

# ADMINISTRATION AND STATUS REPORT OF THE MARINE MAMMAL PROTECTION ACT OF 1972

June 22, 1976 to June 21, 1977



DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

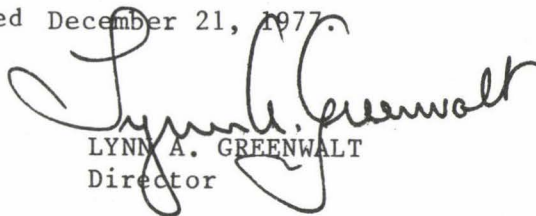
MARINE MAMMAL PROTECTION ACT

Report of the Department of the Interior

The Marine Mammal Protection Act of 1972 (16 U.S.C. 1361, 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 June 22, 1976, to June 21, 1977, on the administration of the Act with regard to those mammals.

Issued at Washington, D.C., and dated December 21, 1977.

  
LYNN A. GREENWALT  
Director

ADMINISTRATION OF THE MARINE MAMMAL PROTECTION ACT OF 1972

June 22, 1976, to June 21, 1977

Report of the Department of the Interior

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Prepared by  
U.S. Fish and Wildlife Service  
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# Administration of the Marine Mammal Protection Act of 1972

June 22, 1976, to June 21, 1977

## 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 June 22, 1976, through June 21, 1977, 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. The Act prescribes extensive consultative roles for the Commission and the Committee with the Secretaries of the Interior and Commerce. Contact with the Commission, through its staff, is on an almost daily basis. The formal review 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.

Richard A. Cooley, Santa Cruz, Calif. Dr. Cooley is the Academic Assistant to the Chancellor at the University of California, Santa Cruz, Calif.

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

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

#### CONGRESSIONAL HEARING

The Honorable Robert L. Leggett, Chairman of the House Subcommittee on Fisheries and Wildlife Conservation and the Environment, called a hearing on March 15, 1977, on H.R. 4740. This bill proposed extending the appropriation authorization of sections 110(c) (research) and 114(b) (administration) of the Marine Mammal Protection Act for fiscal year 1978. George W. Miliias, Deputy Director of the Fish and Wildlife Service, testified before the subcommittee and answered questions on the Service's funding under the Act and on its enforcement and marine mammal research activities.

## PART I--ADMINISTRATIVE ACTIONS

### MARINE MAMMAL PROTECTION ACT AMENDED BY FISHERY CONSERVATION AND MANAGEMENT ACT

On March 1, 1977, section 404 of the Fishery Conservation and Management Act of 1976 (16 U.S.C. 1362 note, 90 Stat. 360) took effect, changing the definition of "waters under the jurisdiction of the United States" in section 3(15)(B) of the Marine Mammal Protection Act (MMPA) to encompass the waters within the newly established U.S. fishery conservation zone. Thus, rather than applying to a 12-nautical-mile-wide offshore zone, the MMPA now applies to a 200-nautical-mile-wide zone.

Specifically, the amendment struck from the MMPA reference to "the fisheries zone established pursuant to the Act of October 14, 1966," and replaced it with

"the waters included within a zone, contiguous to the territorial sea of the United States, of which the inner boundary is a line coterminous with the seaward boundary of each coastal State, and the outer boundary is a line drawn in such a manner that each point on it is 200 nautical miles from the baseline from which the territorial sea is measured."

### MARINE OTTER

On June 16, 1977, the Service proposed adding the marine otter of Chile and Peru (*Lutra felina*) to the list of species designated as marine mammals for purposes of the MMPA. The proposal was published in the Federal Register (42 F.R. 30659--see appendix A). Although the marine otter was already listed as an endangered species and therefore protected by the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), the proposed listing would afford the species additional protection.

### WAIVER OF THE MORATORIUM FOR NINE SPECIES OF MARINE MAMMALS

In 1973, the State of Alaska applied to the Secretary of the Interior to waive the moratorium and return to the State management of Alaskan populations of polar bears, sea otters, and walrus. At the same time, the Secretary of Commerce received a similar request for northern sea lions, harbor and spotted seals, ringed seals, bearded seals, ribbon seals, and beluga whales. The Fish and Wildlife Service (FWS) and National Marine Fisheries Service (NMFS) are cooperatively considering



the requests for their respective agencies, and in March 1976 they submitted a jointly prepared draft environmental impact statement and proposed regulations to the Council on Environmental Quality.

Public hearings on the proposed action and the State's regulations began on June 29-July 1, 1976, in Anchorage, Alaska, under the direction of Administrative Law Judge Malcolm P. Littlefield of the Department of the Interior's Office of Hearings and Appeals. To obtain the broadest possible testimony of all concerned parties, the hearings continued on July 6-9 in Nome and on July 12-13 in Bethel. On July 14-20 they reconvened in Anchorage, and on October 19-20 they concluded in Washington, D.C. On the basis of the recommendations of the administrative law judge and the hearing record, the FWS and NMFS Directors will make their decisions on this waiver action in early 1978.

#### WALRUS WAIVER

In 1975, the walrus part of Alaska's 1973 request to waive the moratorium and return management to the State was severed from the original petition, and appropriate procedures were developed to treat the walrus waiver as a separate action--although one still subject to review when the overall waiver request is acted on. After all prescribed steps had been completed and the requirements satisfied, the Service implemented the walrus waiver and returned management of the species to the State on April 5, 1976.

During the current report period, the Service received the first annual report on the State's walrus management program and approved two requested changes in the State's walrus hunting regulations. The annual report was received on June 6, 1977, and is being reviewed by the Service and the Marine Mammal Commission. On October 13, 1976, the Director approved a change in the minimum rifle caliber and cartridge-case characteristics permitted for hunting walrus (41 F.R. 44875--see appendix B). On May 20, 1977, he approved more restrictive walrus hunting seasons, bag limits, and maximum quotas by game management units and specific locations; these changes were requested to stabilize the walrus kill significantly below the levels of the annual take during the past few years (42 F.R. 25924--see appendix C).

#### LEGAL ACTIONS AGAINST THE DEPARTMENT OF THE INTERIOR

On February 11, 1977, residents of Togiak, Alaska, entered class civil action No. 77-0264 in the Federal District Court for the District of Columbia on behalf of themselves and other Alaska Natives living in the Bristol Bay area of southwest Alaska. The plaintiffs charged the defendants--the United States, Secretary of the Interior Cecil D. Andrus,

and the Director of the Fish and Wildlife Service--with violating their rights and failing to perform statutory responsibilities. Specifically, they requested declaratory relief to void the regulations that removed the exemption for Alaska Natives from the provisions of the MMPA-- regulations that were promulgated relative to the walrus waiver mentioned earlier in this report. The Department of Justice answered the complaint on May 28 and will file a motion to dismiss later in 1977.

#### ENFORCEMENT

U.S. Fish and Wildlife Service special agents initiated 236 marine mammal cases during the report period. One hundred and twenty-seven of these cases, primarily sealskin importations, were referred to the National Marine Fisheries Service after FWS agents made initial investigations and seizures of illegal importations. A total of 231 cases were closed, while 98 are pending. Most of the pending cases involve routine checks of gift shops for intelligence purposes and to ascertain if MMPA violations are occurring.

A partial breakdown of investigations by animal type is as follows: Polar bear, 18; sea otter, 4; walrus, 10; manatee, 4; seal, 160; and whale, 13.

#### 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 101(a)(1) of the Act and section 18.31 of the Code of Federal Regulations, which govern the taking and importing of marine mammals under Fish and Wildlife 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.

The Fish and Wildlife Service received eight permit applications during this report period. Seven new permits and five amendments to new or existing permits were issued; one application was denied; and seven applications are pending. The permits issued or amended are summarized below:



## Scientific Research Permit Applications

To capture not more than 35 adult sea otters (Enhydra lutris) in Alaska for purposes of weighing and sexing, marking with human hair dye and (or) flipper tags, attaching telemetric radio devices, and taking blood samples; to capture not more than 20 adult sea otters in California for purposes of weighing and sexing, marking with human hair dye and (or) flipper tags, attaching telemetric radio devices of the type used on the otters captured in Alaska--but only after all transmitter problems on the Alaska animals have been solved, and taking blood samples. (Dr. Donald B. Siniff, University of Minnesota, St. Paul, Minn.) Permit No. 2-122-10 was issued on July 12, 1976; it expires on December 31, 1977. An amendment to this permit was issued on October 22, 1976, authorizing exposing no more than 10 of the otters taken in Alaska to applications of oil provided that the animals are maintained in a tank rather than the open water during experimentation, the tank contains a haul-out raft or platform, and these activities are coordinated with the Sea Otter Working Group.

To capture three Florida manatees (Trichechus manatus); to hold them for scientific research at its facilities; to release them at or near their capture site after completion of study or permitted activity; to salvage and care for any manatees found injured or dead and any injured or killed owing to the permitted activity, preserving dead specimens for scientific research; and to coordinate authorized activities with the Gainesville Field Station, National Fish and Wildlife Laboratory. (Aquatic Institute of Research, Inc., Cape Coral, Fla.) Permit No. 2-87 was issued on September 8, 1976; it was scheduled to expire on December 31, 1977. An amendment to this permit was issued on October 22, 1976, extending its expiration date to December 31, 1980, and changing the type of permit to "Marine Mammal and Endangered Species."

To capture not more than 100 polar bears (Ursus maritimus) by means of culvert traps, footsnare, and dart gun drugging for purposes of marking with ear tags and lip tattoos, attaching radio-telemetry collar equipment, taking blood samples and one premolar from each animal, and keeping the animals in captivity at the Manitoba laboratory for observational behavior studies. (Dr. Charles J. Jonkel, School of Forestry, University of Montana, Missoula, Mont.) Permit No. 2-260-10 was issued on January 27, 1977; it expires on December 31, 1978.

An amendment to permit No. 9-25-C (issued on September 25, 1975, to Dr. Howard W. Campbell, National Fish and Wildlife Laboratory Field Station, Gainesville, Fla., to develop and implement tagging techniques for West Indian manatees--Trichechus manatus) was issued on March 23, 1977. The amendment authorized maintaining 1 or 2 of the tagged animals in captivity for as long as 1 year to evaluate tagging methods, after which they are

to be released and monitored in the wild; spaghetti or paint tagging up to 25 wild manatees; attaching sonic tags to as many as 10 wild manatees, provided that only 2 animals be so tagged at a time so that effects and results may be reported and evaluated before 2 more animals are tagged, and provided further that sonic tagging be suspended if a tagged animal dies and remain suspended until the Director determines that tagging should continue; and conducting nonharmful studies on respiratory water loss, total body water, metabolic rate, and milk production and content.

To capture, tag (with plastic flipper tags instead of aluminum tags), and release (at or near the capture site) up to 16 California sea otters (Enhydra lutris), as many as 8 of which may be fitted with radio-telemetry collars that will have corrosible attachment mechanisms to ensure that they fall off after a fixed period of time; collars will not be attached to large adult males. (University of California, Department of Biology, Los Angeles, Calif.) Permit No. 2-486-10,07 was issued on May 11, 1977; it expires on August 31, 1978.

To capture, transport, and sacrifice one polar bear cub for purposes of scientific research. (Jack W. Lentfer, National Fish and Wildlife Laboratory, Anchorage, Alaska) Permit No. 2-454-10 was issued on June 1, 1977; it expires on December 31, 1979.

To take 20 adult sea otters (Enhydra lutris nereis); to attach to them identifying flipper tags and, to their flippers, radio transmitters; and to sex and weigh them. (Dr. Donald B. Siniff, Ecology Department, University of Minnesota, Minneapolis, Minn.) Permit No. 2-650-10,26 was issued on June 2, 1977; it expires on June 30, 1978.

#### Public Display and Scientific Research Permit Application

To capture in California one male and four female subadult (1-1/2 to 3 years old) sea otters (Enhydra lutris) and to transport them to Seattle Aquarium. (The Seattle Aquarium, City of Seattle Department of Parks and Recreation, Seattle, Wash., H. Doug Kemper, Jr., Director) Permit No. 2-90-10,11 was issued on August 10, 1976; it was scheduled to expire on February 28, 1977.

An amendment to this permit was issued on August 18, 1976, changing the authorized capture site from California to Alaska, directing that the loss, death, or destruction of any otters due to these taking activities be reported within 24 hours to the Special Agent in Charge at Anchorage and in writing to the Director (FWS) in Washington, D.C., and advising that the Anchorage FWS office will provide instructions on the disposition of salvaged specimens. A second amendment, issued on May 4, 1977,



changed the expiration date of the permit to September 30, 1977, and added the word "approximately" before the ages of animals authorized to be captured.

#### Certificates of Registration

Section 18.23 of the regulations provides that marine mammals taken by an Indian, Aleut, or Eskimo for the purpose of creating and selling authentic native articles of handicraft 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 took the following actions on certificates of registration or applications for certificates.

Roy Hendricks (RA-1) P.O. Box 8122, Anchorage, Alaska 99508. Certificate was terminated on November 12, 1976.

Dennis R. Corrington (RA-3) Corrington's Alaskan Ivory Co., SRA Box 1466F, Anchorage, Alaska 99502. Certificate was terminated on November 12, 1976.

Martin James, Jr. (RA-6) Maruskiya's of Nome, P.O. Box 895, Nome, Alaska 99762. Amendment No. 2 to delete activities with walrus ivory was issued on November 12, 1976.

Howard and Mary Knodel (RA-13) Arctic Trading Post, Box 262, Nome, Alaska 99762. Certificate was terminated on November 12, 1976.

Alaska Unorganized Borough School District (RA-15) Bering Strait Region, Box 1088, Nome, Alaska 99762. Amendment No. 1 to delete activities with walrus ivory was issued on November 12, 1976.

Mr. Don Stand (RA-17) Kawerak, Inc., Box 505, Nome, Alaska 99762. Issued a permit on July 2, 1976, which expires on December 31, 1977, to receive or acquire polar bear hides and parts from Alaskan Natives or other marine mammal registered agents and to sell or transfer the polar bear hides and parts to Alaskan Natives or other marine mammal registered agents.

Rick Sylvester (RA-18) Box 42, Mercy Drive, Eagle River, Alaska 99577. Issued a permit on September 17, 1976, which expires on December 31, 1978, to receive or acquire polar bear hides from Alaskan Natives or other marine mammal registered agents and to sell or transfer the polar bear hides to Alaskan Natives or other marine mammal registered agents.

Walter Knopp, President (RA-20) American Fur Dressing Co., Inc., 10816 Newport Highway, Spokane, Wash. 99218. Permit issued on May 19, 1977, which expires on December 31, 1979, to receive or acquire polar bear hides from Alaskan Natives or other marine mammal registered agents and to sell or transfer the polar bear hides to Alaskan Natives or other marine mammal registered agents.

Bryan MacLean, Box 89, Wainwright, Alaska 99782. Applied for permit to handle polar bear skins. Would like to be a licensed receiving agent for skins taken only by Alaskan Eskimos from the villages of Point Lay, Wainwright, and Barrow; the skins would be shipped to and tanned at the New Method Fur Dressing Company. Application pending--INV.

#### 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. In order 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 response to a Marine Mammal Commission-presented proposal to establish a national center for storage and recovery of marine mammal marking and tagging, the Service contracted with the American Institute of Biological Sciences to organize and conduct an evaluative workshop on December 8-9, 1976, in Laurel, Md. Participants included representatives of the National Marine Fisheries Service, Smithsonian Institution, U.S. Navy, universities, private industry, and the Service's Division of Wildlife Research and Office of Biological Services.

Because of the workshop-identified need and recommendation to gather, coordinate, and disperse information on marine mammal tagging and marking, the Service's Division of Wildlife Research established a Federal information clearinghouse on March 23, 1977, to be operated within its National Fish and Wildlife Laboratory. The activities and responsibilities of the clearinghouse are, however, less extensive than those in the commissioned proposal, in that it has no centralized data storage and retrieval system.

Responding to another workshop recommendation to assess the state-of-the-art of marine mammal tagging and marking techniques and materials, the Service, Marine Mammal Commission, and National Marine Fisheries Service



cooperatively sponsored a porpoise tagging workshop on May 4-5, 1977, in La Jolla, Calif., to review tagging and marking of small cetaceans, to assemble design criteria for improved tags and marks, and to identify specific areas of research needed for tag and mark evaluation and for experimental design. Participants included representatives of all major U.S. porpoise tagging and marking efforts, veterinarians familiar with marine mammals, tag specialists and manufacturers, marine mammal research managers, an invertebrate specialist familiar with naturally attaching organisms, and a biostatistician responsible for experimental tag design at the National Marine Fisheries Service Southwest Fisheries Center in La Jolla. In the workshop, they reviewed techniques, results, and problems encountered while tagging and marking different groups of marine mammals and recommended specifications for captive animal tests, tag evaluation criteria, and research experiments on branding, dorsal fin and body attachments, and assorted marking methods. These recommendations were submitted to the Marine Mammal Commission for its use in evaluating future tagging and marking proposals.

