

Administration of the
MARINE MAMMAL PROTECTION ACT OF 1972
Annual Report
January 1, 1984 - December 31, 1984

Prepared by
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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

MARINE MAMMAL PROTECTION ACT

Report of the Department of the Interior

The Marine Mammal Protection Act of 1972, as amended (16 U.S.C. 1361-1407, 86 Stat. 1027, (1972), 95 Stat. 979 (1981)) states 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(11)(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 (manatee and dugong). Accordingly, published herewith is the report of the Department of the Interior for the period January 1, 1984, to December 31, 1984, on the administration of the Act with regard to those mammals.

Issued at Washington, D.C., dated MAY 28 1985


Acting Associate Director

ADMINISTRATION OF THE MARINE MAMMAL PROTECTION ACT OF 1972

January 1, 1984 - December 31, 1984

Report of the Department of the Interior

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INTRODUCTION

AUTHORITY

The passage of the Marine Mammal Protection Act of 1972, hereafter referred to as the Act or MMPA, gave the Department of the Interior responsibility for manatees, polar bears, walruses, sea and marine otters, and dugongs. The Fish and Wildlife Service (FWS or Service) is responsible for managing the marine mammals in the Department of the Interior and for enforcing the moratorium on taking and importing marine mammals and marine mammal parts.

The FWS administers requests for waiving the moratorium and for the return of management authority to States, issues permits, conducts research programs, enforces provisions of the Act, publishes rules and regulations to manage marine mammals, cooperates with the States, and participates in international activities and agreements. In addition, the Service lists and delists species as endangered or threatened and undertakes other Endangered Species Act (ESA) related responsibilities and maintains a close working relationship with the Marine Mammal Commission (MMC) and its Committee of Scientific Advisors.

General information on distribution and migration, abundance and trends, general biology, ecological problems, allocation problems, regulations and research can be found in the 1979 annual report. Thus, it is not repeated here. There were no significant changes during this report period in the status of any of the species of marine mammals whose management is the Service's responsibility.

SPECIES LIST

Species List and Status of Marine Mammals With FWS
Jurisdiction Under the Marine Mammal Protection Act
and the Endangered Species Act

<u>Species</u>			
<u>Scientific Name</u>	<u>Common Name</u>	<u>Marine Mammal Protection Act</u>	<u>Endangered Species Act</u>
<u>Ursus maritimus</u>	Polar bear	Yes	No
<u>Enhydra lutris</u>			
<u>lutris</u>	Sea otter-Alaska	Yes	No
<u>Enhydra lutris</u>			
<u>nereis</u>	Sea otter-Southern	Yes	Threatened
<u>Lutra felina</u>	Marine otter	Yes	Endangered
<u>Odobenus rosmarus</u>	Walrus	Yes	No
<u>Dugong dugon</u>	Dugong	Yes	Endangered
<u>Trichechus</u>			
<u>manatus</u>	West Indian manatee	Yes	Endangered
<u>Trichechus</u>			
<u>inunguis</u>	Amazonian manatee	Yes	Endangered
<u>Trichechus</u>			
<u>senegalensis</u>	West African manatee	Yes	Threatened



Polar bear. U.S. Fish and Wildlife Service photo by Jim Brooks.

APPROPRIATIONS

The most recent funding authorization by Congress for the Service was under Section 114 of the amended MMPA (16 U.S.C. 1361-1407, 86 Stat. 1027 (1972); 95 Stat. 979 (1981) for fiscal year (FY) 1984; and 98 Stat. 440 (1984) for FY 1985 through 1988). The calendar year (January 1, 1984 - December 31, 1984) covered by this report, however, overlaps FY 1984 and FY 1985, and funds authorized (Auth.) and appropriated (Appr.) for both fiscal years are shown below (in \$000).

Reporting Year Funding (January 1 to December 31, 1984)

	<u>MMPA Section 114</u>	
	<u>Auth.</u>	<u>Appr.</u>
FY 84	\$2,000	\$1,249
FY 85	\$2,500	\$1,292

The funding breakdown is as follows (in \$000):

	Actual <u>FY 84</u>	Projected <u>FY 85</u>
<u>Marine Mammal Protection Act</u>		
Research and Development		
Alaskan sea otter	\$ 73	\$ 50
Walrus	18	15
Polar bear	303	252
Total Research	<u>\$ 394</u>	<u>\$ 317</u>
Management		
Permit activities	\$ 25	\$ 25
Law enforcement activities	465	456
Other management activities	365	494
Total Management	<u>\$ 855</u>	<u>\$ 975</u>
MMPA Grand Total	<u>\$1,249</u>	<u>\$1,292</u>
<u>Endangered Species Act</u>		
Section 6 (Grants-to-States)		
California - Sea otter	\$ 93	\$ 53
Florida - Manatee	15	120
Total Section 6	<u>\$ 108</u>	<u>\$ 173</u>
Section 15		
Research and Development		
Endangered/threatened otters	\$ 244	\$ 271
Manatee	262	379
Monk seal	0	2
Total Section 15 Research	<u>\$ 506</u>	<u>\$ 652</u>
Management		
Endangered/threatened otters	\$ 171	\$ 269
Manatee	117	114
Monk seal ^{1/}	25	25
Total Section 15 Management	<u>\$ 313</u>	<u>\$ 408</u>
ESA Grand Total	<u>\$ 927</u>	<u>\$1,233</u>

^{1/} Although the National Marine Fisheries Service (NMFS) has primary responsibility for the monk seal, the species utilizes a National Wildlife Refuge, thereby becoming a management responsibility of the FWS pursuant to the National Wildlife Refuge System Administration Act of 1966 (16 U.S.C. 668dd-668ee).

