include the appropriate use of anesthetic, analgesic, for tranquilizing drugs, when such use would be proper in the opinion of the attending veterinarian of the research facility. The use of these three classes of drugs shall be in accordance with currently accepted veterinary medical practices. The drugs used shall be those which are expected to produce in the individual subject animal as high a level of tranquilization, anesthesia, or analgesia

as is consistent with the protocol or design of the experiment.

(2) It shall be incumbent upon each research facility through its Animal Care Committee and attending veterinarian to provide guidelines and consultation to research personnel with respect to the type and amount of tranquilizers, anesthetics, or analgesics recommended as being appropriate for each species of marine mammals used by that institution.

(d) Newly acquired marine mammals shall be isolated from resident marine mammals until such newly acquired marine mammals can be reasonably determined to be in good health. Any communicable disease condition in a newly acquired marine mammal must be remedied before it is placed with other resident marine mammals.

(e) Any primary enclosure containing a marine mammal with an infectious or contagious disease shall be cleaned and sanitized in the manner prescribed by the attending veterinarian. No additional animals shall be introduced into the primary enclosure prior to such cleaning and sanitizing procedures. Any marine mammal exposed to a diseased animal shall be isolated for observation for an appropriate period of time as determined by the attending veterinarian.

(f) Temporary holding facilities with adequately and properly designed pools, tanks, restraining devices or primary enclosures shall be provided for isolation, medication, treatment, and other purposes such as transfer and training of marine mammals. The pools, tanks and primary enclosures may be less than minimum size in both lateral dimensions and depth when used in special situations when prescribed by the professional staff for temporary usage.

(g) A complete necropsy must be conducted by or under the direct supervision of a veterinarian on all marine mammals that die in captivity. A necropsy report must be prepared by the veterinarian listing all pathologic lesions observed and giving the apparent cause of death. All diagnostic tests conducted on post mortem specimens shall be listed in the report, and the results of each test recorded. The management of the facility, at which the marine mammal died, must maintain these necropsy records for a period of 3 years and present them to Department inspectors when requested.

§ 3.111 Handling.

(a) Handling marine mammals shall be done as expeditiously and carefully as possible in a manner that does not

cause unnecessary discomfort, overheating, behavioral stress, or physical harm. Care should also be exercised to avoid harm to the handlers of such marine mammals.

(b) Marine mammals shall only be displayed for periods of time and under conditions consistent with their good health, and well-being. A responsible uniformed employee or attendant must be present at all times during periods of public contact.

(c) During public display, all marine mammals must be handled so that there is minimal risk of harm to the public or the marine mammal, with sufficient distance allowed, or barriers placed between the marine mammal and the viewing public to assure safety to both the public and the marine mammal. Performing marine mammals shall be allowed a rest period between performances at least equal to the time for one performance.

Transportation Standards

§ 3.112 Consignments to carriers and intermediate handlers.

(a) Carriers and intermediate handlers shall not accept any marine mammal presented by any dealer, research facility, exhibitor, operator of an auction sale, or other person, or any department, agency, or instrumentality of the United States or any State or local government for shipment, in commerce, more than 4 hours prior to the scheduled departure of the primary conveyance on which it is to be transported: *Provided, however*, That the carrier or intermediate handler and any dealer, research facility, exhibitor, operator of an auction sale, or other person, or any department, agency, or instrumentality of the United States or any State or local government may mutually agree to extend the time of acceptance to not more than 6 hours if specific prior scheduling of the animal shipment to destination has been made.