Service efforts to determine ecological effects of energy development on marine mammals included forming and leading the Sea Otter Working Group along lines suggested by the Marine Mammal Commission. The group's preliminary objectives and task were to see that independent studies on sea otter oiling are closely coordinated to maximize scientific return, minimize the number of animals sacrificed, and avoid costly duplication of effort. At the group's meeting in Monterey, Calif., on April 27, 1977, representatives of the Alaska and California Departments of Fish and Game, the Bureau of Land Management, and the Service's Division of Wildlife Research and National Wildlife Refuge system identified and discussed problems of recovering and cleaning oiled animals, manpower and specialties of personnel needed to implement an oil spill contingency plan, permits needed to expedite response to a spill and enhance scientific data collection and opportune animal tagging, and the role and future of the group itself.

Research conducted in-house, by contract, and by grants-in-aid is summarized below.

#### In-house

##### 1. Polar bear investigations:

- a. Biology and ecology of Alaska coastal populations.
- b. Den ecology and distribution.
- c. Biological parameters of bears of Chukchi Sea.
- d. Biology and ecology of bears of Arctic Ocean.
- e. Summer distribution and ecology of bears.
- f. Discreteness of populations.
- g. Satellite tracking of bears.



- h. Parasites and environmental contaminants in bears.
  - i. Estimation of Alaska population size and productivity.
  - j. Impact of resource development on bears.
  - k. 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. Distribution and abundance of recently established sea otter populations.
  - c. Biology and management needs for California sea otters.
  - d. Interactions between sea otters and the nearshore communities.
  - e. Annual status reports on the sea otter and marine otter.
3. Walrus investigations:
- a. Activity and behavior of Pacific walrus.
  - b. Annual status reports on Pacific walrus and Atlantic walrus.
4. Manatee and dugong investigations:
- a. Effects of vegetation control programs on Florida manatee.
  - b. Biological consequences of manatee uses of sanctuaries and unprotected environments.
  - c. Study and salvage stranded manatees and other marine mammals.
  - d. Development of manatee tagging and tracking technology.
  - e. Definition of manatee habitat requirements and assessment of habitat alterations.
  - f. Basic sensory and physiological parameters as related to technical needs.
  - g. Marine mammal compatibility with urbanization.
  - h. Distribution and status of all manatee taxa and populations; annual reports.
  - i. Survey of dugong distribution, status, and conservation problems; annual report.
5. Other marine mammals: Biological studies, in cooperation with NMFS, to determine status of Hawaiian monk seal population.
6. Marine mammal tagging Federal information clearinghouse procedures and practices.

### Contracts

1. Survey populations of dugongs in the Philippine Islands. Investigator: Walter Auffenberg (\$650).
2. Nearshore fish communities of Attu Island. Investigator: Fisheries Research Institute, University of Washington (\$18,000).
3. Survey of monk seal. Ship charter: Gary Naftel ("Easy Rider") (\$40,440).
4. Development of telemetry system for long-range monitoring of movements and physiological parameters of polar bears. Investigator: Handar Corporation (\$29,000).
5. Research and investigations on California population of sea otters. Cooperative agreement, University of Minnesota (\$5,000).
6. Status of Atlantic walrus. Investigator: Randall R. Reeves (\$6,000).
7. Study of sea otter community interactions. Investigator: David Irons (\$5,325).
8. Manatee populations in selected areas of South America. Investigator: Nicolle Duplaix-Hall (RARE) (\$4,500).

### Grants-In-Aid

Three proposals were received for research grants from researchers outside the Fish and Wildlife Service; none were distributed for formal review because of the lack of available funds. These proposals are summarized below:

1. The ecological energetics of the California sea otter, Enhydra lutris. (Kenneth S. Norris, University of California, Santa Cruz, Calif.) To measure directly free-ranging food consumption of 10 to 15 sea otters with tritiated water; complete the seasonal analysis of foraging efficiency; find a suitable immobilizing agent; and collect sufficient blood baseline parameters so as to establish the normal for healthy sea otters.
2. The helminth fauna of the Florida manatee. (Donald J. Forrester, College of Veterinary Medicine, University of Florida, Gainesville, Fla.) To determine the baseline parasite load of manatees in order to determine their role in debilitation and (or) death in wild animals.

3. California Department of Fish and Game (E. C. Fullerton, Director). This request for funds to conduct research on sea otters in California was referred to the Division of Wildlife Research for comment.

#### ENDANGERED SPECIES

A Florida manatee recovery team was appointed on July 19, 1976, with A. Blair Irvine of the Gainesville Field Station of the FWS Division of Wildlife Research, National Fish and Wildlife Laboratory (NFWL), as team leader. Other members are: Howard W. Campbell (NFWL, Gainesville), Daniel F. Jackson (Florida International University), Louis Shelfer (Florida Department of Natural Resources), and Kenneth B. Stansell (South Carolina Wildlife and Marine Resources Department).

In the September 24, 1976, Federal Register (41 F.R. 41914), the Service designated critical habitat for the Florida manatee, pursuant to section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543). This Federal Register notice is reproduced in appendix D. During and following the comment period on this rulemaking, the Service received recommendations for additional areas. Surveys by the Service's Division of Wildlife Research are also producing extensive new information regarding habitat distribution and manatee needs. The Service is now evaluating this information to determine the feasibility of revising the critical habitat designations.

The Service published a final rulemaking in the Federal Register on January 14, 1977, declaring the southern or California population of sea otters (Enhydra lutris nereis) to be threatened within the context of the Endangered Species Act (42 F.R. 2965--see appendix E). This determination was deemed necessary primarily because of the serious potential threat posed by a major oil spill in or near the population's range. Although the probability of a spill cannot now be accurately predicted, the possibility of such a disaster and its consequences to the population cannot be ignored, especially when oil tanker traffic in the area is increasing and other oil activities may also be increased there.

In the February 22, 1977, Federal Register (42 F.R. 10462-10488), the Service issued regulations to implement U.S. participation in the Convention on International Trade in Endangered Species of Wild Fauna and Flora; these regulations became fully effective on May 23, 1977. The convention was negotiated and signed in Washington, D.C., in 1973, after almost 10 years of efforts worldwide; the United States became a party to it on July 1, 1975; and Executive Order 11911 (41 F.R. 15683) established the independent Scientific Authority and also named the Department of the Interior as the Management Authority on April 13,



1976, following which the latter authority was delegated to the Service's Federal Wildlife Permit Office. Species covered by the convention are assigned to specific categories depending on the degree to which they are considered to be threatened: appendix I, those species threatened with extinction because of trade; appendix II, those not necessarily now threatened with extinction but which might become so threatened unless trade in them is strictly regulated, and other species that must be regulated because they very closely resemble or may be confused with truly or potentially threatened species; and appendix III, those conserved by some convention signatories within their legal jurisdictions and in need of the cooperation of other countries to control trade. All marine mammal species under Service jurisdiction are listed in these appendixes as follows: appendix I--southern or California sea otters, marine otters, non-Australian dugongs, West Indian or Florida manatees, and Amazonian manatees; appendix II--polar bears, non-California sea otters, Australian dugongs, and West African manatees; and appendix III--walrus (listed by Canada).

#### OUTER CONTINENTAL SHELF BASELINE STUDIES

The Interior Department's Outer Continental Shelf (OCS) baseline studies for offshore oil and gas development are funded through the Bureau of Land Management (BLM), and the Service has been designated to coordinate the marine mammal and sea bird parts of the studies. The two projects managed by the Service's Office of Biological Services during fiscal year 1977 specifically involved the BLM-NOAA Outer Continental Shelf Environmental Assessment Plan (OCSEAP) in Alaska.

The survey of cetaceans of Prince William Sound (PWS) and adjacent near-shore areas of the Gulf of Alaska is continuing and is being conducted jointly by Service and National Marine Fisheries Service investigators. Their objectives are to determine the seasonal distribution and abundance of the principal cetaceans using PWS and its vicinity, the major foraging areas and critical habitats for the principal species, and the food habits of selected species. Monthly and bimonthly aerial and surface censuses are used to determine abundance and habitat use; animals marked with static tags visible from a vessel are used to determine movements of individuals; Dall's porpoises are captured, tagged, and equipped with radio tags for short-term study of their behavior; and stomachs of captured Dall's and harbor porpoises are lavaged to identify their foods. Among the results to date, species sighted and identified include fin, humpback, sei, minke, and killer whales, as well as harbor and Dall's porpoises and Pacific white-sided dolphins. Although cetaceans appear to use PWS seasonally, such use is more extensive than was originally thought; for example, about 35 humpback whales inhabit PWS for at least 8 months of each year--April through November--but the largest numbers occur in the southwestern area from July through November. A total of 649 Dall's

porpoises have been sighted in PWS on 143 different occasions; these animals inhabit PWS year-round but are most numerous in August or September, and calves have been sighted swimming in echelon formation with their mothers. Killer whales have also been sighted year-round.

The studies on the pelagic distribution and abundance of marine birds in Alaskan waters have also produced, as incidental byproducts, substantial information on the seasonal distribution of marine mammals. Year-round ship and aerial marine-bird censuses are conducted in all waters adjoining Alaska, and observations of marine mammals are recorded on all censuses.



## INTERNATIONAL ACTIVITIES

The international marine mammal program is an integral part of the Service's overall program. The Service continues its efforts to achieve the objectives of the Marine Mammal Protection Act through international cooperation. The following accounts detail the principal thrust of the international program during the report period.

### Scientific Consultation on the Conservation and Management of Marine Mammals and their Environment

At the consultation convened in Bergen, Norway, between August 31 and September 9, 1976, the Advisory Committee on Marine Resources Research (ACMRR) Working Party on Marine Mammals completed its task of objectively examining the status of all marine mammals and issued its reports for the Food and Agricultural Organization (FAO). These reports comprised the input of 23 working groups and considered the status of populations of large whales, small cetaceans and sirenians, and pinnipeds and sea otters, as well as the ecological relationships of marine mammals and prioritized research program needs. The full reports were released at the end of the meeting, and the major conclusions and recommendations were presented in subsequent summary reports. The United Nations Environmental Program (UNEP) provided major assistance.

### Agreement on the Conservation of Polar Bears

This agreement--involving Canada, Denmark, Norway, the U.S.S.R., and the United States--was signed on behalf of the United States in Oslo, Norway, on November 15, 1973. The U.S. Senate recommended its ratification on September 15, 1976; President Ford ratified it on September 30, 1976; and it entered into force in the United States on November 1, 1976. The agreement commits the United States to protecting the ecosystems of which polar bears are a part, especially such habitat components as denning and feeding sites and migration patterns. Following the further commitment to manage polar bear populations in accordance with sound conservation practices based on the best available scientific data, hunting, killing, and capturing bears are prohibited, except for limited specific purposes and by limited methods.

### Convention on International Trade in Endangered Species of Wild Fauna and Flora

Thirty-seven nations were represented at the first conference on the convention in Berne, Switzerland, on November 2-6, 1976. These included 24 of the 34 countries that have already ratified the convention and

observers from organizations and 13 additional nations that have not yet ratified. The International Union for the Conservation of Nature and Natural Resources serves as the secretariat for the convention, and the Service's Federal Wildlife Permit Office serves as the U.S. Management Authority, as discussed earlier in this report under "Endangered species." Among the amendments approved at the meeting, non-California populations of sea otters were added--along with all other species in the subfamily Lutrinae--to the Convention's appendix II, effective on February 4, 1977.

#### Ad Hoc Interagency Committee on an International Marine Mammal Program

The committee held its final meeting on December 6-7, 1976, to make final decisions on the policy recommendations in the July 8, 1976, Fish and Wildlife Service-National Oceanic and Atmospheric Administration Task Force report on an international marine mammal program. Participants included representatives of the Service, National Marine Fisheries Service, Department of State, Marine Mammal Commission, Council on Environmental Quality, and House of Representatives Merchant Marine and Fisheries Committee; observers represented the environmental community and fisheries industry.

The participants agreed on the following task force objectives related to Northern Hemisphere pinnipeds: (1) negotiate a U.S.-U.S.S.R. agreement on the conservation and protection of ice seals and walrus and possibly other marine mammals (see discussion that follows on U.S.-U.S.S.R. Marine Mammal Project); (2) negotiate a U.S.-Mexico agreement on the conservation and protection of marine mammals in U.S. and Mexican waters; (3) establish U.S.-Canada negotiations on marine mammal issues of mutual concern; and (4) encourage establishing more effective measures to conserve harp and hooded seals in the North Atlantic.

Late in January 1977, all concerned Government agencies formally adopted the committee's report, with some modifications.

#### International Union for Conservation of Nature and Natural Resources, Survival Service Commission Polar Bear Specialist Group

The sixth working meeting of the group was held in Morges, Switzerland, on December 7-10, 1976. Representatives of Canada, Denmark, Norway, the United States, and the U.S.S.R. presented their countries' conservation and research progress reports and, together with invited participants, discussed their own, each other's, and multicountry projects, prospects, and problems. Future and proposed projects discussed included planning and coordinating management and research programs in 1977-79; U.S.



National-Science-Foundation-funded studies; national studies; modeling and population projection development; an international hide-marking system; bear studies in Manitoba, Canada; a drifting research station; deterrent and attractant studies of North American bears; and physiological studies at Barrow, Alaska. The next meeting of the group was tentatively scheduled for February 1979.

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

The purpose of this project is to develop collaborative research on the biology, ecology, and population dynamics of marine mammals of mutual interest to both nations. This research is intended to contribute to sound management and conservation of these animals.

At the fourth meeting of the project, held in La Jolla, Calif., on January 18-24, 1977, the scientists agreed generally on the need for a convention or agreement on the protection and management of marine mammal resources--principally walrus and ice seals--in the Chukchi and Bering Seas and adjacent regions of the North Pacific Ocean. They developed a set of principles that could form the basis for a bilateral agreement. The principles included maintaining optimum abundance of all species to assure the continued existence of populations, determining acceptable harvest limits for each population, developing necessary regulatory measures, establishing a system of marine sanctuaries, and providing a scientific basis for protecting and managing marine mammals through coordinated scientific research on populations, distributions, and the role of species in the ecosystem.

The meeting also developed an agreement and preliminary plan to publish a compendium of papers on the results of cooperative research under the program since it began. A draft of the first volume, on pinnipeds, should be finished by the end of 1977 and is scheduled to be printed in the United States--to be followed shortly by a Russian translation.

#### International Meeting on Marine Mammals of Baja California

The second international meeting was held in La Paz, Baja California, Mexico, on February 2-3, 1977. Participants discussed marine mammal research problems of mutual interest.

## International Bear Conference

The fourth international conference was held in Kalispell, Mont., on February 20-24, 1977. One session of the conference was devoted to the biology of polar bears.

### International Union for Conservation of Nature and Natural Resources, Survival Service Commission Otter Specialist Group

The first working meeting of this group was held in Paramaribo, Surinam, on March 27-29, 1977. Its primary purpose was to examine the status of various South American and European otter species and to help set up programs designed to ward off their extinction. Participants represented 7 of the 11 nations that had planned to send delegates. Their recommendations generally urged specific governments to establish or enforce their legal protection and trade laws, to increase surveys of specific species or populations within their respective jurisdictions, to establish, improve, or expand animal reserves or parks, and, in a few cases, to control pollution in rivers where the decline in otters is clearly associated with specific or increased industrial development.

### Excess Foreign Currency Programs--Dugong Studies in Egypt

In fiscal year 1977, the Service received Congressional authorization to use excess foreign currencies held by the U.S. Government in Egypt, India, and Pakistan. This authorization was requested under section 8 of the Endangered Species Act of 1973, 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. During the report period, noteworthy results were achieved only in Egypt.

On April 17-29, 1977, a study mission visited Egypt where negotiations began for several excess-currency-funded contracts. A national conservation plan will be developed for Egypt, and marine and other areas will be identified for special management to conserve endangered and threatened species. Training will be provided to enable Egyptian officials to manage these living resources better. On the basis of an Egyptian National Academy of Science report that dugongs have been sighted in the Red Sea within the past 3 years, more information will be sought on these occurrences.

### U.S.-Brazil Amazonian Manatee Project

During the report period, the Service's National Fish and Wildlife Laboratory worked with the staff of this project (Projeto Peixe-Boi) at the Instituto Nacional de Pesquisas da Amazonia (INPA) in Manaus, Brazil, to develop programs examining Amazonian manatees' nutrition, status and distribution, habitat, and movements and behavior.

## 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. 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 (African manatee)

Dugong dugon (Dugong)



## STATUS REPORTS

### Polar bear (Ursus maritimus)

Distribution and migration. Polar bears occur only in the Northern Hemisphere, nearly always in association with Arctic sea ice. Centers for six geographically isolated polar bear populations in the main Polar Basin are Wrangel Island-western Alaska, northern Alaska, northern Canada, Greenland, Spitsbergen-Franz Josef Land, and central Siberia. Separate populations also occur farther south in Hudson Bay, Canada.