SUMMARY OF 1984 PROGRAM

OUTER CONTINENTAL SHELF (OCS) OPERATIONS AND ENVIRONMENTAL STUDIES

The Service participates in the Department's OCS Minerals Leasing and Development Program primarily by providing advice, input and review at various decision stages. The Service provides technical expertise on the management of fish and wildlife resources and the habitats on which they depend. During the report period, the Service participated in several lease sales and suggested protective measures for the appropriate marine mammal species.

During 1984, the Department held six oil and gas lease sales in the following locations: Eastern Gulf of Mexico (Sale 79, 1/5/84); Navarin Basin (Sale 83, 4/17/84); Central Gulf of Mexico (Sale 81, 4/24/84); Western Gulf of Mexico (Sale 84, 7/18/84); Diapir Field (Sale 87, 8/22/84) and Southern California (Sale 80, 10/17/84). Deletions and prohibitions in various lease areas continue to offer protection to marine mammals under the jurisdiction of the Service.

RESEARCH AND DEVELOPMENT

The Division of Biological Services managed a group of studies for the Minerals Management Service (MMS) in support of OCS leasing known as "ecological characterizations." This ecological information base assists in comprehensive coastal resource planning and management. Each characterization contains a narrative section on important marine mammal species in the region, their distribution, migration routes, and habitat preferences and requirements.

The Ecological Characterizations for the Caloosahatchee River/Big Cypress Watershed, on the southwest coast of Florida, was published. In addition, characterizations of the Tampa Bay Watershed, in southwest Florida, and the Big Bend and Panhandle areas in northwest Florida, are in preparation. The Florida Ecological Atlas, a companion document to the Ecological Characterizations, contains maps showing the critical habitat of endangered marine mammals and information on species abundance and habitat preferences in a narrative accompanying the maps. These documents map the critical habitat of endangered marine mammals and discuss species abundance and habitat preferences in a narrative accompanying the maps. Southwestern Florida was mapped in 1984, and similar atlases for northwestern Florida and Tampa Bay are nearing completion.

The Marine Mammal Section of the Denver Wildlife Research Center (DWRC) and the Alaska Fish and Wildlife Office of Research are responsible for carrying out research under the MMPA. Emphasis has been given to determining the ecological effects of human activities related to development and exploitation of the marine environment on marine wildlife and ecosystems.

Research conducted by the Service or under contract during FY 84 is summarized below.

Service Conducted Research

1. Polar bear
 - a. Determine distribution, timing and importance of polar bear maternity denning in Alaska.
 - b. Determine distribution and movement patterns of Alaskan polar bears.
 - c. Determine biological parameters of polar bears of the western and northern populations.
2. Sea otter and marine otter
 - a. Determine annual and seasonal distribution, abundance and composition of populations of sea otters and other marine mammals of Prince William Sound, Alaska.
 - b. Provide the biological basis for determining Optimum Sustainable Population (OSP), estimating sustainable yield, delineating stocks, and for identifying factors important to effective zonal management of sea otters in southeastern Alaska.
 - c. Determine the abundance, size and status of southern sea otter populations.
 - d. Determine the physiology, behavior and life history of sea otters in California.
 - e. Determine the interactions between southern sea otters and nearshore communities.
 - f. Determine the status of the marine otter.
3. Walrus
 - a. Evaluate areas for potential use for population assessment, investigate hauling out patterns, and determine basic biology of walruses on hauling grounds.
4. Hawaiian monk seal
 - a. Determine the status of the Hawaiian monk seal.
5. Manatee and dugong
 - a. Determine the status, distribution, movements and population biology of all taxa of sirenians.
 - b. Determine basic reproductive and behavioral characteristics of the West Indian manatee.
 - c. Determine ecosystem relationships of the West Indian manatee.
 - d. Determine causes of mortality and conduct biological studies on materials salvaged from carcasses of the West Indian manatee in the U.S. and Puerto Rico.

Contracted Research'

1. San Nicolas Island ecological study. Principal investigator: W. Doyle, University of California (\$53,000 ESA Section 15 funds).

2. Initial studies of radiotelemetry implants in California sea otters. Principal investigator: D.B. Siniff, University of Minnesota (\$11,300 ESA Section 15 funds).
3. Marine ecosystems and habitats with specific reference to manatee salvage and mortality. Principal investigator: D. O'Dell, University of Florida (\$20,000 ESA Section 15 funds).
4. Public awareness of the status of the manatee and problems associated with boating and diving activities in the vicinity of manatees. Florida Department of Natural Resources (\$15,000 ESA Section 6 funds).
5. Preparation of the draft Environmental Impact Statement (EIS) on the translocation of southern sea otters. Cooperative Agreement. Principal investigator: W. Doyle, University of California-Santa Cruz (\$170,000 ESA Section 15 funds).
6. Sea otter studies: mortality causes; salvage and necropsy; and observation of incidental take. Cooperative Agreement. Principal investigator: R. Hardy, California Department of Fish and Game (\$53,000 ESA Section 6 funds).
7. Determine feasibility of regulating movement of sea otters; improve capture techniques. Cooperative Agreement. Principal investigator: R. Hardy, California Department of Fish and Game (\$40,000 ESA Section 6 funds).