(b) Any carrier or intermediate handler shall only accept for transportation or transport, in commerce, any marine mammal in a primary enclosure which conforms to the requirements set forth in § 3.113 of the standards: *Provided, however*, That any carrier or intermediate handler may accept for transportation or transport, in commerce, any marine mammal consigned by any department, agency, or instrumentality of the United States having laboratory animal facilities or exhibiting animals or any licensed or registered dealer, research facility, exhibitor, or operator of an auction sale if the consignor furnishes to the carrier or intermediate handler a certificate,

signed by the consignor, stating that the primary enclosure complies with § 3.113 of the standards, unless such primary enclosure is obviously defective or damaged and it is apparent that it cannot reasonably be expected to contain the marine mammal without causing suffering or injury to such marine mammal. A copy of such certificate shall accompany the shipment to destination. The certificate shall include at least the following information:

- (1) Name and address of the consignor;
- (2) The number of animals in the primary enclosure(s);
- (3) A certifying statement (e.g., "I hereby certify that the ——— (number) primary enclosure(s) which are used to transport the animal(s) in this shipment complies (comply) with USDA standards for primary enclosures (9 CFR Part 3)."); and
- (4) The signature of the consignor, and date.

(c) Carriers or intermediate handlers whose facilities fail to meet the minimum temperature allowed by the standards may accept for transportation or transport, in commerce, any marine mammal consigned by any department, agency, or instrumentality of the United States having laboratory animal facilities or exhibiting animals or any licensed or registered dealer, research facility, exhibitor, or operator of an auction sale if the consignor furnishes to the carrier or intermediate handler a certificate executed by a licensed veterinarian on a specified date which shall not be more than 10 days prior to delivery of such animal for transportation in commerce, stating that such marine mammal is acclimated to lower air temperatures than prescribed in §§ 3.117 and 3.118. A copy of such certificate shall accompany the shipment to destination. The certificate to include at least the following information:

- (1) Name and address of the consignor;
- (2) The number of animals in the shipment;
- (3) A certifying statement (e.g., "I hereby certify that the animal(s) in this shipment is (are), to the best of my knowledge, acclimated to air temperatures lower than 7.2° C. (45° F.); and
- (4) The signature of the licensed veterinarian, and date.

(d) Carriers and intermediate handlers shall attempt to notify the consigned at least once in every 6-hour period following the arrival of any marine mammals at the animal holding area of

the terminal cargo facility. The time, date, and method of each attempted notification and the final notification to the consignee and the name of the person notifying the consignee shall be recorded on the copy of the shipping document retained by the carrier or intermediate handler and on a copy of the shipping document accompanying the animal shipment.

§ 3.113 Primary enclosures used to transport marine mammals.

No dealer, research facility, exhibitor, or operator of an auction sale shall offer for transportation or transport, in commerce, any marine mammal in a primary enclosure which does not conform to the following requirements:

- (a) Primary enclosures, which are used to transport marine mammals other than cetaceans and sireniens, shall (1) be constructed from materials of sufficient structural strength to contain the marine mammals; (2) be constructed from material that is durable, nontoxic, and cannot be chewed and/or swallowed; (3) be able to withstand the normal rigors of transportation; (4) have interiors which are free from any protrusions that could be injurious to the marine mammals contained therein; (5) be constructed so that no parts of the contained marine mammals shall be exposed to the outside of the enclosures in such a way which may cause injury to the animals or to persons who are nearby or who handle the enclosures; (6) have openings which provide access into the enclosures which shall be secured with locking devices of a type which cannot be accidentally opened; (7) have such openings located in a manner which makes them easily accessible at all times for emergency removal of any live marine mammal contained therein; (8) have air inlets at heights which will provide cross ventilation at all levels (particularly when the marine mammals are in a prone position) and located on all four sides of the enclosures, and such ventilation openings shall be not less than 16 percent of the total surface area of each side of the enclosures; (9) have projecting rims or other devices placed on the ends and sides of any enclosures which have ventilation openings to provide a minimum air circulation space of 1.9 centimeters (0.75 inches) between the enclosures and any adjacent cargo or conveyance wall; and (10) be equipped with adequate handholds or other devices on the exterior of the enclosures which shall enable them to be lifted without unnecessary tilting and which will ensure that the persons handling the enclosures will not come in

contact with any marine mammal contained therein.