Bears are most abundant near the southern edge of the sea ice, but they occur throughout most of the Polar Basin and have been recorded as far north as lat. 88° N. They make extensive north-south movements related to the seasonal position of the southern edge of the ice. In winter, bears off Alaska commonly occur as far south as Bering Strait and occasionally reach St. Lawrence Island and even St. Matthew Island in the Bering Sea. In summer, north of Alaska the edge of the ice pack and bears commonly occur between lat. 71° and 72° N. Pregnant females concentrate for winter denning and bearing young on large offshore Russian islands, northern Canadian islands, and certain Spitsbergen islands.

Abundance, trends, and harvest. Total world-population estimates, which range from a low of 10,000 by the Soviets to a high of 20,000 by the Norwegians, are based on broad assumptions and should be considered as very general. The abundance of bears off the Alaska coast and the magnitude of sustained long-term harvests suggest that the 20,000 figure may be low.

During the 1930's, 1940's, and 1950's, Alaska Natives harvested about 120 bears annually. Trophy hunting that utilized aircraft developed in the 1950's, and the average annual kill gradually increased to 250 during the period 1961-72. The number of bears reported per hour of flying by Alaska hunting guides did not show a trend during 1956-69, the period when guides provided reliable data. Sex composition for 1961-72, when 87 percent of the bears were taken with the use of aircraft, was 70-80 percent males. Selective hunting utilizing aircraft reduced the percentage of mature males in the population. A high percentage of females with young in the population, however, indicated a healthy rate of reproduction. Age composition of bears harvested west of Alaska during the aircraft hunting era did not show a trend. Age composition of bears harvested north of Alaska declined in 1970 and 1971 and then increased in 1972, reflecting high harvests in 1966 and 1967, followed by hunting restrictions and reductions in harvest after 1967. Approximate harvests after passage of the Marine Mammal Protection Act of 1972, which permits hunting only by Natives for subsistence or as a source of material for traditional articles of Native handicraft or clothing, were 7 in 1973, 50 in 1974, 60 in 1975, and 150-160 in 1976.

The higher harvest in 1976 is largely the result of heavy ice conditions, which made more bears available to Eskimos on St. Lawrence Island and in villages along the northwest coast.

Russians believe that polar bear populations in the Soviet Arctic declined during the first half of this century but have now stabilized since hunting was stopped in 1956 and harvests were limited to 10-15 cubs per year for zoos. In 1973, the Norwegian Government imposed a 5-year moratorium on the hunting of bears in Svalbard (Spitsbergen), where formerly about 300 were taken each year. The annual harvest in Canada is about 600; in Greenland, 125-150. Thus, the annual world harvest is now about 900.

General biology. Polar bears, other than family groups of females and young, are solitary most of the year. During the breeding season in late March, April, and May, males actively seek out females by following their tracks on the sea ice. Bears are polygamous, and a male remains with a female a relatively short time and then seeks another female. Delayed implantation probably occurs.

Pregnant females seek out denning areas in October and November. Known denning concentration areas occur on Russian, Canadian, and Svalbard (Spitsbergen) islands. Bears also den along sections of the Greenland coast and the north Alaska coast. Some denning occurs on heavy pack ice north of Alaska. Bears most commonly den under banks along the coast or rivers or on slopes where snow drifts. A denning female commonly forms a depression in the snow and then enlarges a denning chamber as snow drifts over her. Young, weighing less than 1 kilogram, are born in December. A litter of two is the most common; one, quite common; and three, rare. The female and cubs break out of the den in late March or early April, when cubs weigh about 7 kilograms. They make short trips to and from the opened den for several days as the cubs become acclimated to outside temperatures. If the den is on land, the family group then travels to the sea ice. In most sections of the Arctic, young remain with the mother for about 28 months.

The age at which a female produces her first litter ranges from 4 to 8 years. Some females breed again about the time they separate from their young and, therefore, can produce a litter every third year. Other females have longer intervals between litters. Males can first breed when 4 years old. Most bears do not live beyond 25 years. Mature females off the Alaskan coast weigh 200 to 300 kilograms; mature males, 300 to 600 kilograms. Animals west of Alaska are larger than those north of Alaska. Polar bears feed primarily on ringed seals and also on bearded, harp, and hooded seals. They occasionally eat carrion, including whale, walrus, and seal carcasses, and small mammals, birds, eggs, and vegetation when other food is not available. Approximately 60 percent of Alaskan bears harbor Trichinella spiralis, apparently obtained by eating seals and other marine mammals, garbage, and possibly carcasses of other bears. Polar bear liver is toxic if eaten because of high vitamin A content.



Ecological problems. Long-term climatic trends probably have a major impact on bear populations. Warming trends restrict areas that are suitable for denning and feeding, and cooling trends favor expansion of populations. Ice movement, especially in the fall when females are seeking maternal den sites, may also affect populations. Females may be forced to bear young in locations less favorable for denning when ice, which provides access to favorable denning sites, forms late in the season. Years of light snow, or wind conditions that prevent formation of deep snow drifts, may also affect denning success for both polar bears and ringed seals--one of their principal foods. Because of this dependency on ringed seals, any ecological change affecting seals could also affect bears.

Human development, especially that associated with oil and gas extraction, poses the greatest immediate threat to polar bears. Oil exploration and drilling in denning areas could cause bears to den in less suitable areas. Oil spills from offshore drilling or transporting of oil through ice-covered waters could reduce the insulating effectiveness of their fur and also adversely affect lower components in their food chain. Ice would hinder or prevent containment of a spill, and currents could distribute oil over large areas.

Recent studies indicate that significant numbers of bears have traditionally denned and produced young along Alaska's north coast. Increased human activity will perhaps cause fewer bears to come ashore to den, thereby forcing them to den in less favorable sea-ice sites, or may cause animals to desert land dens earlier than normal when cubs would be less able to survive. Areas where oil and gas development may be impacting now or could impact in the future include the Alaska Naval Petroleum Reserve, the Alcan Route, the Arctic National Wildlife Range, State coastal and nearshore oil- and gas-lease lands, Federal Outer Continental Shelf oil- and gas-lease lands, and lands eligible for selection under terms of the Alaska Native Claims Settlement Act. Thus, the potential for development exists along the entire north Alaska coast from Pt. Hope to the Canadian border.

Mercury and low levels of DDT and PCB's have been found in tissue samples of all Alaskan bears checked for these contaminants.

Allocation problems. In the United States, the polar bear evokes varied and often emotional feelings about its management and use, ranging from complete protection, to limited harvest for subsistence, to maximum sustained harvest primarily by trophy hunters. At present, non-Native residents of the Arctic coast believe they are being discriminated against because only Natives are allowed to hunt. New conflicts will arise as development proceeds in the Arctic and causes more direct encounters between bears and people and more disturbance to bears during critical stages in their life history.



The U.S.S.R. believes that bear stocks off the Siberian coast have been reduced, and it restricts taking to a few cubs for zoos. Until recent years, Norwegian sealers killed bears as predators; Svalbard (Spitsbergen) trappers used baited set guns to obtain hides to sell; and trophy hunters took bears from Norwegian boats in the summer. The present feeling in Norway is that these uses should no longer be permitted. In Greenland, the harvest is limited to Eskimos or long-term residents and is primarily for subsistence and personal use of skins. The Canadian harvest has traditionally been by Eskimos for subsistence and to obtain skins for sale.

Trophy hunting from the ground, although encouraged by managing agencies in part of Canada, has not developed to any great extent because Natives, whom trophy hunters must employ as guides, can realize more profit from selling skins than from guiding.

Regulations. Past management practices in Alaska have included seasons, bag limits, a permit system, limit on the number of hunts individual guides could participate in, and protection for the young and for females with young. Two management areas were established, one to the west of Alaska and one to the north of the State. Residents were allowed to hunt bears at any time for food, provided aircraft were not used. Hides and skulls of all bears taken had to be presented to the Alaska Department of Fish and Game within 30 days of taking for examination, sealing, and removal of a tooth for age determination. The State of Alaska banned the use of aircraft for hunting polar bears after July 1, 1972, and lengthened the season to encourage sport hunting from the ground.

The Marine Mammal Protection Act of 1972 transferred management authority for polar bears to the Federal Government and limited the harvest to Alaskan coastal Eskimos for subsistence or for manufacture of traditional Native articles of clothing or handicraft. This removed restrictions on the Natives' harvesting young bears and females with young. A request by the State of Alaska to waive the moratorium and return management of polar bears and certain other marine mammals, as provided for in the Act, is pending. The management plan proposed by the State would provide for both recreational and subsistence hunting, and total annual take would be restricted to no more than a yet to be determined but very conservative number of animals. The open season for both types of hunting would extend from January 1 through May 31. Hunting that utilizes aircraft would be specifically prohibited. The closed season during the summer would preclude use of boats. The bag limit for recreational hunting would be one bear every 4 years by permit only. Residents utilizing bears for food could take one bear each year without a permit. Young and females accompanied by young would be protected.

The U.S.S.R. has not allowed polar bear hunting since 1956. Norway stopped set-gun and trophy hunting in 1971 and enacted a 5-year moratorium in 1973 on all harvesting because of a change of attitude in Norway and

because studies indicated the bear population was smaller than previously believed. In Greenland, only Eskimos or long-term residents may take bears and must use traditional ground methods of hunting. In Canada, prior to 1968 Eskimos hunting from the ground took bears with few restrictions. Since then, harvests have been regulated by establishment of hunting districts with quotas. In certain districts, trophy hunters may purchase a permit to take a bear from a district's quota, provided a Native resident is used as a guide. In September 1976, the United States ratified the Agreement on Conservation of Polar Bears. Other member nations are Canada, Denmark, Norway, and the Soviet Union. The agreement allows bears to be taken only in areas where they have been taken by traditional means in the past and prohibits use of aircraft and large motorized vessels as an aid in taking. The agreement also calls for both national research and cooperative international research and management, especially on populations occurring on the high seas or within more than one national jurisdiction; provides protection for ecosystems of which polar bears are a part; by resolution seeks special protection from hunting for denning females, females with cubs, and cubs; and by resolution asks for an international system of hide identification to better control traffic in hides. The last-noted goal is now being achieved through the Convention on International Trade in Endangered Species of Wild Fauna and Flora, as discussed in part I of this report.

Current research effort. The governments of Canada, Denmark, Norway, Russia, and the United States are conducting intensive long-term investigations. In most countries, shorter term projects funded by universities and grants complement government programs. Research programs are coordinated internationally by the Polar Bear Specialist Group under the auspices of the International Union for the Conservation of Nature.



Sea otter  
(Enhydra lutris)

Distribution and migration. Populations in waters of the United States are resident (the sea otter is not migratory) along the west coast of North America, from central California north to Prince William Sound, and westward along the Aleutian Islands to the Commander Islands, along the southern Kamchatka Peninsula, and among the Kurile Islands. The sea otter seldom ranges offshore beyond the 30-fathom (about 55-meters or 180-feet) depth curve.

Abundance and trends. Since sea otters were completely protected early in the 20th century, they have increased and become reestablished in a substantial portion of their historic range. In the late 19th century, sea otter populations had been reduced by the fur trade to a few hundred animals at widely scattered locations. In 1973, the Alaska Department of Fish and Game published estimates of sea otters in each game management unit; these estimates totaled between 101,050 and 121,050 animals. From recent surveys, the sea otter population in California was estimated to be about 1,800 animals and ranged from Año Nuevo Island north of Santa Cruz to beyond Point Buchon on the south.

During the period 1965-72, sea otters from Amchitka Island and Prince William Sound were translocated to southeastern Alaska, British Columbia, Washington, Oregon, and the Pribilof Islands. Among translocated otters, young have been observed in southeastern Alaska, British Columbia, Washington, and Oregon. Recent surveys of these areas indicate a thriving population of more than 500 animals north of Sitka in southeast Alaska, but the number at other sites remains low--from about 10 to 60 animals--and the success of translocation at these sites remains questionable.

General biology. The sea otter is the largest member of the family Mustelidae, reaching a length of 148 centimeters and a weight of 45.5 kilograms. It becomes sexually mature at about 4 years of age and bears a single young, weighing approximately 2.3 kilograms, about every 2 years. The pup nurses for 6 to 12 months but during this period often takes solid food gathered by the mother. The mother is very attentive to her young. Most of the young are born during the summer, but births and mating may occur in any season. Breeding behavior is promiscuous; the mating male and female remain together for as long as 3 days. The dense underfur is about 25 millimeters long; the guard hairs, about 6 millimeters longer. A healthy animal may accumulate body fat, but there is no layer of blubber. The sea otter is, therefore, dependent for insulation from cool (1.7° C to 10° C) marine waters on the air blanket retained among the dense underfur fibers.

Mortality at Amchitka Island (the only area studied intensively) is greatest in winter and early spring. A dense population there depleted food organisms, and starvation occurred during stormy weather. Young



animals accounted for 70 percent of the mortality. The remaining 30 percent were dominantly animals showing signs of old age. Most of the dead animals exhibited signs of starvation and enteritis. Internal parasites include Trematoda (4 spp.), Cestoda (2 spp.), Nematoda (1 sp.), and Acanthocephala (5 or possibly 6 spp.)

Ecological problems. Human activities that are changing the environment will no doubt affect sea otters. Oil pollution of waters occupied by sea otters probably would be fatal to them. Pesticide residues have been found in California sea otters, but the effect is unknown.

Allocation problems. Conflict exists over management of the sea otter population off the coast of California. Because sea otters reduce the abundance of prey species, some of which are desired by humans, commercial and sport users of these resources prefer that the abundance and range of sea otters be limited. Preservation groups would like sea otters reestablished throughout their historic range.

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 (Public Law 92-522). In California, the sea otter population is listed as a threatened species under the Endangered Species Act of 1973 (Public Law 93-205), and the State also lists it as a completely protected animal.

Current research and funding. The U.S. Fish and Wildlife Service employs three full-time biologists on sea otter studies. The States of Alaska and California no longer employ biologists full time on sea otter studies but do carry out censuses. The privately endowed Owings Foundation employs a full-time sea otter naturalist. Additional research is supported by the Marine Mammal Commission.

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. peruviansis 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 the coastal 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 this 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 Chiloe Island, Chile. Nothing is known about the number of marine otters along the northern coast of Chile, but in Peruvian waters the population is estimated to be between 200 and 300. In the Cape Horn and southern Tierra del Fuego region, this species has been practically exterminated. One specimen was collected at Wollaston Islands, 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 Chiloe Island 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 June 16, 1977, it was proposed to receive the additional protection as a marine mammal 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 and funding of marine otter studies. 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 is heavily dependent upon 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.

Following the northward migration into the Arctic Ocean, 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 upon seasonal conditions.

During the southward migration, walrus frequently haul out to rest at Big Diomedes and Penuk Islands and along the Soviet coastline until the pack ice becomes accessible. During the fall of 1975, biologists from the Soviet Union located nine such coastal haul-out areas between the north coast of Chukotka and Cape Olyutorski.

Abundance and trends. The Pacific walrus population has increased during the past several decades, following a decline in abundance caused by over-exploitation. The population may have numbered as few as 40,000 to 50,000 by about 1950. Aerial surveys of walrus were begun in 1960, the most recent survey being a coordinated effort 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 1976 was 1,271 animals, not including those killed or wounded but lost; the harvest cannot exceed 2,000, the present annual quota. The comparable 1976 retrieved harvest in Alaska, conducted almost exclusively for subsistence purposes by Alaska Natives, comprised 2,989 animals--slightly below the annual quota of 3,000 permitted under the return of management to the State in 1976. Revised walrus hunting regulations approved in May 1977, however, are intended to reduce future annual harvests to less than the maximum of 2,300 that the State intends to be its upper retrieved-take limit.

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, echiuroids, 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 exploited from the Bering Sea and 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 exploitation, 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 Island State Game Sanctuary (Togiak Bay), Bristol Bay. During the summer of 1976, the Alaska Department of Fish and Game stationed two of its personnel at Round Island.



Allocation problems. Siberian and Alaskan natives kill 5,000 to 6,000 walrus annually for subsistence. None were taken during 1976 for display. Loss of walrus during hunting is about 40 to 50 percent.

Additional waste occurs in the utilization of the products of retrieved walrus. 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 become an increasingly important problem.

Regulations. During 1976, management of Pacific walrus was returned to the State of Alaska. Current regulations restrict the take of females, although this restriction was not in effect during the prewaiver spring Native-subsistence hunting season of 1975. Revised State hunting regulations, approved by the U.S. Fish and Wildlife Service in May 1977, established still more restrictive quotas by specific geographic areas within the most heavily hunted game management units.

Current research. The U.S. Fish and Wildlife Service has an ongoing research program on Pacific walrus. Investigators from the University of Alaska and Johns Hopkins University are currently studying walrus under funded grants from several agencies. The Alaska Department of Fish and Game maintains observers during the hunting seasons at coastal villages of Alaska to monitor the kill and to collect information on the population.



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 apparently larger population 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's 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 Eskimos 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's range on that coast and provides some protection.

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 hunting of walruses 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 walruses some protection from human interference.