ENFORCEMENT

The Service's Division of Law Enforcement investigates known, alleged or potential violations of the Act involving illegal take or importation of marine mammals or their products for which the FWS is responsible. In addition, it assists the National Marine Fisheries Service (NMFS) by making apprehensions and conducting investigations in cases involving species under that agency's jurisdiction. Results of these efforts are referred to NMFS for its consideration and appropriate action. However, under a NMFS/Service memorandum of understanding, the Service retains authority over those investigations that involve endangered marine mammal species. Violations are referred to the Department's Office of the Solicitor for civil action or to the Department of Justice for criminal action.

Seventy-five marine mammal investigations were pending as of January 1, 1984, and Service agents initiated three hundred and twenty-one new investigations during 1984. A total of one hundred and eighty-three marine mammal investigations were closed during the year, leaving two hundred and thirteen investigations remaining in a pending status as of December 31, 1984.

Records to date indicate that in 1984 forty-six cases were filed in criminal court and ninety cases were filed civilly.

Alaska Law Enforcement Actions

Undercover investigations continued to be the primary method of detecting violations of the MMPA, particularly in the illegal commercialization of raw parts. However, surveillance of haul-out areas and overt law enforcement operations on the hunting grounds also proved important.

During the spring of 1984, near Cape Seniaven on the Alaska Peninsula, six fishing boats were observed harassing and shooting walrus. No attempts were made to retrieve any of the walrus. Several days later, search warrants were served on all of the boats, resulting in the seizures of firearms used in the shootings. Civil penalty proceedings have been initiated against all of the captains.

A search warrant was served on the fishing vessel Invader after reports that crew members had purchased raw walrus ivory from the Natives at Mekoryuk, Alaska. A quantity of raw ivory was seized. Criminal charges were filed in U.S. District Court, Anchorage, Alaska, on three of the crew members. All pled guilty and received fines and probated sentences.

In a joint investigation with the NMFS, an Alaskan Native resident of Anchorage purchased a raw polar bear hide in Barrow, Alaska, and agreed to sell it to an undercover agent for \$3,000. He also sold raw seal skins to the undercover agent. Prosecution is pending.

An informant notified FWS Special Agents that an Alaskan Native had offered to sell him eight sea otter hides for \$1,500 each. The informant and a Special Agent met the Native at an Anchorage tannery and made a down payment on the hides. The tannery, which was not registered to handle sea otters, was later searched and seventeen sea otter hides were seized. Criminal charges have been filed against the Native and civil penalty proceedings filed against the tannery.

A non-Native Anchorage resident and a resident of Wales, Alaska, were arrested in Anchorage when they agreed to sell three polar bear hides and raw walrus ivory to undercover agents. The hides and ivory were seized. Both subjects pled guilty and served jail sentences; no fines were imposed because of their inability to pay.

Alaska Enforcement Summary

1. Active investigations:
 - a. Walrus 27
 - b. Polar bear 11
 - c. Sea otter 3

2. Closed investigations:
 - a. Walrus 2
 - b. Polar bear 1
 - c. Sea otter 1

3. Cases submitted for civil penalty:
 - a. Walrus 11
 - b. Polar bear 1
 - c. Sea otter 1

4. Civil penalties:
 - a. Eleven people involved in \$27,100 of penalties, and forfeiture value of \$2,450; 350 hours of community service.

5. Criminal penalties:
 - a. Three people involved in six months jail time.
 - b. Fines assessed total \$2,475.

PERMITS AND REGISTRATIONS

Other than providing an exemption for the nonwasteful take of nondepleted marine mammals by Alaskan Natives for subsistence or handicraft purposes, the MMPA generally prohibits the take or import of marine mammals and marine mammal products although exceptions may be made under permit for scientific research or public display. These permits may be issued only if it is determined by the Service that there will be no adverse effects on the health and well-being of the marine mammal species, populations and their marine ecosystems. Registered agent permits are issued to authorize the buying or selling of raw marine mammal parts or products by non-Alaskan Natives (i.e., persons other than Alaskan Indians, Eskimos or Aleuts) or to enable marine mammal hides to be tanned to facilitate trade of these products among Alaskan Natives.

During 1984, nine permits for scientific research were issued; one was subsequently cancelled by the FWS. Seven permits were issued for the import and public display of a total of nine captive born polar bears, two for the capture and export of eight Alaskan sea otters, and one permit was issued for the import and display of 14 Inuit crafted walrus artifacts. One application for the import and public display of a wild polar bear cub was denied. Ten registered agent permits were issued. The following is a brief description of permit actions taken in 1984.

Scientific Research Permits

PRT-684532, U.S. Fish and Wildlife Service, San Simeon, California, issued for the period 10/15/84 through 10/31/87 to conduct research on West Indian manatees within the U.S. and Puerto Rico including: (1) radio tag and/or tetracycline mark; (2) attach peduncle tags or free-floating tether tags; (3) tail

notch free ranging, human-accustomed animals; (4) freeze brand injured and rescued animals; (5) carry out non-harmful studies on rehabilitation; (6) collect dead and injured animals; and (7) export parts from salvaged dead animals for further research.