(b) Straps, slings, harnesses, or other devices, if used for body support or restraint, when transporting marine mammals such as cetaceans and sirenians shall (1) be designed so as not to prevent access to such mammals by attendants during transportation for the purpose of administering in transit care; (2) be equipped with special padding to prevent trauma or injury at critical weight pressure points on the body of the marine mammals; and (3) be capable of keeping the animals from thrashing about and causing injury to themselves or their attendants, and yet be adequately designed so as not to cause injury to the animals.

(c) Primary enclosures used to transport live marine mammals shall be large enough to assure that (1) in the case of polar bears and sea otters, there is sufficient space to turn about freely in a stance whereby all four feet are on the floor and the animal can sit in an upright position and lie in a natural position; (2) in the case of pinnipeds, each animal has sufficient space to lie in a natural position; and (3) in the case of cetaceans and sirenians, each animal has sufficient space for support of its body in slings, harnesses, or other supporting devices, if used (as prescribed in paragraph (b) of this section) without causing injury to such cetaceans or sirenians due to contact with the primary enclosure: *Provided, however,* That certain species may be restricted in their movements according to professionally acceptable standards when such freedom of movement would constitute a danger to the animals, their handlers, or other persons.

(d) Marine mammals transported in the same primary enclosure shall be of the same species and maintained in compatible groups. Marine mammals which have not reached puberty shall not be transported in the same primary enclosure with adult marine mammals other than their dams. Socially dependent animals (e.g., sibling, dam, and other members of a family group) must be allowed visual and olfactory contact. Female marine mammals shall not be transported in the same primary enclosure with any mature male marine mammals.

(e) Primary enclosures used to transport marine mammals as provided in this section shall have solid bottoms to prevent leakage in shipment and shall be cleaned and sanitized in a manner prescribed in § 3.107 of the standards, if previously used. Such primary enclosures shall contain clean litter of a suitable absorbent material, which is

safe and nontoxic to the marine mammals contained therein, in sufficient quantity to absorb and cover excreta, unless the animals are on wire or other nonsolid floors.

(f) Primary enclosures used to transport marine mammals, except where such primary enclosures are permanently affixed in the animal cargo space of the primary conveyance, shall be clearly marked on top and on one or more sides with the words "Live Animal" or "Wild Animal", whichever is appropriate, in letters not less than 2.5 centimeters (1 inch) in height, and with arrows or other markings, to indicate the correct upright position of the container.

(g) Documents accompanying the shipment shall be attached in an easily accessible manner to the outside of a primary enclosure which is part of such shipment.

(h) When a primary enclosure is permanently affixed within the animal cargo space of the primary conveyance so that the front opening is the only source of ventilation for such primary enclosure, the front opening shall open directly to the outside or to an unobstructed aisle or passageway within the primary conveyance. Such front ventilation opening shall be at least 90 percent of the total surface area of the front wall of the primary enclosure and covered with bars, wire mesh, or smooth expanded metal.

§ 3.114 Primary conveyances (motor vehicle, rail, air and marine).

(a) The animal cargo space of primary conveyances used in transporting live marine mammals shall be constructed in a manner which will protect the health and assure the safety and comfort of the marine mammals contained therein at all times.

(b) The animal cargo space shall be constructed and maintained in a manner which will prevent the ingress of engine exhaust fumes and gases in excess of that ordinarily contained in the passenger compartments.

(c) No marine mammal shall be placed in an animal cargo space that does not have a supply of air sufficient for normal breathing for each live animal contained therein, and the primary enclosures shall be positioned in the animal cargo spaces of primary conveyances in such a manner that each marine mammal contained therein shall have access to sufficient air for normal breathing.

(d) Primary enclosures shall be positioned in primary conveyances in such a manner that in an emergency the live marine mammals can be removed from the conveyances as soon as possible.