Current research. 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 Gronlands Fiskeriundersogelser in Denmark collects catch statistics for all of Greenland. 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 walruses, primarily in northern Hudson Bay. The U.S. Fish and Wildlife Service's Division of Wildlife Research--through its National Fish and Wildlife Laboratory--has compiled a report on the status, distribution, and natural history of the Atlantic walrus.



West Indian manatee  
(Trichechus manatus)

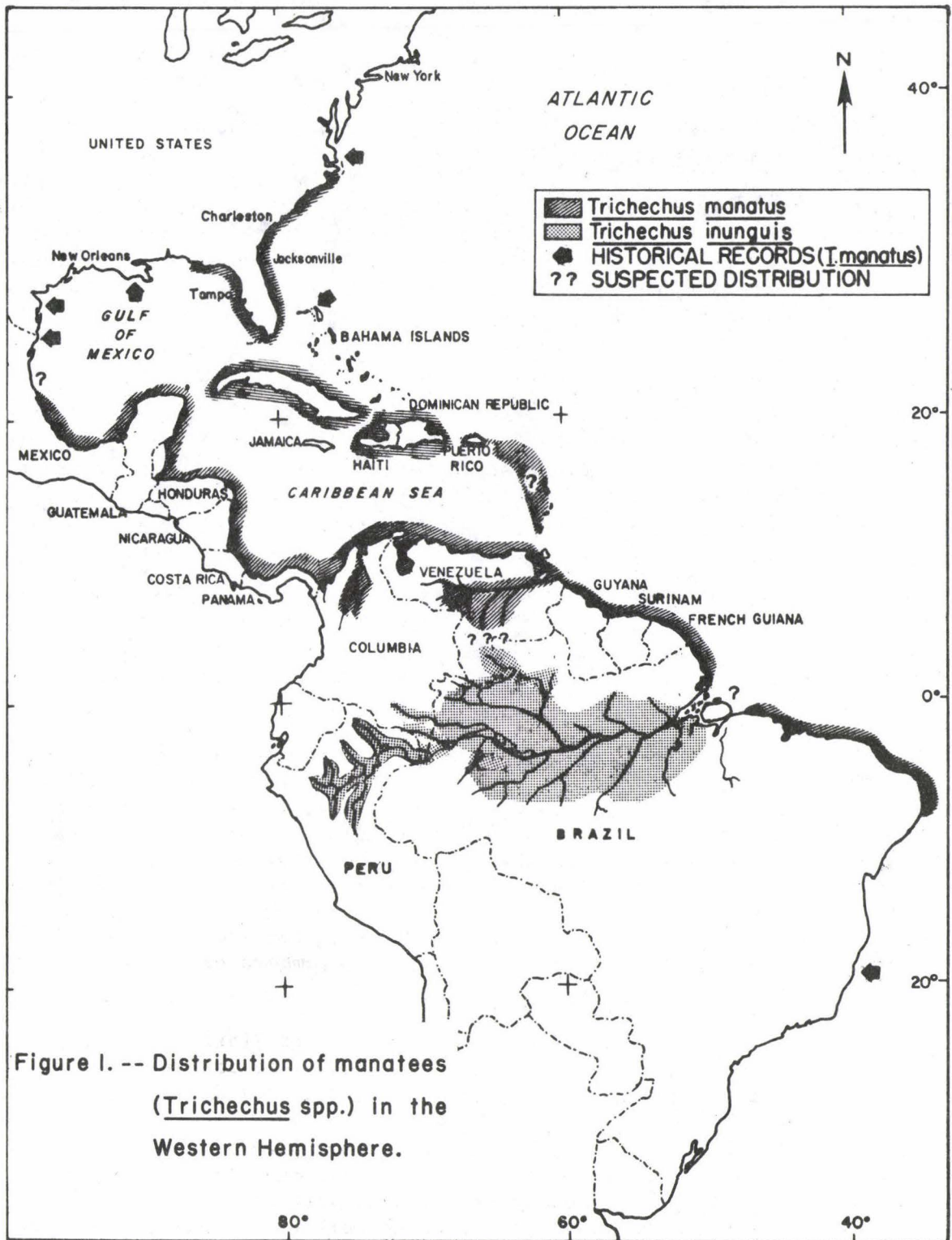
Distribution and migration. Trichechus manatus inhabits rivers, estuaries, and coastal areas of the tropical and subtropical regions of the New World Atlantic (fig. 1). It is commonly found from northern Florida in the United States to the northern coast of Brazil. Manatees are seasonally present in Georgia and rarely in South Carolina and North Carolina, but occasional stragglers have been reported historically as far north as Old Orchard, N.J. (lat. 40° N.) (fig. 1) 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. 2), and most manatees are grouped near sources of warm water during the winter. Along the west coast, they congregate in a series of groups near Crystal River and adjacent rivers in Citrus County, in east Tampa Bay, in the Caloosahatchee River, and along the southwest coast from Naples to the Everglades National Park. On the east coast, large numbers of animals congregate at Merritt Island, in Lake Worth, 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. In a 1975-76 winter aerial survey conducted simultaneously Statewide, 38 percent of the manatees were observed in saltwater; 43 percent, in brackish water; and 19 percent, in freshwater.

Manatees in Florida apparently cannot withstand cold winter temperatures. Warm water springs or localities where factories and powerplants discharge heated water into the rivers are the focus of most winter congregations. Except in extreme southwest Florida, most manatees were within 5 kilometers of a warm water source during the 1976 cold weather aerial survey. More than 25 such warm water refugia are used by manatees on the Atlantic and Gulf coasts. Animals usually begin to arrive at these congregating sites in November; many remain nearby for the winter, but there is continuous movement and probably exchange of old and new members of the congregation during warm periods.

The winter of 1976-77 was the coldest on record in Florida. A record manatee mortality was apparently associated with the cold and may be attributable to recent changes in the animals' winter distribution.

Manatee mortality in southern Florida was roughly comparable to that in previous years, except in Lee County (where die offs have been reported previously) and in Monroe County on the southwest coast. Along the northeast coast, however, deaths increased markedly. Thirty-five dead manatees were recovered during the winter, whereas 6 had been collected the previous year. Twenty-one were collected near Merritt Island, Brevard County, from January 30 to February 17, 1977. During the same period in



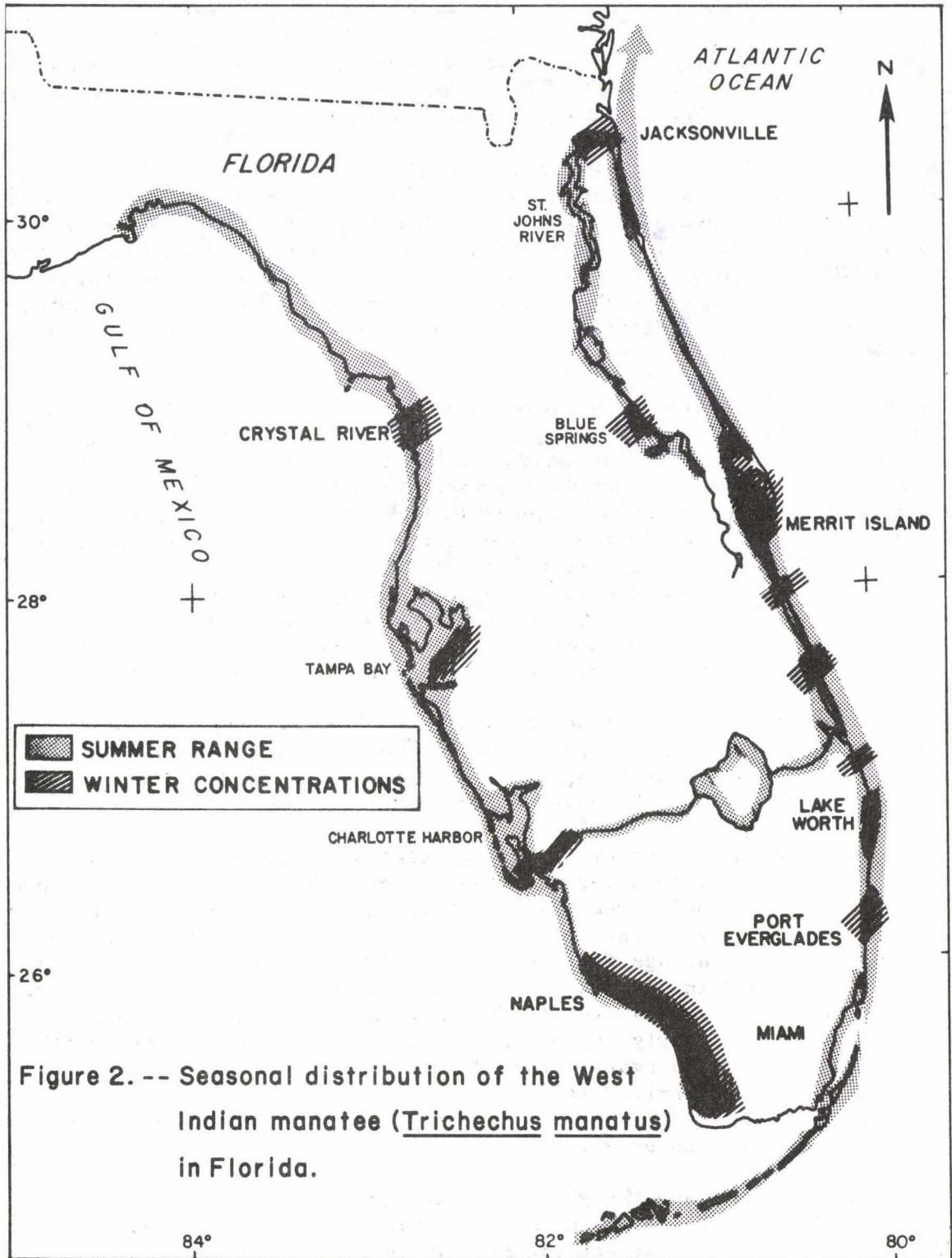


Figure 2. -- Seasonal distribution of the West Indian manatee (*Trichechus manatus*) in Florida.



1975 and 1976, no dead manatees were salvaged from that area. A total of 11 manatees were recovered from St. Johns and Duval Counties where manatee winter die offs had never previously been reported.

Cause of death was usually not determined because tissue autolysis occurred before an autopsy was performed, but two cases of pneumonia were verified in animals from Brevard County. Data are not available to determine if cool water temperature, air temperature, or a combination of the two were most responsible for the increased mortalities. However, anecdotal evidence from captives suggests that manatees are erratic feeders at water temperatures from 18° to 21° C and that the animals may cease feeding in cooler waters.

The winter distribution of manatees appears to have expanded in recent years. Historical records suggest that manatees formerly wintered in southern Florida, approximately at the 21° C minimum ocean temperature isotherm. Today, approximately 100 manatees winter in Brevard County, and at least 10 other animals winter in Duval County; both areas are far north of the historically reported winter range limits. The new wintering areas may, however, be in marginal habitats. During the winter of 1976-77, minimum water temperatures in Brevard County averaged 14.6° C. Outfall temperatures at the Cape Canaveral powerplant were at or below 18° C for 32 days from December 1, 1976, to March 1, 1977, including 10- and 7-consecutive-day periods in late January and early February.

Available data suggest that manatees may be diverted from southward fall migrations to warm-effluent areas north of their historical winter range. During severe winters, suitable water temperatures are not available, and greatly increased mortality may result.

As the water warms in spring, the congregations disperse throughout Florida into accessible water more than 1 meter deep. Some animals move north into Georgia and beyond, while others go west along the Florida Panhandle--generally no farther than the Aucilla and Port St. Joe Rivers, although single sightings from Pensacola, Fla., and Lake Pontchartrain, La., were reported in 1975-76. Summer observations of manatees in northern Florida and south Georgia are common, whereas the animals are absent during the winter, thus strongly suggesting northerly movements in spring and a southward migration to avoid the cold in fall. One manatee with large saltwater barnacles arrived at Blue Spring, Fla., 170 kilometers south of the mouth of the St. Johns River in winter 1975. Offshore movements along the coast are known to occur.

In Mexico, manatees are thought to occasionally range along the Gulf Coast nearly to the U.S. border, but they are more commonly found south of Tamulipas 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 Lake 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 may be found 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 are found primarily in the rivers of the coastal plain. In Brazil, manatees 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 throughout the Caribbean Sea, usually in small numbers, in coastal regions near rivers and away from population centers. They occur along 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, manatees are most frequently found 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 is nearly continuous along the north coast; concentrations occur around Monte Criste, on the north side of the Samana Peninsula, on the south and eastern shores of Bahia de Samana, around the Tres Hermanas Springs area near the southeast tip of the island, and in the southwest from Azua to the Perdenales Peninsula. Nothing is known of manatees in Haiti, but at least some animals probably interchange with those from the Dominican Republic. Little is known of manatees in Puerto Rico, but isolated groups have been located on the south coast near Guanica, Guayanilla, La Parguerra, and Jobas Bay; at Roosevelt Roads Naval Base on the east coast; and near Guanajibo on the west coast. One sighting was recently reported from Trinidad.

Abundance and trends. Aerial surveys of Florida coasts and rivers during the period 1972-76 and interview data in 1975-76 indicate that the manatee population perhaps numbers about 1,000 animals. Over 740 manatees were counted in a concentrated aerial survey in late January 1976, but the percentage of the population not observed is not known. Numbers may be stable in Florida, but relative abundance cannot be documented because substantive previous studies are lacking.

Manatee numbers in Mexico are markedly reduced and sighting reports are rare; however, their current local status appears to be stable. Likewise, populations in Belize seem to be decreased but stable. Manatees are reported to be fast decreasing in Guatemala but are still present at least in Lago Isabella. Their present status in Honduras is unknown, and estimates for Nicaragua range from a few score to several hundred. Numbers are believed to be low 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 Ciénaga de Guajaro. In Venezuela, manatees are considered to be neither abundant nor rare in the lower Orinoco Basin. Estimates of some thousands, but not tens of thousands, of manatees have been made for Guyana, but populations are reportedly reduced in both Guyana and Surinam.

In the Caribbean, manatees are uncommon to rare in most areas and are thought to be declining in many locales.

It can be generally concluded that hunting pressures in the Caribbean, Mexico, and Central and South America have caused the present diminished manatee populations. In most cases, hunting is now on a subsistence basis, and little commercial exploitation occurs. Hunting efforts have decreased somewhat in many areas, partially owing to the scarcity of manatees, which is permitting remaining populations to stabilize.

During the report year, the Division of Wildlife Research's National Fish and Wildlife Laboratory conducted two manatee surveys along the Caribbean coastline of Mexico. Interviews with local fishermen supplied most of the information, which indicated that the manatee, although present throughout most of its former range, has drastically declined from past population levels, owing apparently to past hunting pressures and habitat destruction. However, present-day laws forbidding the killing of manatees have so reduced hunting that this activity may no longer threaten the species. Twenty-three major central markets were visited, and only 1 sale of manatee meat was reported to have occurred within the last 10 years.

General biology. The West Indian manatee is large, fusiform, thick skinned, and almost hairless. The forelimbs are modified paddles with rudimentary nails, and the spatulate tail is horizontally flattened. Adults range in length from 2.5 to over 4.5 meters, and corresponding weights vary from 200 to 800 kilograms. However, average adults are between 3 and 4 meters long and weigh less than 500 kilograms. Sexual dimorphism in size has not been documented.

Breeding occurs throughout the year. The cow is polyandrous, allowing several bulls to copulate with her during her relatively short period of receptivity. Mating has been observed in water about 2.5 meters deep as well as in shallows less than 1 meter deep. Most calves are thought to be born in spring and summer. The gestation period is probably about 385 to 400 days, and parturition is thought to occur in secluded shallows. Successful breeding has occurred under captive conditions only once, but full documentation of the event is lacking. A cow usually bears only one calf at a time, but twins and a case of foster parenthood have been recorded. Newborn calves are usually over 1 meter long and weigh



between 11 and 27 kilograms. Suckling from the pectoral teats occurs underwater. Calves may begin grazing within weeks of birth, but nursing continues for 1 or 2 years. Therefore, breeding probably occurs every 2 to 3 years.

Manatees have been classified into the following age groups: calves, any young animal associating with a cow; juveniles, independent animals not yet sexually mature; and adults, animals taking part in reproduction. Transition to adulthood is gradual, and sexual maturity may not be attained until animals are 4 to 6 years old. Manatee longevity in the wild is unknown, but a captive has been successfully maintained in Florida for 29 years.

Preliminary studies of social behavior indicate that the most obvious close bond is between cow and calf. Estrus herds of bulls may last from 1 week to more than 1 month. Small herds of less than 5 animals are the most commonly encountered non-estrus groups, except during cold winter periods when groups of as many as 140 animals are found in warm water refugia in Florida. Reported intragroup social interactions include "play" and nonspecific sexual (including homosexual) behavior.