PRT-672624, U.S. Fish and Wildlife Service, Denver, Colorado, issued for the period 2/16/84 through 12/31/84 to conduct research by capturing 27 southern sea otters on the California coast from Rugged Point to Cambria including: (1) tag and release animals over 15 pounds for future monitoring; (2) immobilize animals using Fentanyl, or Fentanyl and Azaperone in order to take 20cc blood samples; and (3) salvage animals that die or are found dead and collect biological samples, or aid and care for sick or injured animals.

PRT-672629, Kerry Foresman, University of Montana, Missoula, Montana, issued for the period 2/9/84 through 6/30/86 authorizing the import of 300 polar bear blood samples per year from Canada for research.

PRT 2-9931, Richard N. Silverstein, M.D., Staten Island, New York, issued for the period 3/2/84 through 12/31/84 to kill one adult polar bear in northwestern Alaska in order to collect various samples for biomedical research concerning vitamin A adaptations in bears and possible relevance to humans. A bear was not collected and the permit was cancelled on 5/10/84 at the permittee's request.

PRT-681784, Dr. John Fletemeyer, Nova University, Dania, Florida, issued for the period 8/31/84 through 8/31/86 to conduct research on West Indian manatees in southeastern Florida including the use of side-scan sonar to detect manatee movements and close range photography.

PRT 2-10022, Sea World Inc., San Diego, California, issued for the period 5/23/84 through 5/31/86 to take one southern sea otter from the California coast between Santa Cruz and Pismo Beach for research purposes.

PRT-678319, Dr. Donald Siniff, University of Minnesota, Minneapolis, Minnesota, issued for the period 6/7/84 through 11/30/87 to conduct research on up to 150 Alaskan sea otters in Prince William Sound, Alaska. Activities include capture, anesthetization, flipper tagging, blood sampling, tooth extraction and implanting radio transmitters on up to 100 animals (no more than 50 in one year), of which 50 will be tagged with temple tag transmitters.

PRT-688234, Dr. Donald Siniff, University of Minnesota, Minneapolis, Minnesota, issued for the period 12/20/84 through 12/31/87 to capture up to 100 southern sea otters from the California coast in the vicinity of the Santa Maria River and Ano Nuevo Island for the purpose of implanting radio transmitters.

PRT-681844, All-Union Scientific Institute of Fisheries and Oceanography, Moscow, USSR, issued for the period 11/7/84 through 12/31/85 to take by killing: 200 Pacific walrus, 200 ribbon seals, 200 largha seals, 100 ringed seals, 300 bearded seals and 100 Steller sea lions in the southeastern Bering Sea during a joint USA-USSR expedition. Research is for the purpose of studying the abundance, distribution and dynamics of rookeries under ice conditions, as well as the age/sex composition and reproductive capacity of walrus, ice seals and sea lions.

Public Display Permits

PRT 2-11389, Tulsa Zoological Park, Tulsa, Oklahoma, issued for the period 6/18/84 through 6/30/85 for the import and public display of two captive-born polar bears for the Moscow Zoo, Moscow, USSR.

PRT-679263, Morris Museum of Arts and Science, Convent, New Jersey, issued for the period 6/29/84 through 6/29/85 for the import and public display of 14 Inuit crafted artifacts made in whole or in part from walrus material.

PRT-682196, Sunshine International Aquarium, Tokyo, Japan, issued for the period 9/4/84 through 12/31/84 for the capture and export of one male and three female Alaskan sea otters from Alaska for public display.

PRT-682207, Matsushima Aquarium, Miyagi, Japan, issued for the period 9/4/84 through 12/31/84 for the capture and export of one male and three female Alaskan sea otters from Alaska for public display.

PRT-683050, Detroit Zoo, Royal Oak, Michigan, issued for the period 9/17/84 through 9/30/85 for the import of one captive-born female polar bear from the Ruhr Zoo, West Germany, for public display.

PRT-683054, Detroit Zoo, Royal Oak, Michigan, issued for the period 9/17/84 through 9/30/85 for the import of one female captive-born polar bear from the Kolmarden Zoo, Sweden, for public display.

PRT-684744, Milwaukee Zoo, Milwaukee, Wisconsin, issued for the period 10/17/84 through 10/17/85 for the import of one female captive-born polar bear from the Ruhr Zoo, West Germany, for public display.

PRT-679058, Detroit Zoo, Royal Oak, Michigan, issued for the period 6/25/84 through 6/30/85 for the import of one captive-born female polar bear from the Skansen Zoo, Stockholm, Sweden, for public display.

PRT-684998, Cincinnati Zoo, Cincinnati, Ohio, issued for the period 10/23/84 through 10/31/85 for the import of one male and one female captive-born polar bear from the Baby Zoo, Wengst, West Germany, for public display.

PRT-684019, Milwaukee Zoo, Milwaukee, Wisconsin. This application to import one wild, orphaned polar bear cub for public display was denied on the basis of pertinent regulations prohibiting the import of any marine mammal that was nursing at the time it was removed from the wild except for research purposes.

PRT-683815, San Francisco Zoo, San Francisco, California, issued for the period 12/21/84 through 12/21/85 for the import of one polar bear from the Manitoba, Canada, Department of Natural Resources, for public display.

Registered Agent Permits

PRT-671391, Frontier Tanning Company, Anchorage, Alaska, for the period 1/6/84 through 10/31/85.