(e) The interiors of animal cargo spaces in primary conveyances shall be kept clean.

(f) Live marine mammals shall not knowingly be transported with any material, substance or device which may be injurious to the health and well-being of such marine mammals unless proper precaution is taken to prevent such injury.

§ 3.115 Food and water requirements.

(a) Those marine mammals which require drinking water shall be offered potable water within 4 hours prior to being transported in commerce or offered for transportation in commerce. Such marine mammals shall be watered as often as necessary and appropriate to the species involved to prevent excessive dehydration which would jeopardize the good health and well-being of the animals.

(b) Marine mammals shall not be transported for more than a period of 36 hours without being offered food. When an employee or attendant is required to accompany a shipment of marine mammals, as provided in § 3.116 of these standards, such marine mammals shall be fed during transit when necessary to provide for their good health and well-being.

§ 3.116 Care in transit.

(a) An employee or attendant of the shipper or receiver of any marine mammal being transported, in commerce, knowledgeable in the area of marine mammal care, shall accompany cetaceans, sirenians, and sea otters during periods of transportation to provide for their good health and well-being, to observe such marine mammals and to determine whether they need veterinary care and to obtain any needed veterinary care as soon as possible.

(b) An employee or attendant of the shipper or receiver of cetaceans or sirenians being transported, in commerce, shall provide for such cetaceans and sirenians during periods of transport by (1) keeping the skin moist with intermittent spraying of water or protecting it by applying a nontoxic emollient, such as lanolin, to prevent drying of the skin; (2) assuring that the pectoral flippers shall be allowed freedom of movement at all times; (3) making adjustments in the position of such marine mammals when necessary to prevent necrosis of the skin at weight pressure points; and (4) calming such marine mammals to avoid struggling, thrashing, and other unnecessary activity which may cause overheating or physical trauma. No

cetacean or sirenian in need of veterinary care shall be transported in commerce, unless such transportation is for the purpose of obtaining such care.

(c) Not less than one-half of the floor area in a primary enclosure used to transport sea otters shall be leakproof and shall contain sufficient crushed ice or ice water to provide each sea otter contained therein with moisture necessary to allow each sea otter to maintain its hair coat by preventing it from drying and to minimize soiling of the hair coat with urine and fecal material. No sea otter in need of veterinary care shall be transported in commerce, unless such transportation is for the purpose of obtaining such care.

(d) Polar bears and pinnipeds need not be accompanied by an employee or attendant of the shipper or receiver, unless the period of transportation will exceed 24 hours in duration. During surface transportation, it shall be the responsibility of the carrier to inspect polar bears and pinnipeds unaccompanied by an employee or attendant at least every 4 hours to determine whether they need veterinary care and to provide any needed veterinary care as soon as possible. When transported by air, live polar bears and pinnipeds, unaccompanied by an employee or attendant, shall be inspected by the carrier at least every 4 hours if the animal cargo space is accessible during flight. If the animal cargo space is not accessible during flight, the air carrier shall inspect such live unattended pinnipeds and polar bears whenever loaded and unloaded and whenever the animal cargo space is otherwise accessible to determine whether such unattended live animals need veterinary care, and the carrier shall provide any needed veterinary care as soon as possible. No polar bear or pinniped in need of veterinary care shall be transported in commerce, unless such transportation is for the purpose of obtaining such care.

(e) Wild or otherwise dangerous marine mammals shall not be taken from their primary enclosure except under extreme emergency conditions and then only by their trainer or other person who is capable of handling such mammals safely.

§ 3.117 Terminal facilities.