T. manatus is reported to be arrhythmic, with no specific daily patterns of behavior. Adults may spend from 6 to 8 hours per day feeding. Manatees are herbivorous, consuming a variety of food plants in the following order of preference: (1) submerged plants, (2) surface floating vegetation, and (3) emergents. Incidentally ingested insect larvae, amphipods, mollusks, shrimp, and other invertebrates probably provide necessary amounts of protein for the manatee. Captive adults consume from 30 to 50 kilograms of vegetation each day. It has been suggested that manatees must return to freshwater occasionally to drink.

Internal parasites of T. manatus include the trematodes Opiosthotrema 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, whereas animals in freshwater develop a coat of algae (Lyngbya and Compsopogon). Manatees appear to be susceptible to pneumonia and other bronchial disorders when exposed to unusually low temperatures. To date, there is no documentation of predation upon the manatee by animals other than man, but attacks by alligators and giant squid in Florida have been reported. Sharks have also been suggested as likely predators.

Ecological problems. In the United States, wounds inflicted by motorboat propellers and keels pose a major problem and are the prime known cause of manatee mortality. Water contamination by industrial effluents destroys proper manatee habitat and food supplies but does not appear

to directly affect the animals who often congregate near polluted outfalls in winter. In upper Tampa Bay, the natural submergent vegetation has been eradicated by industrial pollution, resulting in the absence of manatees in the upper bay. Dredging may also have detrimental effects, increasing the water turbidity to a point where submergent plants can no longer survive. Natant plants seem to thrive under these conditions, and in the absence of the preferred submergents manatees do consume these natants. However, the floating plants present a problem to boat traffic and (as in the St. Johns River) are sprayed with herbicides, such as 2-4-D, which then may be directly ingested by manatees. No direct effects of this or other herbicides have been documented. Oil spills from offshore drilling may also have detrimental effects on manatees' food supplies. Vandalism, poaching, accidental nettings, and flood control structures are additional causes of manatee mortality.

Blue Springs Park (a winter congregating site) has been designated a manatee sanctuary by the Florida Department of Natural Resources and is the only locality in Florida with lowered boat speed limits and human-swimming restrictions for manatee protection. As many as 27 manatees have taken refuge in this spring during cold periods. Manatees also inhabit the Everglades National Park and several national wildlife refuges, being especially abundant in the Merritt Island NWR. Reduced boat speed limits of 8 km/hr have been proposed to protect the animals in some rivers and canals on Florida's lower east coast and in parts of the intracoastal waterway in metropolitan areas. Outside Florida, manatees are protected within Colombia's Parque Nacional Isla de Salamanca and Costa Rica's Tortuguero National Park, but their 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. The meat is still sold occasionally in local markets of Colombia, Brazil, and Venezuela, but kills are usually the result of fortuitous encounters by natives or fishermen. T. manatus has been used with success in small-scale aquatic weed clearance projects in Guyana, Mexico, and Panama, but at this time large-scale utilization of manatees for weed control does not seem feasible, owing to the large numbers of animals required. The manatee has also been suggested for domestication for meat in the distant future, but current decimated populations, plus a low reproductive rate, make this project unrealistic.

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



Current research. The U.S. Fish and Wildlife Service (FWS) has initiated a broad-scope research program on the ecology and physiology of T. manatus. Survey efforts are being expanded in Florida and the southeastern United States and are being initiated throughout the Caribbean, Central America, and Brazil. Tracking studies of movements and seasonal habitat utilization were initiated in fall 1975 in the southeastern United States. Suitable tagging techniques are also being developed. Detailed analysis of the environmental relationships of T. manatus in the Blue Springs Park has been initiated with the cooperation of the Florida Department of Natural Resources. Studies of basal metabolism and osmoregulation are underway, while programs to investigate sensory physiology are planned. Dr. Daniel K. Odell of the University of Miami's Rosenstiel School of Marine and Atmospheric Science is cooperating with the Service's Division of Wildlife Research in studies of mortality factors and is conducting a study to develop a methodology for aging dead manatees. Cooperative programs between the University of Florida's School of Veterinary Medicine and the Service are studying manatee parasites (Dr. Donald J. Forrester), hematology (Dr. John W. Harvey), and fungal skin infections (Dr. Fred Neal). Dr. Kermit C. Bachman of the Dairy Sciences Department is working with the FWS to study the components of manatee milk.

During fiscal year 1977, the Division of Wildlife Research conducted preliminary individual or cooperative studies on manatees in Brazil, Colombia, Mexico, Puerto Rico, and Surinam; in fiscal year 1978, additional studies are anticipated, and at least preliminary surveys are scheduled in Panama, Belize, Costa Rica, and northern South America. In 1977, the Service also published an extensive synthesis of the available information on this species, compiled by Sandra L. Husar.

E. Mondolfi of Venezuela is compiling records of this species in his country to determine its local range, and Peter van Bree of Amsterdam is supervising a taxonomic study comparing T. manatus to T. senegalensis. The U.S. National Academy of Sciences, the National Research Council of Canada, and the National Science Research Council of Guyana are considering the joint establishment of an international manatee research center in Guyana. They hope to direct their research toward reproduction, physiology, and nutrition of the West Indian manatee.



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. 1). 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 Rupunnni Rivers of Guyana during flooding, thus allowing the animals access to these rivers. T. inunguis is also thought to inhabit the upper Orinoco and the Canó Casiquiare of Venezuela, but records are lacking. In Colombia, Amazonian manatees may be found in the Amazon and the Pupumayo 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 Ucayli and Huallago 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. Breeding apparently occurs throughout the year. The gestation period is thought to be about 1 year, and usually only one calf is born to a cow. 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), Venezuela (1970), Colombia (1969), Peru (1973), and Guyana (1961).

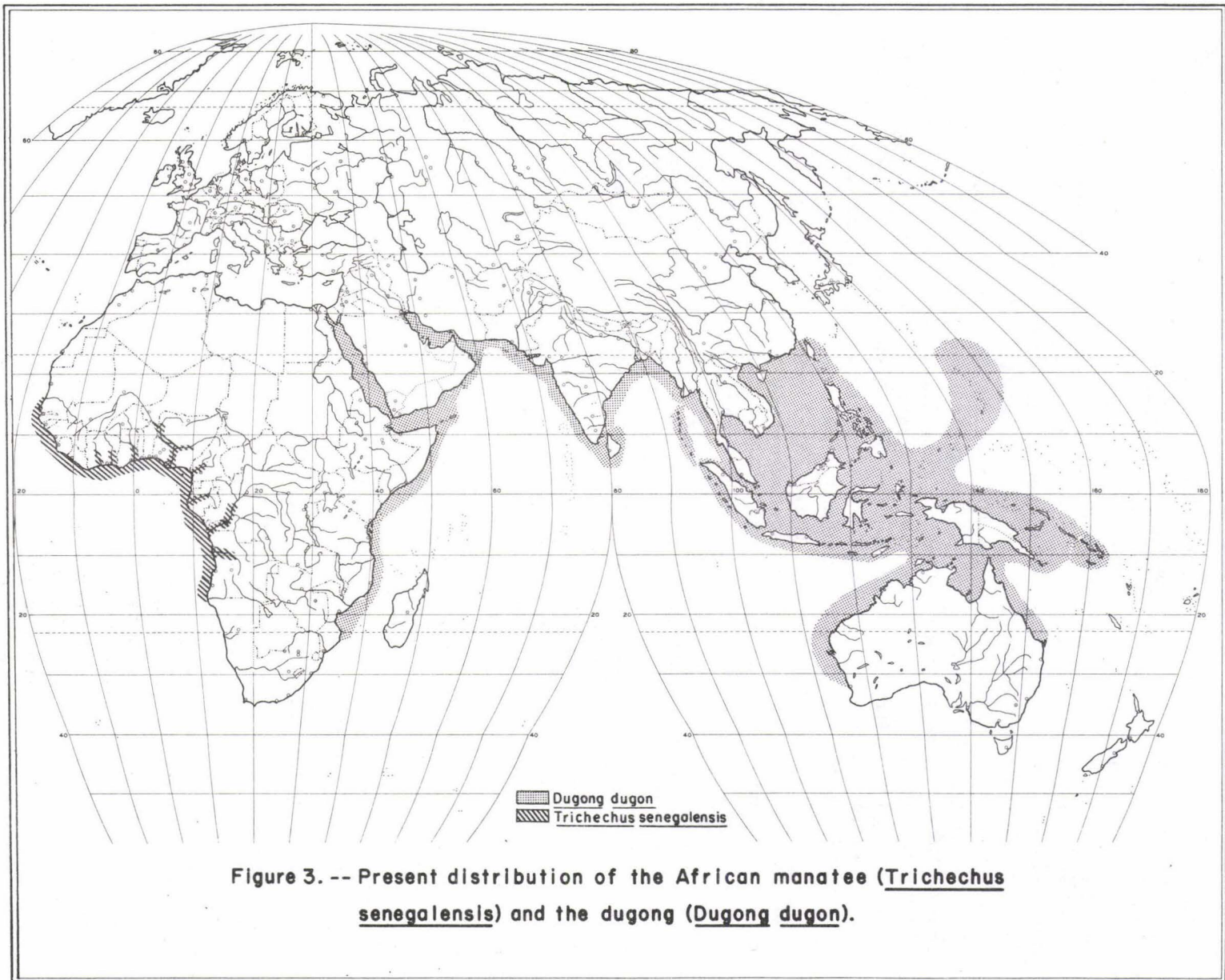
Current research. In 1977, the American Society of Mammalogists published a synthesis of the available information on this species, compiled by Sandra L. Husar. Presently, Daryl P. Domning and Robin C. Best are studying the species at the Instituto Nacional de Pesquisas da Amazonia, Manaus, Brazil. These studies include data on the species' growth, anatomy, distribution, and natural history.



African manatee  
(Trichechus senegalensis)

Distribution and migration. The 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, to Angola (fig. 3). Animals of this species have 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, approximately 200 miles 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 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 Dahomey and the portion of the Niger River on the Niger-Dahomey 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 vulnerable 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 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.

African manatees favor weedy swamps and mirigots. They are believed to be active throughout the day but feed mostly at night. Their diet includes mangrove leaves, Cymodocea nodosa, Polygonum, and Eichornia crassipes, but they also reportedly feed on Rhizophora, a terrestrial plant which often hangs 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 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 movements 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 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 African manatee is currently protected in Senegal, Guinea, Sierra Leone, Liberia, Ivory Coast, Ghana, Togo, Dahomey, Nigeria, Cameroon, Gabon, Congo Brazzaville, Zaire, and Angola.

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 Research considers this to be a critical area for research. Peter van Bree of Amsterdam is supervising a taxonomic study comparing T. senegalensis to T. manatus. The FWS Division of Wildlife Research's National Fish and Wildlife Laboratory has compiled a report on the distribution, conservation, and natural history of T. senegalensis.



Dugong  
(Dugong dugon)

Distribution and migration. Dugongs occur in tropical and subtropical Indo-Pacific waters (fig. 3). They are totally marine and are usually found in nearshore coastal waters from 3.7 to 5.5 meters (2 to 3 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 may still be found in the Ryukyu Archipelago, and specimens have been taken in Taiwan and Hong Kong. The present range extends south and east to include Guam, the Palau Islands (Caroline Islands), New Britain, Papua 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; in Kenya, they presently occur only in Lamu Park. 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 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 flipper-like forelimbs and a broadly notched, horizontal tail fluke. 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, but of the more than 100 dugongs netted and drowned in Queensland, none showed any sign 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 Kenya 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 Egypt, Anglo-Egyptian Sudan, Ethiopia, Somalia, Kenya, Tanzania, Mozambique, Madagascar, South Africa, Natal, India, Sri Lanka, Sabah, Sarawak, the Philippines, Japan, Taiwan, and New Caledonia; 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 and his 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. 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 National Fish and Wildlife Laboratory (NFWL) of the U.S. Fish and Wildlife Service's Division of Wildlife Research has assembled a report on the distribution, status, and natural history of this species, and NFWL personnel recently conducted surveys along the north Australia coast and in Kenya. Surveys are underway to determine dugong distribution in many areas of the Pacific where data are lacking.

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Appendix A

Proposed designation of marine otter  
as a marine mammal

Federal Register, volume 42, number 116, pages 30659-30660,  
Thursday, June 16, 1977 (42 F.R. 30659-30660)

Director's judgment that it is appropriate to list the marine otter at this time is based on available biological data concerning the species. Although the marine otter is presently listed as an endangered species and is therefore protected by the Endangered Species Act of 1973 (16 U.S.C. 1531-1543), this proposed listing would afford the species additional protection.

**DATE:** Interested persons are invited to participate in this rulemaking by submitting written comments on or before July 18, 1977.

**ADDRESS:** Comments should be addressed to the Director (FWS/LE), United States Fish and Wildlife Service, Post Office Box 19183, Washington, D.C. 20036, and should make reference to file number REG 18-02-09. All comments timely received will be available for public inspection between 7:45 a.m. and 4:15 p.m., Monday through Friday, in Suite 600 of the Service's office at 1612 K Street, NW., Washington, D.C.

**FOR FURTHER INFORMATION CONTACT:**

Rupert Bonner, Marine Mammal Coordinator, Division of Wildlife Assistance, United States Fish and Wildlife Service, Suite 1200, 1612 K Street, NW., Washington, D.C. 20006, 202-343-8961.

**SUPPLEMENTARY INFORMATION:** This proposed rule is issued under authority of section 112 of the Marine Mammal Protection Act of 1972 (16 U.S.C. 1382). The Fish and Wildlife Service has determined that (1) this proposed rule is not a major Federal action significantly affecting the human environment and requiring preparation of an environmental impact statement and (2) that this proposed rule does not contain a major proposal requiring preparation of an economic impact statement under Executive Order 11949 and OMB Circular A-107.

Section 3(5) of the Act (16 U.S.C. 1362(5)) defines the term "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 the polar bear); and, for the purposes of this chapter, includes any part of any such marine mammal, including its raw, dressed, or dyed fur or skin." A species which satisfies this definition and is formally listed as a marine mammal in § 18.3 of Title 50, Code of Federal Regulations, is subject to the restrictions and protective provisions of the Act. This rulemaking would add the marine otter to the list of marine mammals in § 18.3.

The species primarily inhabits the coastal waters of South America, from Central Peru to Cape Horn, Chile, but is also known to ascend rivers to at least 650 meters above sea level. Two subspecies of the marine otter are recognized: the first from southern Chile and the second from northern Chile and Peru.

**Title 50—Wildlife and Fisheries**  
**CHAPTER I—UNITED STATES FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR**

**PART 18—MARINE MAMMALS**

**Proposed Designation of Marine Otter as a Marine Mammal**

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Proposed rule.

**SUMMARY:** The Director of the Service proposes to add the marine otter (*Lutra felina*) to the list of species formally designated as marine mammals for purposes of the Marine Mammal Protection Act of 1972 (16 U.S.C. 1361-1407). The



## PROPOSED RULES

Only very limited population data are available with regard to the marine otter found at the northern end of the Chilean range, but in Peruvian waters the population is estimated to be as small as 200 to 300 specimens. In the Cape Horn and southern Tierra del Fuego region, the species is nearly extinct. (See Administration and Status Report of the Marine Mammal Protection Act of 1972, United States Fish and Wildlife Service (1975); (1976)). Copies of these reports may be obtained by writing to the Director, U.S. Fish and Wildlife Service, Department of the Interior, Washington, D.C. 20240. For these reasons, the Marine Mammal Commission has independently recommended to the Director that the marine otter be formally listed in § 18.3.

## DRAFTING INFORMATION

The principal author of this proposal is David R. Endres, a legal specialist for the Division of Law Enforcement, United States Fish and Wildlife Service.

## PROPOSAL

It is proposed to amend the definition of "marine mammal" contained in § 18.3 of Part 18, Subchapter B, Chapter I of Title 50, Code of Federal Regulations, to read as follows:

## § 18.3 Definitions.

In addition to the definitions contained in section 3 of the Act (16 U.S.C. 1362) and in Part 10 of this subchapter, and unless the context requires otherwise, in this Part 18:

"Marine mammal" means any specimen of the following species, whether alive or dead, and any part thereof, including but not limited to, any raw, dressed, or dyed fur or skin:

Scientific name	Common name	Date listed
<i>Ursus maritimus</i> .....	Polar bear.....	Dec. 21, 1973
<i>Enhydra lutris</i> .....	Sea otter.....	Do.
<i>Odobenus rosmarus</i> .....	Walrus.....	Do.
<i>Dugong dugong</i> .....	Dugong.....	Do.
<i>Trichechus manatus</i> .....	West African manatee.....	Do.
<i>Trichechus inunguis</i> ...	West Indian manatee.....	Do.
<i>Trichechus senegalensis</i> .	Amazonian manatee.....	Do.
<i>Lutra felina</i> .....	Marine otter.....	June 16, 1977

NOTE.—Common names given may be at variance with local usage.

Dated: June 6, 1977.

LYNN A. GREENWALT,  
Director, Fish and  
Wildlife Service.