PRT-671182, Jack Coughlan, Anchorage, Alaska, for the period 1/1/84 through 12/3/85.

PRT-672258, Jerry Austin, St. Michael, Alaska, for the period 2/1/84 through 1/31/86.

PRT-673154, Wilderness Taxidermy, Tok, Alaska, for the period 2/23/84 through 2/28/86.

PRT-680927, Kodiak Taxidermy, Kodiak, Alaska, for the period 8/8/84 through 7/31/86.

PRT-681597, George Kritchen, Cordova, Alaska, for the period 8/24/84 through 8/31/86.

PRT-683423, New Method Fur Dressing Company, San Francisco, California, for the period 9/21/84 through 2/28/85.

PRT-683754, Northland Furs, Kasilof, Alaska, for the period 9/27/84 through 9/30/86.

PRT-683953, Arctic Harvest Exports, Point Hope, Alaska, for the period 10/4/84 through 9/30/86.

PRT-675131, Fickes Taxidermy, Anchorage, Alaska, for the period 4/6/84 through 3/31/86.

INTERNATIONAL ACTIVITIES

The Service's international efforts to conserve marine mammals and their habitats are an important component of its overall efforts to achieve the objectives of the MMPA. The following describes the principal international activities carried out by the Service during the report period.

Excess Foreign Currency Program

During this report period, the Service received no new congressional authorizations for use of excess foreign currencies. However, the Service continued work in Egypt, Pakistan, and India using carryover funds authorized in previous years. These authorizations were requested under Section 8 of the Endangered Species Act, which allows such funds to be expended on projects deemed by the Secretary of the Interior to be necessary for the conservation of endangered or threatened species.

The Service has continued to collect information on the effects of oil pollution on marine organisms in the Persian Gulf as a result of the Iraq-Iran war. Monitoring is difficult because of the war situation, allowing no direct on-the-spot research.

The establishment of a park area at Ras Mohamed in the Red Sea has allowed the Egyptian Wildlife Service to station two personnel at the town of Sharm El-Sheikh. Part of their activities include monitoring of the dugong population in that area.

US-USSR Environmental Agreement: Marine Mammal Project

In partnership with the NMFS, the Service cooperates with the USSR Ministry of Fisheries and USSR Academy of Sciences in an extensive program of laboratory research and joint survey expeditions to foster the conservation and management of marine mammals of importance to both countries. During 1984 American and Soviet scientists took part in five exchanges totaling 11 man-months, all under the auspices of the bilateral US-USSR Environmental Agreement.

In March and April, two Soviet delegations visited the United States to take craniological measurements in the pinniped collections of several natural history museums, and to analyze cetacean odontocete data and color morphometrics of harbor seals. At the same time, an American biologist travelled to the Soviet Union to continue studies of parturition marks in sperm whale teeth.

Activities during the second half of the year included a September sea otter workshop in Nakhodka, USSR, at which five Americans presented papers, and a joint walrus survey cruise in the Bering Sea (November-December) aboard the USSR vessel, "Zakharovo," in which four Soviet and three American specialists participated. Data were gathered on physical condition, reproduction, feeding

habits, diseases and contaminant levels. Copies of the final report are available from the Service's Office of International Affairs, 18th and C Streets, N.W., Room 2441, Washington, D.C. 20240.

STATUS REPORTS

Reporting and Sealing Regulations

As previously authorized by Congress, the Service began to develop mandatory marking, tagging and reporting (formally referred to as reporting and sealing) regulations for polar bear, walrus and sea otter harvested by Alaskan Natives for subsistence or handicraft purposes. The intended effect of this action is to assist the Service in monitoring the harvest of polar bear, walrus and sea otter, and in obtaining essential biological data needed to manage properly these marine mammal species or stocks. The action is also intended to help in controlling the illegal take, trade and transport of specified raw marine mammal parts. The planned implementation will be in FY 86.



Polar bear with kill on the Arctic National Wildlife Refuge. U.S. Fish and Wildlife Service photo by Dave Olson.

Polar Bear

The current status of the polar bear in Alaska has not been definitively determined but is believed to be stable, and possibly at a level lower than earlier predicted. Polar bears are well distributed throughout their historical range. Recent estimates by various researchers on the numbers of polar bears in Alaska range from a low of 3,000-5,000 to a high of 9,500. Although the comparison of these various population estimates is not possible because they were derived by using different methods, it is generally agreed that the population currently appears to be stable and probably has not declined in recent years. Information needed to establish accurate population levels and trends, however, is not currently available. Future work on polar bear movements, productivity and survivability is required before more definitive population estimates or indices can be established.

Under the Act, only Alaskan Natives are, at present, allowed to harvest polar bears legally for subsistence or handicraft purposes. The Act further provides that such taking can be done without regard to the number, age, sex, reproductive condition or time of year unless the species is declared depleted. Polar bears are generally taken when available throughout the fall, winter and spring seasons. Very few Alaskan Natives hunt specifically for polar bears. Most animals are taken close to villages during the course of seal hunting or other activities, but the 1984 season may have been an exception to this general rule.

Recent estimates on the number of polar bears taken are based on harvest surveys conducted by the Alaska Department of Fish and Game (ADF&G) through the 1979 harvest season and, most recently, by the FWS. However, because compliance to harvest surveys has been on a voluntary basis, data collected should be considered as the minimum take.