Carriers and intermediate handlers shall not commingle marine mammal shipments with inanimate cargo. All animal holding areas of a terminal facility of any carrier or intermediate handler wherein marine mammal shipments are maintained shall be cleaned and sanitized in a manner prescribed in § 3.107 of the standards often enough to prevent an

accumulation of debris or excreta, to minimize vermin infestation, and to prevent a disease hazard. An effective program for the control of insects, ectoparasites, and avian and mammalian pests shall be established and maintained for all animal holding areas. Any animal holding area containing marine mammals shall be provided with fresh air by means of windows, door, vents, or air conditioning and may be ventilated or air circulated by means of fans, blowers, or an air conditioning system so as to minimize drafts, odors, and moisture condensation. Auxiliary ventilation, such as exhaust fans and vents or fans or blowers or air conditioning shall be used for any animal holding area containing marine mammals when the air temperature within such animal holding area is 23.9° C. (75° F.) or higher. The air temperature around any marine mammal in any animal holding area shall not be allowed to fall below 7.2° C. (45° F.) nor be allowed to exceed 29.5° C. (85° F.) at any time: *Provided, however*, That no marine mammal shall be subjected to surrounding air temperatures which exceed 23.9° C. (75° F.) for more than 4 hours at any time. To ascertain compliance with the provisions of this paragraph, the air temperature around any marine mammal shall be measured and read outside the primary enclosure which contains such animal at a distance not to exceed .91 meters (3 feet) from any one of the external walls of the primary enclosure and on a level parallel to the bottom of such primary enclosure at a point which approximates half the distance between the top and bottom of such primary enclosure.

§ 3.118 Handling.

(a) Carriers and intermediate handlers shall move marine mammals from the animal holding area of the terminal facility to the primary conveyance and from the primary conveyance to the animal holding area of the terminal facility as expeditiously as possible. Carriers and intermediate handlers holding any marine mammal in an animal holding area of a terminal facility or in transporting any marine mammal from the animal holding area of the terminal facility to the primary conveyance and from the primary conveyance to the animal holding area of the terminal facility, including loading and unloading procedures, shall provide the following:

(1) *Shelter from sunlight.* When sunlight is likely to cause overheating or discomfort, sufficient shade shall be provided to protect the marine mammals from the direct rays of the sun and such

marine mammals shall not be subjected to surrounding air temperatures which exceed 29.5° C. (85° F.), and which shall be measured and read in the manner prescribed in § 3.117 of this Part, for a period of more than 45 minutes.

(2) *Shelter from rain or snow.* Marine mammals shall be provided protection to allow them to remain dry during rain. No protection from snow is required for marine mammals which can tolerate cold weather conditions.

(3) *Shelter from cold weather.* Transporting devices shall be covered to provide protection for marine mammals when the outdoor air temperature falls below 10° C. (50° F.) and such marine mammals shall not be subjected to surrounding air temperatures which fall below 7.2° C. (45° F.), and which shall be measured and read in the manner prescribed in § 3.117 of this Part, for a period of more than 45 minutes unless such animals are accompanied by a certificate of acclimation to lower temperatures as prescribed in § 3.112(c).

(b) Care shall be exercised to avoid handling of the primary enclosure in such a manner that may cause physical or emotional trauma to the marine mammal contained therein.

(c) Primary enclosures used to transport any marine mammal shall not be tossed, dropped, or needlessly tilted and shall not be stacked in a manner which may reasonably be expected to result in their falling.

§ 3.119—3.124 [Reserved]

It does not appear that further public participation in this rulemaking proceeding would make additional relevant information available to the Department.

Accordingly, under the administrative procedure provisions in 5 U.S.C. 553, it is found upon good cause that further notice and other public procedure with respect to these amendments are impracticable and unnecessary.

Note.—This final rule has been reviewed under the USDA criteria established to implement Executive Order 12044, "Improving Government Regulations," and has been classified "significant." An Approved Final Impact Statement is available from the Deputy Administrator, USDA, APHIS, VS, Room 703, Federal Building, 6505 Belcrest Road, Hyattsville, MD 20782.

Done at Washington, D.C., this 19th day of June, 1979.

M. T. Goff,
Acting Deputy Administrator, Veterinary Services.

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