[FR Doc.77-17199 Filed 6-15-77;8:45 am]

Appendix B

Change in Alaska State walrus regulations--

Rifle caliber

Federal Register, volume 41, number 199, page 44875,

Wednesday, October 13, 1976 (41 F.R. 44875)

**NOTICES**

44875

for inspection from 8:00 a.m. to 4:00 p.m.  
at 1612 K Street, N.W., Washington, D.C.,  
suite 1200.

LYNN A. GREENWALT,  
*Director,*  
*U.S. Fish & Wildlife Service.*

[FR Doc.76-29977 Filed 10-12-76;8:45 am]

[Docket No. Wash. 75-1]

**WALRUS**

**Change in Alaska State Walrus Regulations**

Notice is hereby given of a change in the Alaska State walrus regulations originally approved by the Director, United States Fish and Wildlife Service, on April 5, 1976.

The Alaska Fish and Game Code, 5 AAC 81.100, as approved on April 5, 1976, provided that "walrus may be hunted only with a rifle having a caliber of .264 (6.5mm) or larger (except .30-30 caliber rifles may not be used to take walrus."

The State has proposed to amend the above quoted phrase to read as follows: "walrus may be hunted only with a rifle having a caliber of .264 (6.5mm) or larger with a minimum length of the brass portion of the cartridge case of no less than 2 1/8 (2.125) inches or 53.5mm (except that rifles chambered for the .300 Savage, .308 Winchester or a 40/70 may be used)".

After consultation with the Marine Mammal Commission, I have determined that this change is insignificant and does not affect the scope of the waiver of the moratorium on the taking of Pacific walrus. I hereby approve the change, effective on October 13, 1976.

A complete set of the State of Alaska walrus hunting regulations is available



Appendix C

Change in Alaska State walrus regulations--  
Seasons and bag limits

Federal Register, volume 42, number 98, pages 25924-25925,  
Friday, May 20, 1977 (42 F.R. 25924-25925)

## NOTICES

## WALRUS

## Change in Alaska State Regulations

Notice is hereby given of a change in the Alaska State walrus regulations originally approved by the Director, United States Fish and Wildlife Service, on April 5, 1976 (41 FR 14372), and amended on October 13, 1976 (41 FR 44875).

In order to stabilize the walrus kill significantly below the levels of the annual take during the past few years, the State has proposed, following approval of the Alaska Board of Game on April 5, 1977, that the Alaska Fish and Game Code, 5 AAC 81.350, be changed to include the seasons and bag limits noted below.

I have determined that these changes are more restrictive than the regulations now in force and have no effect on the extent of the waiver of the moratorium on the taking of Pacific walrus. Pursuant to 50 CFR 18.56(d), I have consulted with the Marine Mammal Commission on the proposed changes to determine whether the State regulations (with the proposed changes) continue to comply with the requirements of 50 CFR subpart F; the Commission supports the intent of the changes. I hereby approve the changes, effective May 20, 1977.

A complete set of the State of Alaska walrus hunting regulations is available for inspection from 8 a.m. to 4 p.m., Monday to Friday, at 1612 K Street, NW., Washington, D.C., suite 1200.

This notice was prepared by Rupert R. Bonner, Marine Mammal Coordinator, Office of Wildlife Assistance.

LYNN A. GREENWALT,  
Director, U.S. Fish and  
Wildlife Service.

## 5 AAC 81.350. Marine mammal hunting. (5) Walrus

Unit	Open season	Bag limits	Areas	Maximum annual quota per regulatory year
Unit 9	No open season			
Unit 17, except for that portion in the Walrus Islands State Game Sanctuary (including all waters within 1/2 mile of Round Island).	Resident: Oct. 20- Dec. 1 Mar. 1- Apr. 30.  Nonresident: No open season.	One walrus for food, by permit only. A total of 50 permits will be issued to applicants who appear in person at the villages of Togiak, Manokotak, Twin Hills, and Clarks Point, on a basis of first come, first served.		
Unit 18	Resident: No closed season.  Nonresident: No closed season.	One adult bull per permit; provided, however, that residents of settlements on the Bering Sea coast of Unit 18 dependent upon and utilizing walrus for food may take up to 5 adult cows or subadults (either sex) and adult bulls without limit; and provided further that orphaned calves may be taken for food without contributing to the bag limit. One adult bull per permit.		

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Unit	Open season	Bag limits	Areas	Maximum annual quota per regulatory year
Unit 22	Resident: No closed season.	One adult bull per permit; provided, however, that residents of settlements on the Bering and Chukchi Sea coasts of Unit 22 dependent upon and utilizing walrus for food may take up to 10 walrus, not more than 5 of which may be adult cows or subadults (either sex); that orphaned calves may be taken for food without contributing to the bag limit; and that certain specific area quotas apply, as listed in next column.	<ol style="list-style-type: none"> <li>The waters of Bering Sea near the settlement of Gambell within the area bounded by lines connecting the following positions: 64°30' N., 171°22' W.; 64°30' N., 171°00' W.; 63°00' N., 171°00' W.; 63°00' N., 174°59' W.; and the U.S.-Russia convention: Line of 1867 between 63°00' N., 174°59' W. and 64°30' N., 171°22' W.</li> <li>The waters of Bering Sea near the settlement of Savoonga within the area bounded by lines connecting the following positions: 64°30' N., 171°00' W.; 64°30' N., 168°00' W.; 63°00' N., 168°00' W.; 63°00' N., 171°00' W.; 64°30' N., 171°00' W.</li> <li>The waters of Norton Sound and Bering Sea near the settlements of Nome and King Island within the area bounded by lines connecting the following positions: 65°10' N., 168°50' W.; 65°10' N., 166°55' W.; 64°30' N., 163°30' W.; 63°30' N., 163°30' W.; 63°30' N., 168°50' W.; 65°10' N., 168°50' W.</li> <li>The waters of the Bering and Chukchi Seas near the settlement of Wales within the area bounded by lines connecting the following positions: 66°00' N., 167°55' W.; 66°00' N., 167°20' W.; 65°10' N., 167°20' W.; 65°10' N., 167°50' W.; 65°32' N., 168°40' W.; 65°45' N., 168°40' W.; 66°00' N., 167°55' W.</li> <li>Waters of the Bering and Chukchi Seas near the settlement of Diomedea within the area bounded by lines connecting the following positions: 66°20' N., 168°50' W.; 66°20' N., 167°30' W.; 66°00' N., 167°30' W.; 66°00' N., 167°55' W.; 65°52' N., 168°20' W.; 65°10' N., 168°20' W.; 65°10' N., 169°45' W.; 65°30' N., 168°59' W.; 66°20' N., 168°50' W.</li> <li>Waters of the Chukchi Sea near the settlements of Shishmaref within the area bounded by lines connecting the following positions: 67°00' N., 167°30' W.; 67°00' N., 164°00' W.; 66°30' N., 164°00' W.; 66°00' N., 167°00' W.; 66°00' N., 167°30' W.</li> </ol>	450 450 250 150 450 150
Units 23 and 26	Nonresident: No closed season. Resident: No closed season.	One adult bull per permit. One adult bull per permit; provided however, that residents of settlements on the Chukchi and Beaufort Sea coasts of Units 23 and 26 dependent upon and utilizing walrus for food may take up to 5 walrus; that orphaned calves may be taken for food without contributing to the bag limit; and that certain specific area quotas apply, as listing in next column.	<ol style="list-style-type: none"> <li>Waters of the Chukchi Sea near the settlement of Wainwright within the area bounded by lines connecting the following positions: 71°30' N., 161°30' W.; 158°30' W.; 70°48' N., 158°30' W.; 70°15' N., 161°30' W.; 71°30' N., 161°30' W.</li> <li>Waters of the Chukchi and Beaufort Seas near the settlement of Barrow within the area bounded by lines connecting the following positions: 72°10' N., 158°30' W.; 72°10' N., 154°00' W.; 70°50' N., 154°00' W.; 70°48' N., 158°30' W.; 72°10' N., 158°30' W.</li> </ol>	160 130
	Nonresident: No closed season.	One adult bull per permit.		

[PR Doc.77-14343 Filed 5-19-77;8:45 am]



Appendix D

Determination of critical habitat  
for...Florida manatee

Federal Register, volume 41, number 187, pages 41914-41916,

Friday, September 24, 1976 (41 F.R. 41914-41916)

## RULES AND REGULATIONS

making determining Critical Habitat for the Snail Darter, but not the other five species. The present Rulemaking deals with four of those other species, but not the Whooping Crane. So much information on the Whooping Crane was received that more time will be required for evaluation and determination of additional measures on that species.

## SUMMARY OF COMMENTS

Of the responses received to the Proposed Rulemaking of December 16, 1975, some dealing only with the Snail Darter were discussed in the Final Rulemaking of April 1, 1976, and 35 dealing only with the Whooping Crane will be discussed at a later time. Of the approximately 100 remaining comments, nine simply expressed general support for the Proposal and none indicated general opposition.

With regard to the American Crocodile, the National Park Service recommended that the Critical Habitat zone be expanded to include a portion of Everglades National Park to the west of that delineated in the original Proposal. Since the recommended area is within the Park, the Service considers it proper to include this area as part of the Critical Habitat designated below. The National Audubon Society suggested approximately the same addition as the Park Service, and also several other modifications which remain under consideration.

With regard to the California Condor, one person simply expressed approval of the Proposed Critical Habitat designation, and one expressed disapproval. The California Department of Fish and Game and the Director of the Santa Barbara Museum of Natural History suggested that small additional areas be designated as Critical Habitat, and these areas now are under consideration. Five major conservation organizations expressed concern that the western boundary of the Sespe-Piru Condor Area might have been drawn so as to deliberately exclude the land within a phosphate mining lease application from the Critical Habitat zone. In fact, however, the area of importance to the Condor long was recognized to have approximately the same boundary as that delineated in the Proposal, and there seems no biological justification to extend this boundary into the area of the phosphate lease application. Moreover, a letter from the United States Gypsum Company stated that although the Proposed Critical Habitat zone did not enter the phosphate lease application area, it did include most of an adjacent phosphate prospecting permit area. The Company recommended that the Critical Habitat zone be redrawn to exclude this permit area. The Service, however, considers the original boundary to be appropriate with respect to the biological situation, and no adjustment is being made.

The State of Illinois and two other parties expressed general approval of the Proposed Critical Habitat for the Indiana Bat. The States of Indiana, Kentucky, Missouri and Tennessee; three university professors; and three other

parties all recommended the designation of additional Critical Habitat, either more caves or other components of the habitat of the species. These recommendations are now under consideration and may be expressed, at least in part, in a future proposal.

The State of Florida and approximately 64 other parties expressed approval of the Proposed Critical Habitat for the Florida Manatee. The Director of the Florida State Museum suggested adding an additional area in Florida; and the Georgia Conservancy and Mr. Jerry L. McCollum of the Georgia Department of Natural Resources suggested adding parts of Georgia. These suggested additions now are under consideration.

## BASIS FOR DETERMINATION

All of the areas delineated below are considered Critical Habitat because they contain constituent elements necessary to the normal needs or survival of one of the species in question. Specifically for the American Crocodile the delineated area must be considered an absolute minimum amount of Critical Habitat in Florida. The current population of the State, with only 200 to 300 individuals, is concentrated in this area and is dependent upon the included habitat of Florida Bay and associated brackish marshes, swamps, creeks, and canals. All known breeding females, of which there are less than ten in Florida, inhabit and nest in the delineated area.

With regard to the California Condor, the Sespe-Piru, Matilija, Sisquoc-San Rafael, and Hi Mountain-Beartrap Condor areas, as described below, are considered critical for nesting and related year-long activity. The Mt. Pinos and Blue Ridge Condor areas, as described below, are considered critical for roosting. The Tejon Ranch, Kern County rangelands, and Tulare County rangelands, as described below, are considered critical for feeding and related activities. The Tejon Ranch is very important because it contains the only significant feeding habitat remaining in close proximity to the Sespe-Piru Condor nesting area. In most cases Condor feeding habitat is not so restricted as nesting and roosting sites, and only certain portions of the areas described below are needed at any one time. Because, however, the location of food is directly related to both Condor distribution and reproductive success, substantial areas of open range, with adequate food, and limited development and disturbance, would have to be preserved in each delineated area in order to maintain the species.

With regard to the Indiana Bat, approximately 75 percent of the known population hibernates at the sites designated below. The bats are entirely dependent on the shelter provided by these caves and mines during the winter. Their loss or subjection to excessive disturbance or modification would lead to the near or total extinction of the species.

With respect to the Florida Manatee, the areas delineated below contain the largest concentrations in the United States, and are the only areas that pres-

## Title 50—Wildlife and Fisheries

## CHAPTER I—UNITED STATES FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR

## SUBCHAPTER B—TAKING, POSSESSION, TRANSPORTATION, SALE, PURCHASE, BARTER, EXPORTATION, AND IMPORTATION OF WILDLIFE

## PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS

## Determination of Critical Habitat for American Crocodile, California Condor, Indiana Bat, and Florida Manatee

The Director, U.S. Fish and Wildlife Service (hereinafter, the "Director" and the "Service," respectively) hereby issues a Rulemaking pursuant to Section 7 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543; 87 Stat. 884; hereinafter, the "Act") which determines Critical Habitat for the American Crocodile (*Crocodylus acutus*), California Condor (*Gymnogyps californianus*), Indiana Bat (*Myotis sodalis*), and Florida Manatee (*Trichechus manatus*).

## BACKGROUND

In the FEDERAL REGISTER of December 16, 1975 (40 FR 58308-58312) the Service proposed the determination of Critical Habitat for the California Condor, Indiana Bat, Florida Manatee, American Crocodile, Whooping Crane (*Grus americana*), and Snail Darter (*Percina tanasi*). On April 1, 1976 (41 FR 13926-13928) the Service issued a Final Rule-



ently can be defined as having major dependent populations. The Crystal River and its King's Bay headwaters form one of the largest natural warm water resources for Manatees. Up to 60 Manatees possibly representing six to ten percent of the total population of the species in the United States, utilize this refugium during cold weather periods. The Little Manatee, Manatee, Myakka, and Peace rivers, and Charlotte Harbor all support large Manatee concentrations. Manatees also utilize the Caloosahatchee River and associated coastal areas. The warm water discharge of the Florida Power and Light Company Ft. Meyers power plant into the Orange River, on the south bank of the Caloosahatchee River at Tice, is known to attract as many as 75 Manatees during cold periods. The area off the coast of Collier and Monroe Counties, southwestern Florida, is the center of a large, but uncounted Manatee population. This population is at least partially resident and is dependent on the extensive local growths of *Thalassia* and *Diplanthera* as a primary food resource. Concentrations of as many as 75 Manatees are observed in Whitewater Bay. The waterway formed by Card, Barnes, Blackwater, and Buttonwood sounds may constitute the Manatee's essential thoroughfare between Miami-Biscayne Bay and the lower Keys and Florida Bay. Seaward movement along the upper Keys is very rare. Biscayne Bay, with its adjoining waterways is of central importance to the large Manatee populations of southeastern Florida. Abundant food resources exist in the area, and the warm water flow from the Florida Power and Light Company Miami River plant provides an important refugium. Lake Worth supports a large Manatee population year-round, and also serves as a warm water refugium for additional wintering Manatees. The outfall from the Florida Power and Light Company River plant supports up to 75 Manatees during cold weather. The Indian and Banana rivers may contain the largest Manatee population in Florida. These areas provide warm, quiet waters and abundant food resources. The St. Johns River also provides ample food resources to a significant Manatee population, and several of its spring-fed tributaries provide warm water refugia during cold spells. In Lake Monroe, two power plants provide warm water outfalls which are used by Manatees during cold periods. The Intracoastal Waterway from the St. Marys River to Highway A1A is a major concentration area and thoroughfare for Manatees.

It is emphasized that the areas delineated below may not represent the entire Critical Habitat of the species named. This Rulemaking in no way precludes the Service from at any time proposing additions or modifications to the designated Critical Habitat. It now seems likely that more Critical Habitat will be proposed for at least the California Condor, Indiana Bat, and Florida Manatee in the near future.

EFFECTS OF THE RULEMAKING

The effects of this determination are involved primarily with Section 7 of the Act, which states:

The Secretary shall review other programs administered by him and utilize such programs in furtherance of the purposes of this Act. All other Federal departments and agencies shall, in consultation with and with the assistance of the Secretary, utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species listed pursuant to section 4 of this Act and by taking such action necessary to insure that actions authorized, funded, or carried out by them do not jeopardize the continued existence of such endangered species and threatened species or result in the destruction or modification of habitat of such species which is determined by the Secretary, after consultation as appropriate with the affected States, to be critical.

An interpretation of the term "Critical Habitat" was published by the Fish and Wildlife Service and the National Marine Fisheries Service in the FEDERAL REGISTER of April 22, 1975 (40 FR 17764-17765). Some of the major points of that interpretation are: (1) Critical Habitat could be the entire habitat of a species, or any portion thereof, if any constituent element is necessary to the normal needs or survival of that species; (2) actions by a Federal agency affecting Critical Habitat of a species would not conform with Section 7 if such actions might be expected to result in a reduction in the numbers or distribution of that species of sufficient magnitude to place the species in further jeopardy, or restrict the potential and reasonable recovery of that species; and (3) there may be many kinds of actions which can be carried out within the Critical Habitat of a species which would not be expected to adversely affect that species.