During the 1983/84 harvest period, a minimum of 283 bears were taken by hunters from 15 villages (Table 1). This represents a record number of bears taken for subsistence purposes. It coincides with the extremely heavy ice conditions which persisted throughout the Chukchi and Bering Seas during the fall and winter periods. Preliminary estimates indicate the harvest was composed of 55.7 percent males, 33.6 percent females and 10.7 percent of the animals with sex not reported. As in previous years, about 79 percent of the bears were taken in the western sector and 25 percent in the northern sector. Snow machines were used as the predominant mode of transportation for hunting. Hunting was concentrated near villages and along coastal areas.

Ice extended to the south as far as the Pribilof Islands and persisted at southern latitudes for longer periods of time than normal. Persistent northerly winds and unusually cold temperatures contributed to these ice conditions. This combination of events contributed to the prolonged presence of bears in coastal areas. Polar bears were taken by hunters in villages which previously had little or no history of harvesting bears. For example, a hunter

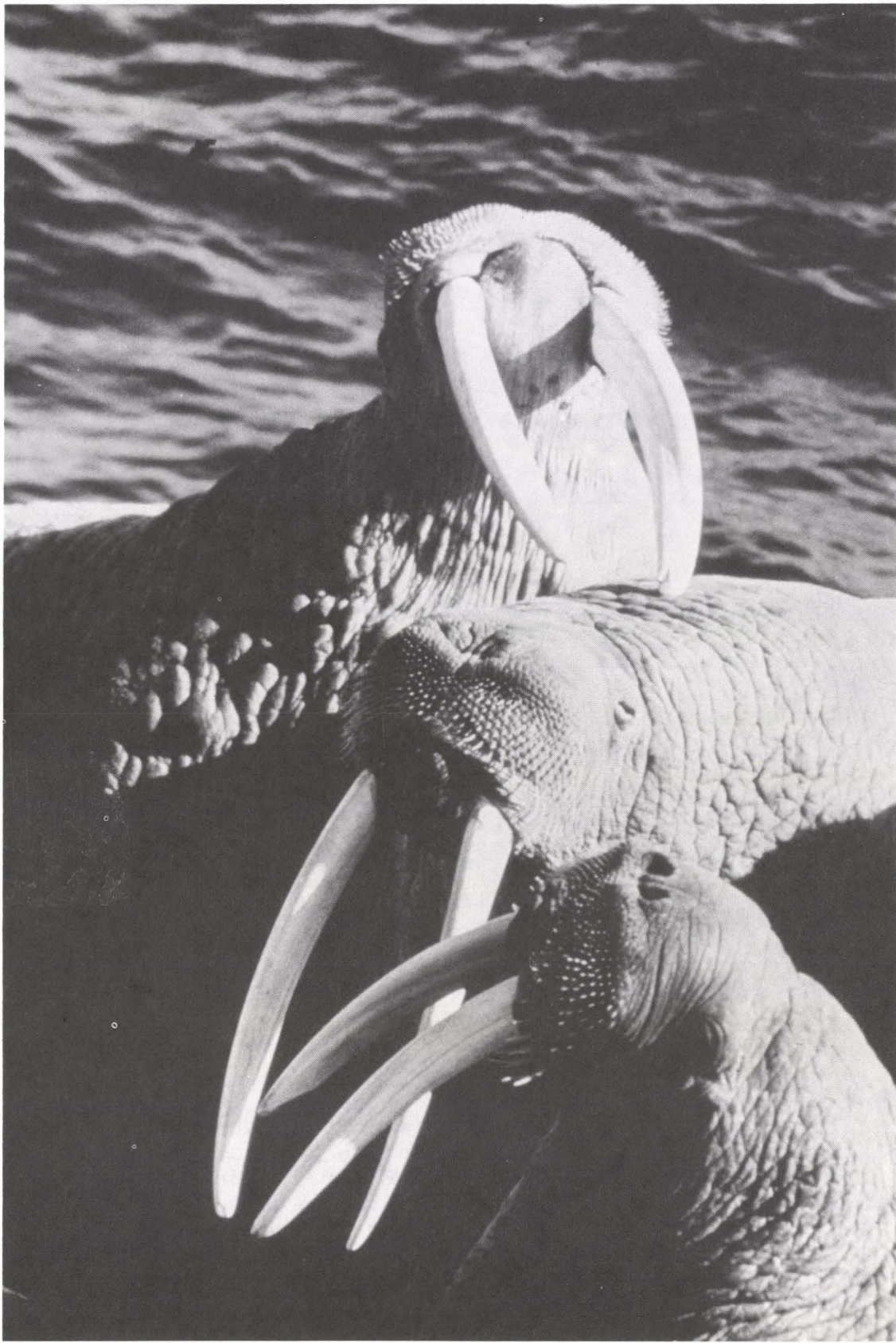
 Table 1. Alaskan Polar Bear Harvest by Village, 1980-1984.*

<u>Village</u>	<u>7/80 to</u> <u>7/81</u>	<u>7/81 to</u> <u>7/82</u>	<u>7/82 to</u> <u>7/83</u>	<u>7/83 to</u> <u>7/84</u>
Kaktovik	23	1	1	1
Barrow	7	6	11	21
Wainwright	8	15	17	29
Pt. Lay	1	4	2	8
Pt. Hope	9	7	21	29
Kivalina		1		3
Kotzebue				2
Wales	6	11	8	20
Shishmaref	29	22	13	78
Brevig Mission				5
Diomede	1	3		10
Nome				1
Gambell	6	1	6	26
Savoonga	16	21	9	49
Hazen Bay				1
All Others		1	3	
Totals	<u>106</u>	<u>93</u>	<u>91</u>	<u>283</u>

* U.S. Fish and Wildlife Service data. Numbers are subject to change depending upon voluntary reports that are completed.

took a large male polar bear near Nome on Labor Day after Norton Sound was ice free. Traditionally, polar bears do not occur near Nome, but are found to the west in the Bering Sea. Other villages with little history of polar bear take, but where bears were taken in 1984, include the villages of Kotzebue, Kivalina, and Brevig Mission. St. Lawrence Island residents reported that approximately ten polar bears summered on the island. These animals were believed to have left the area sometime before fall as hunters were unable to locate tracks after the first snowfall. Westerly spring winds apparently contributed to the July presence of polar bears in the Etolin Straits near the Yukon River Delta. The fate of bears summering on St. Lawrence Island and the Yukon River Delta is unknown, although polar bears have been known to swim long distances.

Harvest levels vary naturally and are related to availability of bears along coastal areas. Harvests through the 1940's were primarily carried out by Natives hunting with dog teams for subsistence and for hides to sell. Estimated annual harvests based on fur export records for 1925-53 averaged 117 bears killed per year. Hunting from aircraft began in the late 1940's, and gradually increased through the 1950's and 1960's. It was discontinued in 1972 with implementation of the MMPA. During the aerial hunting era, polar bear harvests averaged approximately 160 bears annually between 1954-1960, and increased to 260 bears taken annually between 1960-72. About 13 percent of the harvest (34 bears per year) were taken by Alaskan Natives.



Pacific walrus. U.S. Fish and Wildlife Service photo.

There is a growing concern that the Native take of polar bears without regard to the number, age, sex, and time of year may have a significant adverse effect on the polar bear population in Alaska, and, even further, on the population in the Yukon Territory and the Northwest Territories of Canada since polar bear migration routes are known to cross the United States/Canada border. Concerns have been expressed by the Canadian, Norwegian, and Danish governments, all of which are parties to the International Agreement for the Conservation of Polar Bears. With their low reproductive rate (more than 3.5 years between litters, with the average litter size being less than two), polar bears are extremely sensitive to overharvesting if excessive killing of females is allowed to occur; current evidence suggests that this may indeed be the case. The State of Alaska has the opportunity to effect an active management program should they request, and ultimately regain, management authority. If they do not elect to assume management for the species for which FWS has management responsibility, the FWS intends to expand its management capabilities.

Walrus

The 1984 walrus harvest monitoring program was the fifth consecutive year that spring harvests were measured by the Service in five Bering Sea villages. The five villages -- Gambell, Savoonga, Little Diomed, Nome/King Island, and Wales -- were chosen based upon past surveys that showed 70-80 percent of the spring harvest occurs in them. An estimated 70-80 percent of the statewide harvest occurs in the springtime. The number of walrus retrieved in 1984 set four individual village records. The combined total was greater than any recorded for subsistence hunting in the five villages. The 3,981 animals were comprised of 1,316 (33.1 percent) adult males, 1,562 (39.2 percent) adult females, 442 (11.1 percent) adults for which the sex was unknown, and 661 (16.6 percent) calves (Table 2). The total American harvest (the USSR also allows the harvest of walrus) is higher than these numbers indicate for a number of reasons: (1) the Service's harvest survey currently covers an estimated 50-60 percent of the harvest; (2) harvest reporting is on a voluntary basis; (3) public demand for ivory continues to increase; and (4) a high number -- estimates of 40-50 percent are not uncommon -- of walrus taken sink before retrieval is possible.

Biological indicators suggest that the current walrus population, recently estimated at 270,000 to 290,000 animals, is no longer increasing and probably in decline. Reproductive success is down as shown by analysis of reproductive tracts collected from females. Sex and age class surveys indicate that fewer calves are being brought into the population either from poor survivability, a decrease in the numbers of females impregnated or a decline in the number conceived and born. Poor survival may have led to low recruitment to the breeding population, possibly since the mid-1970's. The population is now comprised of predominantly old-age animals of lower

 Table 2. Retrieved Walrus Harvest in Selected Bering Sea Villages, 1984

<u>Village</u>	<u>Male</u>	<u>Female</u>	<u>Unknown</u>	<u>Calves</u>	<u>Total</u>
Gambell	373	528	193	405	1,499
% of Total	25	35	13	27	
% Adults	34	48	18	--	
Savoonga	557	219	32	203	1,011
% of Total	55	22	3	20	
% Adults	69	27	4	--	
Nome/King Island	27	26	103	1	157
% of Total	17	17	66	1	
% Adults	17	17	66	--	
Little Diomede	269	657	77	40	1,043
% of Total	26	63	7	4	
% Adults	27	66	8	--	
Wales	90	132	37	12	271
% of Total	33	49	14	4	
% of adults	35	51	14	--	
Totals	1,316	1,562	442	661	3,981
% of Totals	33	39	11	17	
% Adults	40	47	13	--	

 reproductive potential. These indicators combined with increasing harvest trends (Figure 1) are reason for concern.