This last point has not been well understood by some persons. There has been widespread and erroneous belief that a Critical Habitat designation is something akin to establishment of a wilderness area or wildlife refuge, and automatically closes an area to most human uses. Actually, a Critical Habitat designation applies only to Federal agencies, and is a notification to such agencies that their responsibilities pursuant to Section 7 of the Act are applicable in a certain area.

FINAL RULEMAKING

The Director has considered all comments and data submitted in response to the proposed determination of Critical Habitat for the American Crocodile, California Condor, Indiana Bat, and Florida Manatee. The Director also has considered other information received by the Service both prior to and subsequent to the publication of the Proposal in the FEDERAL REGISTER of December 16, 1975. Based on this review, the areas delineated below are determined to be Critical Habitat for the American Crocodile, California Condor, Indiana Bat, and Florida Manatee. (Since the time when

proposed Critical Habitat Regulations for these species were published in the FEDERAL REGISTER (December 16, 1975), additional Subparts have been proposed for Part 17. Accordingly, the Section numbers in the Final Regulations have been changed to those shown below.)

These Final Regulations will become effective on October 22, 1976.

Dated: September 14, 1976.

LYNN A. GREENWALT,  
Director, Fish and  
Wildlife Service.

Accordingly, 50 CFR Part 17 is hereby amended as set forth below:

1. The Table of Sections for Subpart F of Part 17 is amended to read as follows:

Subpart F—Critical Habitat

Sec.	
17.60	[Reserved]
17.61	Snail Darter.
17.62	American Crocodile.
17.63	[Reserved]
17.64	California Condor.
17.65	Indiana Bat.
17.66	Florida Manatee.

2. A new § 17.62 is added reading as follows:

§ 17.62 American crocodile.

(a) The following area (exclusive of those existing man-made structures or settlements which are not necessary to the normal needs or survival of the species) is critical habitat for the American crocodile (*Crocodylus acutus*): All land and water within the following boundary in Florida: beginning at the easternmost tip of Turkey Point, Dade County, on the coast of Biscayne Bay; thence southeastward along a straight line to Christmas Point at the southernmost tip of Elliott Key; thence southwestward along a line following the shores of the Atlantic Ocean side of Old Rhodes Key, Palo Alto Key, Angelfish Key, Key Largo, Plantation Key, Windley Key, Upper Matecumbe Key, Lower Matecumbe Key, and Long Key, to the westernmost tip of Long Key; thence northwestward along a straight line to the westernmost tip of Middle Cape; thence northward along the shore of the Gulf of Mexico to the north side of the mouth of Little Sable Creek; thence eastward along a straight line to the northernmost point of Nine-Mile Pond; thence northeastward along a straight line to the point of beginning.

(b) Pursuant to section 7 of the act, all Federal agencies must take such action as is necessary to insure that actions authorized, funded, or carried out by them do not result in the destruction or modification of this critical habitat area.

3. A new § 17.63 is added and reserved as follows:

§ 17.63 [Reserved]

4. A new § 17.64 is added reading as follows:

§ 17.64 California condor.

(a) The following areas (exclusive of those existing man-made structures or



settlements which are not necessary to the normal needs or survival of the species) in California are critical habitat for the California condor (*Gymnogyps californianus*).

(1) *Sespe-Piru Condor Area*: an area of land, water, and airspace to an elevation of not less than 3,000 feet above the terrain, in Ventura and Los Angeles Counties, with the following components (San Bernardino Meridian): Sespe Condor Sanctuary, as delineated by Public Land Order 695 (January 1951); T4N R20W Sec. 2, 5-10, N $\frac{1}{2}$  Sec. 11; T4N R21W Sec. 1-3, 10-12, N $\frac{1}{4}$  Sec. 13, N $\frac{1}{4}$  Sec. 14, N $\frac{1}{4}$  Sec. 15; T5N R18W Sec. 4-9, 18, 19, 30, 31, N $\frac{1}{2}$  Sec. 3, N $\frac{1}{2}$  Sec. 17; T5N R21W Sec. 1-4, 9-16, 21-28, 33-36; T6N R18W Sec. 7-11, 14-23, 26-35; T6N R19W Sec. 7-36; T6N R20W Sec. 8-36; T6N R21W Sec. 13-36; T6N R22W Sec. 3-26, 35, 36; T6N R23W Sec. 1-3, 10-14, 24, N $\frac{1}{2}$  Sec. 23; T7N R22W Sec. 31; T7N R23W Sec. 34-36.

(2) *Matilija Condor Area*: an area of land, water, and airspace to an elevation of not less than 3,000 feet above the terrain, in Ventura and Santa Barbara Counties, with the following components (San Bernardino Meridian): T5N R24W W $\frac{1}{2}$  Sec. 3, Sec. 4-11, 14, 15, N $\frac{1}{2}$  Sec. 16, N $\frac{1}{4}$  Sec. 17; T5N R25W E $\frac{1}{2}$  Sec. 1, NE $\frac{1}{4}$  Sec. 12; T5 $\frac{1}{2}$ N R24W Sec. 31-34; T6N R24W S $\frac{1}{2}$  Sec. 32, S $\frac{1}{2}$  Sec. 33, S $\frac{1}{2}$  Sec. 34.

(3) *Sisquoc-San Rafael Condor Area*: an area of land, water, and airspace to an elevation of not less than 3,000 feet above the terrain, Santa Barbara County, with the following components (San Bernardino Meridian): T6N R26W Sec. 5, 6; T6N R27W Sec. 1, 2; T7N R26W Sec. 5-8, 17-20, 29-32; T7N R27W Sec. 1-14, 23-26, 35, 36; T7N R28W Sec. 1, 2, 11, 12; T8N R26W Sec. 19-22, 27-34; T8N R27W Sec. 19-36.

(4) *H1 Mountain-Beartrap Condor Areas*: areas of land, water, and airspace to an elevation of not less than 3,000 feet above the terrain in San Luis Obispo County, with the following components (Mt. Diablo Meridian): T30S R16E Sec. 13, 14, 23-26, SE $\frac{1}{4}$  Sec. 11, S $\frac{1}{2}$  Sec. 12; T30S R17E Sec. 17-20, 29, 30; T31S R14E Sec. 1, 2, 11, 12, E $\frac{1}{2}$  Sec. 3, E $\frac{1}{2}$  Sec. 10, N $\frac{1}{2}$  Sec. 14, N $\frac{1}{2}$  Sec. 13; T31S R15E W $\frac{1}{2}$  Sec. 6, W $\frac{1}{2}$  Sec. 7, NW $\frac{1}{4}$  Sec. 18.

(5) *Mt. Pinos Condor Area*: An area of land, water, and airspace in Ventura and Kern Counties, with the following components (San Bernardino Meridian): T8N R21W W $\frac{1}{2}$  Sec. 5, Sec. 6 N $\frac{1}{2}$  Sec. 7, NW $\frac{1}{4}$  Sec. 8; T8N R22W Sec. 1, 2, E $\frac{1}{2}$  Sec. 3, NE $\frac{1}{4}$  Sec. 10, N $\frac{1}{2}$  Sec. 11, N $\frac{1}{2}$  Sec. 12; T9N R21W Sec. 31, 32, W $\frac{1}{2}$  Sec. 33; T9N R22 W E $\frac{1}{2}$  Sec. 35, Sec. 36.

(6) *Blue Ridge Condor Area*: An area of land, water, and airspace in Tulare County, with the following components (Mt. Diablo Meridian): T19S R29E Sec. 5-9, 15-22, 27-30.

(7) *Tejon Ranch*: an area of land, water, and airspace in Kern County, with the following components (San Bernardino Meridian): R16W T10N, R17W T10N, R17W T11N, R18W T9N, R18W T10N, R19W T10N.

(8) *Kern County rangelands*: an area of land, water, and airspace in Kern County between California State Highway 65 and the western boundary of Sequoia National Forest, with the following components (Mt. Diablo Meridian): R29E T25S, R29E T26S, R30E T25S, R30E T26S.

(9) *Tulare County rangelands*: an area of land, water, and airspace in Tulare County between California State Highway 65, State Highway 198, and the western boundary of Sequoia National Forest, with the following components (Mt. Diablo Meridian): R28E T18S (all sections); R28E T19S (all sections); R28E T20S (all sections); R28E T21S Sec. 1-18; R29E T20S (all sections); R29E T21S Sec. 1-18.

(b) Pursuant to section 7 of the act, all Federal agencies must take such action as is necessary to insure that actions authorized, funded, or carried out by them do not result in the destruction or modification of these critical habitat areas.

5. A new § 17.65 is added reading as follows:

§ 17.65 Indiana bat.

(a) The following areas (exclusive of those existing man-made structures or settlements which are not necessary to the normal needs or survival of the species) are critical habitat for the Indiana bat (*Myotis sodalis*):

(1) *Illinois*. The Blackball Mine, La Salle County.

(2) *Indiana*. Big Wyandotte Cave, Crawford County; Ray's Cave, Greene County.

(3) *Kentucky*. Bat Cave, Carter County; Coach Cave, Edmonson County.

(4) *Missouri*. Cave 021, Crawford County; Cave 009, Franklin County; Cave 017, Franklin County; Pilot Knob Mine, Iron County; Bat Cave, Shannon County; Cave 029, Washington County (Numbers assigned by Division of Ecological Services, U.S. Fish and Wildlife Service, Region 61).

(5) *Tennessee*. White Oak Blowhole Cave, Blount County.

(6) *West Virginia*. Hellhole Cave, Pendleton County.

(b) Pursuant to section 7 of the act, all Federal agencies must take such action as is necessary to insure that actions authorized, funded, or carried out by them do not result in the destruction or modification of these critical habitat areas.

6. A new § 17.66 is added reading as follows:

§ 17.66 Florida manatee.

(a) The following areas (exclusive of those existing man-made structures or settlements which are not necessary to the normal needs or survival of the species) in Florida are critical habitat for the Florida manatee (*Trichechus manatus*): Crystal River and its headwaters known as King's Bay, Citrus County; the Little Manatee River downstream from the U.S. Highway 301 bridge, Hillsborough County; the Manatee River

downstream from the Lake Manatee Dam, Manatee County; the Myakka River downstream from Myakka River State Park, Sarasota and Charlotte Counties; the Peace River downstream from the Florida State Highway 760 bridge, De Soto and Charlotte Counties; Charlotte Harbor north of the Charlotte-Lee county line, Charlotte County; Caloosahatchee River downstream from the Florida State Highway 31 bridge, Lee County; all U.S. territorial waters adjoining the coast and islands of Lee County; all U.S. territorial waters adjoining the coast and islands and all connected bays, estuaries, and rivers from Gordon's Pass, near Naples, Collier County, southward to and including White-water Bay, Monroe County; all waters of Card, Barnes, Blackwater, Little Blackwater, Manatee, and Buttonwood sounds between Key Largo, Monroe County, and the mainland of Dade County; Biscayne Bay, and all adjoining and connected lakes, rivers, canals, and waterways from the southern tip of Key Biscayne northward to and including Maule Lake, Dade County; all of Lake Worth, from its northernmost point immediately south of the intersection of U.S. Highway 1 and Florida State Highway A1A southward to its southernmost point immediately north of the town of Boynton Beach, Palm Beach County; the Loxahatchee River and its headwaters, Martin and West Palm Beach Counties; that section of the intracoastal waterway from the town of Sewalls Point, Martin County to Jupiter Inlet, Palm Beach County; the entire inland section of water known as the Indian River, from its northernmost point immediately south of the intersection of U.S. Highway 1 and Florida State Highway 3, Volusia County, southward to its southernmost point near the town of Sewalls Point, Martin County, and the entire inland section of water known as the Banana River and all waterways between the Indian and Banana rivers, Brevard County; the St. Johns River, including Lake George, and including Blue Springs and Silver Glen Springs from their points of origin to their confluences with the St. Johns River; that section of the Intra-coastal Waterway from its confluence with the St. Marys River on the Georgia-Florida border to the Florida State Highway A1A bridge south of Coastal City, Nassau and Duval Counties.

(b) Pursuant to section 7 of the act, all Federal agencies must take such action as is necessary to insure that actions authorized, funded, or carried out by them do not result in the destruction or modification of the critical habitat area.

[FR Doc. 76-28066 Filed 9-23-76; 8:45 am]

Appendix E

Determination that the southern sea otter  
is a threatened species

Federal Register, volume 42, number 10, pages 2965-2968,  
Friday, January 14, 1977 (42 F.R. 2965-2968)



Southern Sea Otter (*Enhydra lutris nereis*). Acting on this request, the Service published in the FEDERAL REGISTER of September 26, 1975 (40 FR 44329) a Proposed Rulemaking that would propose all 216 taxa to be endangered species under the Act. In the FEDERAL REGISTER of June 14, 1976 (41 FR 24062-24067) the Service issued a Final Rulemaking determining 159 of the 216 taxa to be endangered species. One of the remaining taxa was determined to be neither endangered nor threatened, and reasons were given for delaying determinations on the other 56 taxa.

One of the species which was not acted upon in the June 14, 1976, Rulemaking was the Southern Sea Otter. It was stated at that time that a considerable amount of data had been received which was still being analyzed. Although most responses had favored listing the species as Endangered, the State of California opposed such a measure and submitted a large amount of supporting data. In contrast, several conservation groups submitted substantial evidence to support their contention that the Southern Sea Otter was Endangered and should be determined as such pursuant to the Act. In view of the quantity and complexity of the information received, the Service stated that a determination on the Southern Sea Otter would be delayed.

Another problem which arose in connection with the Southern Sea Otter concerned its proper taxonomic status. This Sea Otter was long treated as a subspecies, *Enhydra lutris nereis*, distinct from the Northern Sea Otter in Alaskan waters (*Enhydra lutris lutris*). Recently, some parties have argued that the Southern Sea Otter is not a separate subspecies, is only a population of *Enhydra lutris lutris*, and, since the Northern Sea Otter is relatively common, should not be considered as an endangered or threatened species. Other parties have presented evidence that the Southern Sea Otter is a distinct subspecies. This question actually is not relevant to the matter at hand, because sections 3 and 4 of the Act allows the listing of populations of species in portions of their range, as well as entire species and subspecies. Since the Southern Sea Otter does form a significant population, it can be treated independently under the Act, regardless of its taxonomic status. The Service decided, however, to utilize the subspecific designation *Enhydra lutris nereis* in this rulemaking, though this decision had no connection with the decision to list as threatened.

All pertinent data, comments, and recommendations now have been analyzed, and the Service is issuing this Final Rulemaking pertaining to the Southern Sea Otter.

#### SUMMARY OF COMMENTS AND RECOMMENDATIONS

Section 4(b)(1)(C) of the Act requires that a summary of all comments and recommendations received be published in the FEDERAL REGISTER prior to adding any species to the List of Endangered and Threatened Wildlife. In the September

#### Title 50—Wildlife and Fisheries

#### CHAPTER I—UNITED STATES FISH AND WILDLIFE SERVICE, DEPARTMENT OF THE INTERIOR

#### SURCHAPTER B—TAKING, POSSESSION, TRANSPORTATION, SALE, PURCHASE, BARTER, EXPORTATION, AND IMPORTATION OF WILDLIFE

#### PART 17—ENDANGERED AND THREATENED WILDLIFE AND PLANTS

#### Determination That the Southern Sea Otter Is A Threatened Species

The Director, U.S. Fish and Wildlife Service (hereinafter the Director and the Service, respectively) hereby issues a Rulemaking pursuant to section 4 of the Endangered Species Act of 1973 (16 U.S.C. 1531-1543; 87 Stat. 884; hereinafter the act) which determines that the Southern Sea Otter (*Enhydra lutris nereis*) is a threatened species.

#### BACKGROUND

On May 22, 1975, the Fund for Animals, Inc. requested the Service to list as endangered species, pursuant to the Act, 216 taxa of plants and animals which appear on Appendix I of the Convention on International Trade in Endangered Species of Wild Fauna and Flora which were not already on the U.S. List of Endangered and Threatened Wildlife. One of these 216 taxa was the



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26, 1975, Proposed Rulemaking (40 FR 44329) all interested persons were invited to submit written comments to the Service, which would be considered if received no later than October 28, 1975. This was a clerical error which was corrected on October 22, 1975 (40 FR 49347), when the comment period was extended to November 24, 1975.

As stated in the Final Rulemaking of June 14, 1976 (41 FR 24062), 291 responses were received during the comment period that dealt specifically with the Southern Sea Otter. Of these responses, 289 favored listing as Endangered. In addition, many hundreds of persons signed petitions supporting the Endangered classification. Only two parties opposed listing, one being the State of California, and the other being a university professor whose reasons largely paralleled those of the State.

The State of California's response, as provided by the Director of the Department of Fish and Game on November 21, 1975, consisted of a two-page letter and approximately 90 pages of excerpts from the two large volumes of data sent in support of the State's application for waiver of the moratorium of the Marine Mammal Protection Act. The letter specifically requested that the Southern Sea Otter not be declared Endangered or Threatened, because it met none of the five listing criteria in section 4(a) of the Act. The supporting data included some information on taxonomy and other subjects not directly relevant to the listing question. A history of the California Sea Otter population was provided, in which it was suggested that there may have been about 16,000 Sea Otters in California waters prior to 1914 when exploitation for the fur trade reduced the population to about 50 animals off Point Sur. With subsequent protection the population increased to an estimated 1,760 animals by 1975 when it occupied 161 linear miles of coastline from Sunset State Beach to Point Buchon. The population was considered to be at an optimum level, and continued expansion was thought probable. No major natural or man-caused threats to the overall population were recognized. Deaths because of shooting and collision with boats were said to occur, but not to be a significant problem. There was no evidence that pollution or oil spills had ever caused the death of a Sea Otter. The potential major effects of an oil spill were acknowledged, but it was held extremely unlikely that such a spill could wipe out the entire Sea Otter population.

The largest response favoring listing of the Southern Sea Otter as Endangered came from the Friends of the Sea Otter, a private organization in Big Sur, California. This response, dated November 20, 1975, included a 19-page letter and 16 supporting attachments. Again, some irrelevant information on taxonomy and other subjects was covered. Although it was recognized that the Southern Sea Otter population had increased since 1914, it was suggested that this population now had stabilized and that actual counts showed the presence of only about

1,000 Sea Otters in each year since 1969. Even if the higher estimates of the California Department of Fish and Game were accepted, the population still has to be considered small and vulnerable. Among the cited threats to the population was a possible loss of genetic diversity, caused by the former severe numerical reduction, which could adversely affect the adaptability of the existing animals. Chemical, bacteriological, and metal pollution was held to be increasing in the range of the Sea Otter. The possibility of a major oil spill that could destroy much of the population was considered a serious possibility. Direct killing by man was said to be occurring and to be a matter of growing concern as human population pressures increased.

Another response from the California Chapter of the Sierra Club gave many of the same arguments as the Friends of the Sea Otter, but also emphasized the issue of competition between man and the Sea Otter for food resources. Heavy sport and commercial pressures, in conjunction with rapid human population growth, were said to have depleted the shellfish resources upon which the Sea Otter depends, and to have contributed to the ill feeling that some persons have toward the Sea Otter.

Among the other responses supporting endangered status for the Southern Sea Otter were letters from nine professors or researchers, in biological science fields, at California universities or research stations, and the Director of the California Academy of Sciences. These letters expressed concern about such factors as potential oil spills, pollution, direct killing by man, and the loss of genetic diversity by the Southern Sea Otter population.

In a letter of June 1, 1976, the Marine Mammal Commission provided its recommendations on the matter to the Fish and Wildlife Service.

The Commission stated that while present population estimates were debatable, it was thought that the Sea Otter was increasing in range and numbers and would continue to do so, if permitted. The Sea Otter thus was not considered to be endangered, but several threats were held to be problems, the most serious being the potential impact of oil spills. It was suggested that a large number of animals could be jeopardized by a major oil spill. The Commission therefore recommended that the Southern Sea Otter be listed as threatened.

## CONCLUSION

After a thorough review and consideration of all available information, the Director has determined that the Southern Sea Otter is not endangered, but is threatened as defined in Section 3 of the Act. Section 4(a) of the Act states that a species may be determined to be endangered or threatened because of any of five factors. These factors, and their applicability to the Southern Sea Otter are discussed below.

1. *The present or threatened destruction, modification, or curtailment of its*

*habitat or range.*—There seems no question that the range of the Southern Sea Otter is presently much reduced from what it was in historical time. The original range extended at least 1,500 miles from Morro Hermoso on the Pacific Coast of Baja California, to the Strait of Juan de Fuca, separating the Olympic Peninsula of Washington from Vancouver Island, British Columbia. The present range covers only about ten percent of this area. Recent information, supporting recognition of the Southern Sea Otter as a distinct subspecies, suggests that the subspecific line should have been drawn in the vicinity of Prince William Sound, Alaska, which would have given the subspecies a range of about 2,700 miles. Although small groups of Sea Otters derived from Alaska waters have been introduced at several points off the coast of southeastern Alaska, British Columbia, Washington, and Oregon, the original stock that once occupied the region from southeastern Alaska to Baja California now is represented only by the group off the central California coast. The remaining habitat and population is potentially jeopardized by oil spills, and possibly by pollution and competition with man. The fact that less than 2,000 (possibly as few as 1,000) otters occupy the present range, make the species particularly vulnerable to any sort of disruption.

Nonetheless, there also seems no doubt that the Southern Sea Otter has made a comeback from a formerly much more dangerous status. The population now seems to be relatively dense in the area that is occupied, and there is no known immediate problem that could result in extinction. An endangered classification, therefore, is not warranted at this time.

2. *Overutilization for commercial, sporting, scientific, or educational purposes.*—The original decline in Sea Otter populations was caused largely by commercial exploitation. Through State, Federal, and International protection this factor is not now a problem. Illegal killing does occur, but probably is not a threat to the overall population.

3. *Disease or predation.*—These factors cannot be shown to constitute a serious threat at present.

4. *The inadequacy of existing regulatory mechanisms.*—Existing Federal and State laws probably are adequate to protect the Sea Otter from direct taking. Habitat protection, however, is not adequate and would be improved through application of Section 7 of the Act.

5. *Other natural or manmade factors affecting its continued existence.*—It has been suggested, though not proven, that the former severely reduced state of the Southern Sea Otter may have greatly restricted the genetic diversity of the population, leaving it less adaptable in confronting potential problems.

A major spill of oil from a tanker in the waters in the vicinity of the range of the Southern Sea Otter is probably the most serious potential threat to the species. There seems little question that oil would be harmful to these animals,



and, indeed, they are more susceptible to this problem than most species. Unlike other marine mammals they lack an insulating layer of blubber and depend entirely on their thick air-filled fur for protection from chill waters. Should the fur become contaminated with oil and matted down it would lose its insulating properties, resulting in overexposure and death.

There are major oil unloading facilities at Moss Landing, near the present northern edge of the Sea Otter's range, and at Estero Bay, near the southern edge of this range. Currently, these terminals are used by tankers of 50,000 DWT. Proposals are pending for an additional 120,000 DWT tanker mooring terminal at Moss Landing, and a 70,000 DWT mooring, with provisional extension to moor 125,000 DWT tankers carrying light loads under optimum ocean conditions, at Estero Bay. Increasing shipments of foreign oil, and the expected large-scale movement of oil from the southern terminal of the Alaska Pipeline, probably will result in a considerable increase of oil tanker traffic in and near the range of the Sea Otter.

There is some question regarding the likelihood of a major oil spill and the extent to which it could affect the overall Sea Otter population. Although it does not appear probable that the entire population could be wiped out by a single spill, a significant portion thereof could be eliminated, especially under certain weather and sea conditions. Even though there may be surviving groups, these could be so reduced in number, disrupted, and vulnerable to further problems that they might justifiably be termed Endangered. Therefore, while the chances of an oil spill cannot be predicted, the possibility of such a disaster and its consequences to the Sea Otter population, coupled with the prospects for increasing oil activity in the area, contributes substantially to the decision to list the population as threatened.

**EFFECTS OF THE RULEMAKING**

The effects of this determination and this rulemaking include, but are not necessarily limited to those discussed below.

No special regulations, as provided for by section 4(d) of the Act in the case of threatened species, are deemed necessary or advisable for the protection of the Southern Sea Otter. The general prohibitions and exceptions concerning the Threatened Species are published in Title 50, § 17.31, of the Code of Federal Regulations as follows:

**SUBPART D—THREATENED WILDLIFE**

**§ 17.31 Prohibitions.**

(a) Except as provided in Subpart A of this Part, or in a permit issued under this Subpart, all of the provisions in § 17.21 (a) through (c) (4) shall apply to threatened wildlife.

(b) In addition to any other provisions of this Part 17, any employee or agent of the Service, of the National Marine Fisheries Service, or of a State conservation

agency which is operating a conservation program pursuant to the terms of a Cooperative Agreement with the Service in accordance with section 6(c) of the Act, who is designated by his agency for such purposes, may, when acting in the course of his official duties, take any threatened wildlife to carry out scientific research or conservation programs.

(c) Whenever a special rule in §§ 17.40 to 17.48 applies to a threatened species, none of the provisions of paragraphs (a) and (b) of this section will apply. The special rule will contain all the applicable prohibitions and exceptions.

The above regulations refer to § 17.21 of Title 50 which is reprinted below:

**SUBPART C—ENDANGERED WILDLIFE**

**§ 17.21 Prohibitions.**

(a) Except as provided in Subpart A of this part, or under permits issued pursuant to § 17.22 or § 17.23, it is unlawful for any person subject to the jurisdiction of the United States to commit, to attempt to commit, to solicit another to commit or to cause to be committed, any of the acts described in paragraphs (b) through (f) of this section in regard to any endangered wildlife.

(b) *Import or export.* It is unlawful to import or to export any endangered wildlife. Any shipment in transit through the United States is an importation and an exportation, whether or not it has entered the country for customs purposes.

(c) *Take.* (1) It is unlawful to take endangered wildlife within the United States, within the territorial sea of the United States, or upon the high seas. The high seas shall be all waters seaward of the territorial sea of the United States, except waters officially recognized by the United States as the territorial sea of another country, under international law.

(2) Notwithstanding paragraph (c) (1) of this section, any person may take endangered wildlife in defense of his own life or the lives of others.

(3) Notwithstanding paragraph (c) (1) of this section, any employee or agent of the Service, any other Federal land management agency, the National Marine Fisheries Service, or a State conservation agency, who is designated by his agency for such purposes may, when acting in the course of his official duties, take endangered wildlife without a permit if such action is necessary to:

- (i) Aid a sick, injured or orphaned specimen; or
- (ii) Dispose of a dead specimen; or
- (iii) Salvage a dead specimen which may be useful for scientific study; or
- (iv) Remove specimens which constitute a demonstrable but nonimmediate threat to human safety, provided that the taking is done in a humane manner; the taking may involve killing or injuring only if it has not been reasonably possible to eliminate such threat by live-capturing and releasing the specimen unharmed, in a remote area.

(4) Any taking pursuant to paragraphs (c) (2) and (3) of this section must be reported in writing to the United States Fish and Wildlife Service, Division of Law Enforcement, P.O. Box 19183, Washington, D.C. 20036, within 5 days. The specimen may only be retained, disposed of, or salvaged in accordance with directions from the Service.

(5) Notwithstanding paragraph (c) (1) of this section, any qualified employee or agent of a State Conservation Agency which is a party to a Cooperative Agreement with the Service in accordance with section 6(c) of the Act, who is designated by his agency for such purposes, may, when acting in the

course of his official duties take Endangered Species, for conservation programs in accordance with the Cooperative Agreement, provided that such taking is not reasonably anticipated to result in: (i) The death or permanent disabling of the specimen; (ii) the removal of the specimen from the State where the taking occurred; (iii) the introduction of the specimen so taken or of any progeny derived from such a specimen, into an area beyond the historical range of the species; or (iv) the holding of the specimen in captivity for a period of more than 45 consecutive days.

(d) *Possession and other acts with unlawfully taken wildlife.* (1) It is unlawful to possess, sell, deliver, carry, transport, or ship, by any means whatsoever, any endangered wildlife which was taken in violation of paragraph (c) of this section.

*Example.* A person captures a whooping crane in Texas and gives it to a second person, who puts it in a closed van and drives thirty miles, to another location in Texas. The second person then gives the whooping crane to a third person, who is apprehended with the bird in his possession. All three have violated the law—the first by illegally taking the whooping crane; the second by transporting an illegally taken whooping crane; and the third by possessing an illegally taken whooping crane.

(2) Notwithstanding paragraph (d) (1) of this section, Federal and State law enforcement officers may possess, deliver, carry transport or ship any endangered wildlife taken in violation of the Act as necessary in performing their official duties.

(e) *Interstate or foreign commerce.* It is unlawful to deliver, receive, carry, transport, or ship in interstate or foreign commerce, by any means whatsoever, and in the course of a commercial activity, any endangered wildlife.

(f) *Sale or offer for sale.* (1) It is unlawful to sell or to offer for sale in interstate or foreign commerce any endangered wildlife.

(2) An advertisement for the sale of endangered wildlife which carries a warning to the effect that no sale may be consummated until a permit has been obtained from the U.S. Fish and Wildlife Service shall not be considered an offer for sale within the meaning of this subsection.

Section 17 of the Endangered Species Act provides that, except as otherwise provided in the Act, none of its provisions will take precedence over any more restrictive conflicting provision of the Marine Mammal Protection Act of 1972, 16 U.S.C. 1361 et seq.

The Marine Mammal Protection Act is more restrictive in circumstances where a "taking" requires a permit. Under the Endangered Species Act, all proposed takings of Threatened Species, except those by persons covered by 50 CFR 17.31 (b), would have to satisfy the general permit requirements of 50 CFR 17.32, which lists several acceptable purposes. Permit takings under the Marine Mammal Protection Act are more restrictive because section 101(a) (3) (B) states that except for scientific research purposes, no permit may be issued during the moratorium (directed by section 101(a) of the Marine Mammal Protection Act) which would authorize the taking of a marine mammal listed under the Endangered Species Act. It must be noted, furthermore, that this restriction applies only when the taking must be done pursuant to a permit and only



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when the moratorium has not been waived.

In circumstances where a permit is not required for a taking, the Marine Mammal Protection Act is also more restrictive than the Endangered Species Act, and, therefore, the requirements under the Marine Mammal Protection Act would also prevail in that situation. Section 109(a)(4) of the Marine Mammal Protection Act provides that a State or local government official or employee may "in the course of his duties as an official or employee, (take) a marine mammal in a humane manner if such taking (A) is for the protection or welfare of such mammal or for the protection of the public health and welfare, and (B) includes steps designed to assure the return of such mammal to its natural habitat." Section 18.22 of 50 CFR makes express that no permit is required for such taking.

On the other hand 50 CFR 17.31(a) under the Endangered Species Act allows non-permit takings of listed Threatened species pursuant to the terms of § 17.21. Section 17.21(c)(3) provides that any employee or agent of the Fish and Wildlife Service, any other Federal land management agency, the National Marine Fisheries Service or of a State conservation agency, who is designated by his agency for such purposes, may, when acting in the course of his official duties, take endangered wildlife without a permit if such action is necessary to: (i) Aid a sick, injured or orphaned specimen; or (ii) Dispose of a dead specimen; or (iii) Salvage a dead specimen which may be useful for scientific study.

50 CFR 17.31(b) provides:

(b) In addition to any other provisions of this Part 17, any employee or agent of the Service, of the National Marine Fisheries Service, or of a State conservation agency which is operating under a Cooperative Agreement with the Service or with the National Marine Fisheries Service, in accordance with section 6(c) of the Act, who is designated by his agency for such purposes, may, when acting in the course of his official duties, take any threatened wildlife to carry out scientific research or conservation programs.

## EFFECT ON FEDERAL AGENCIES

The determination set forth in this Rulemaking makes the Southern Sea Otter eligible for the provisions of section 7 of the Act which reads as follows:

The Secretary shall review other programs administered by him and utilize such programs in furtherance of the purposes of this Act. All other Federal departments and agencies shall, in consultation with and with the assistance of the Secretary, utilize their authorities in furtherance of the purposes of this Act by carrying out programs for the conservation of endangered species and threatened species listed pursuant to section 4 of this Act and by taking such action necessary to insure that actions authorized, funded, or carried out by them do not jeopardize the continued existence of such endangered species and threatened species or result in the destruction or modification of habitat of such species which is determined by the Secretary, after consultation as appropriate with the affected States, to be critical.

Although no Critical Habitat yet has been determined for the Southern Sea Otter, the other provisions of section 7 are applicable. The Service now is collecting data relative to preparing a proposed determination of Critical Habitat for the Southern Sea Otter, and all persons with pertinent information are invited to send the same to the Director.

## EFFECTIVE DATE

This Rulemaking is issued under the authority contained in the Endangered Species Act of 1973 (16 U.S.C. 1531-1543;

87 Stat. 884). The amendments will become effective on February 11, 1977.

Dated: January 3, 1977.

LYNN A. GREENWALT,  
Director,  
Fish and Wildlife Service.

Accordingly, Part 17, Subpart B, § 17.11 Title 50 of the Code of Federal Regulations, is amended as set forth below:

In § 17.11 add the following:

§ 17.11 Endangered and threatened wildlife.

Species		Range				Status	When listed	Special rules
Common name	Scientific name	Population	Known distribution	Portion of range where threatened or endangered				
Southern sea otter..	<i>Enhydra lutris nereis</i> ..	NA	California.....	Entire.....	T	.....	NA	

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