During September, FWS and ADF&G personnel conducted aerial walrus surveys between solid pack ice and more southerly open water. Objectives of the survey were to prepare for the joint US-USSR survey to be conducted in September of 1985 by testing various survey designs, defining a zone with low and high density concentrations of walrus and to survey open water areas for the presence of, and sightability of, walrus. High densities of walrus were not encountered, and the preliminary test raised more questions than it answered.

The FWS continued an active role on the Pacific Walrus Technical Committee (PWTC). Primary objectives of the PWTC are to discuss current research and management topics and to provide advice and guidance to the Eskimo Walrus Commission.

Sea Otter-Alaska

The past decade has seen apparent population increases in Alaska. The population now approaches 150,000 to 200,000 animals, depending upon the estimate used. In some areas, the population may be at or exceeding historic levels.

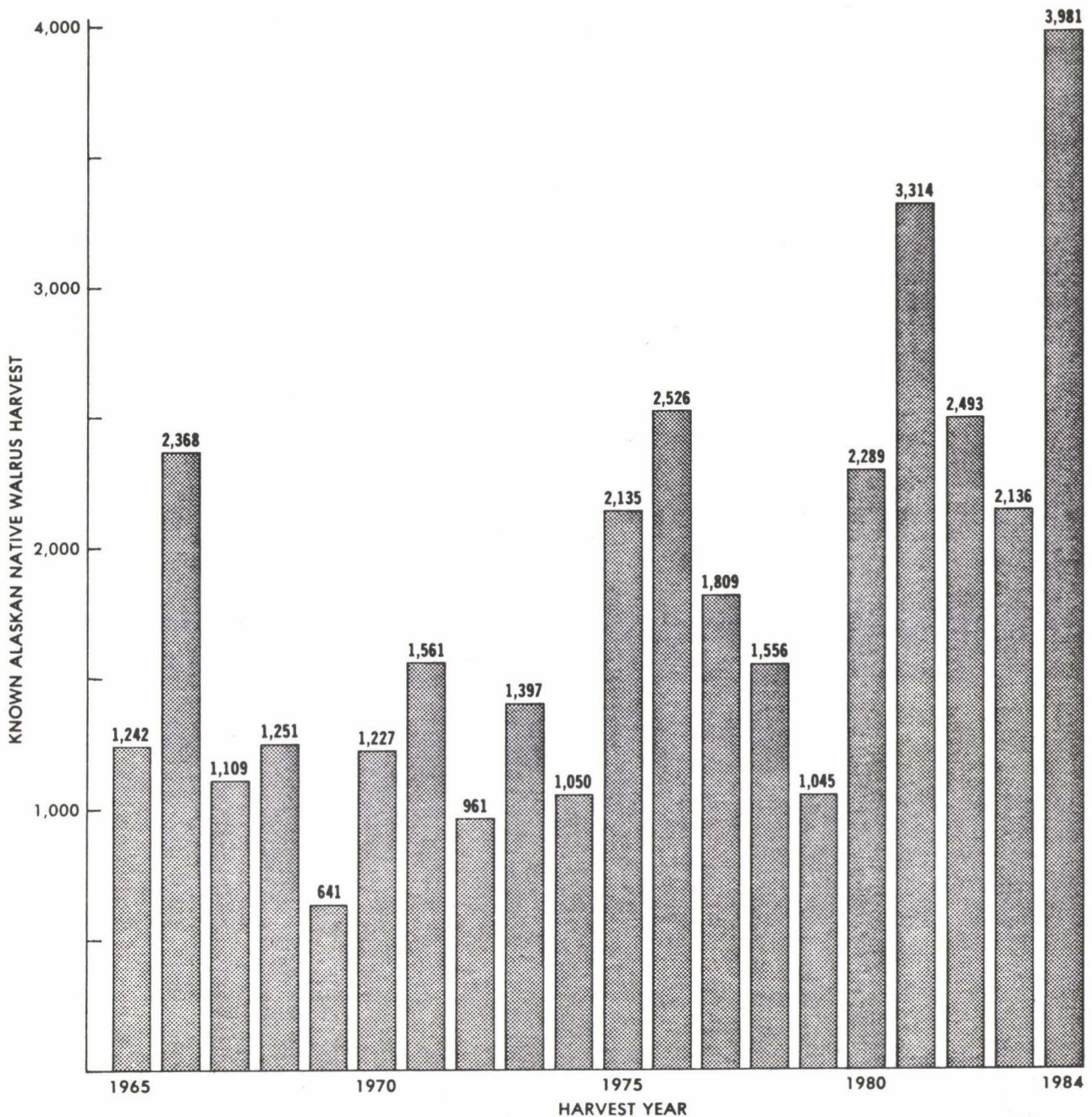


Figure 1. Annual retrieved spring harvest of Pacific walrus from Gambell, Savoonga, Little Diomedé, Wales and Nome/King Island, Alaska. Data provided courtesy of the Alaska Department of Fish and Game for 1965-1979. U.S. Fish and Wildlife Service data from 1980-1984.

Population surveys were conducted in western Prince William Sound and Kodiak Archipelago. The overall population in western Prince William Sound has not increased substantially from 1974 to 1984, but the population may have shifted from the southeastern to the northwestern part of the Sound. In the Kodiak Archipelago, the overall numbers of sea otters appear to be about the same over a

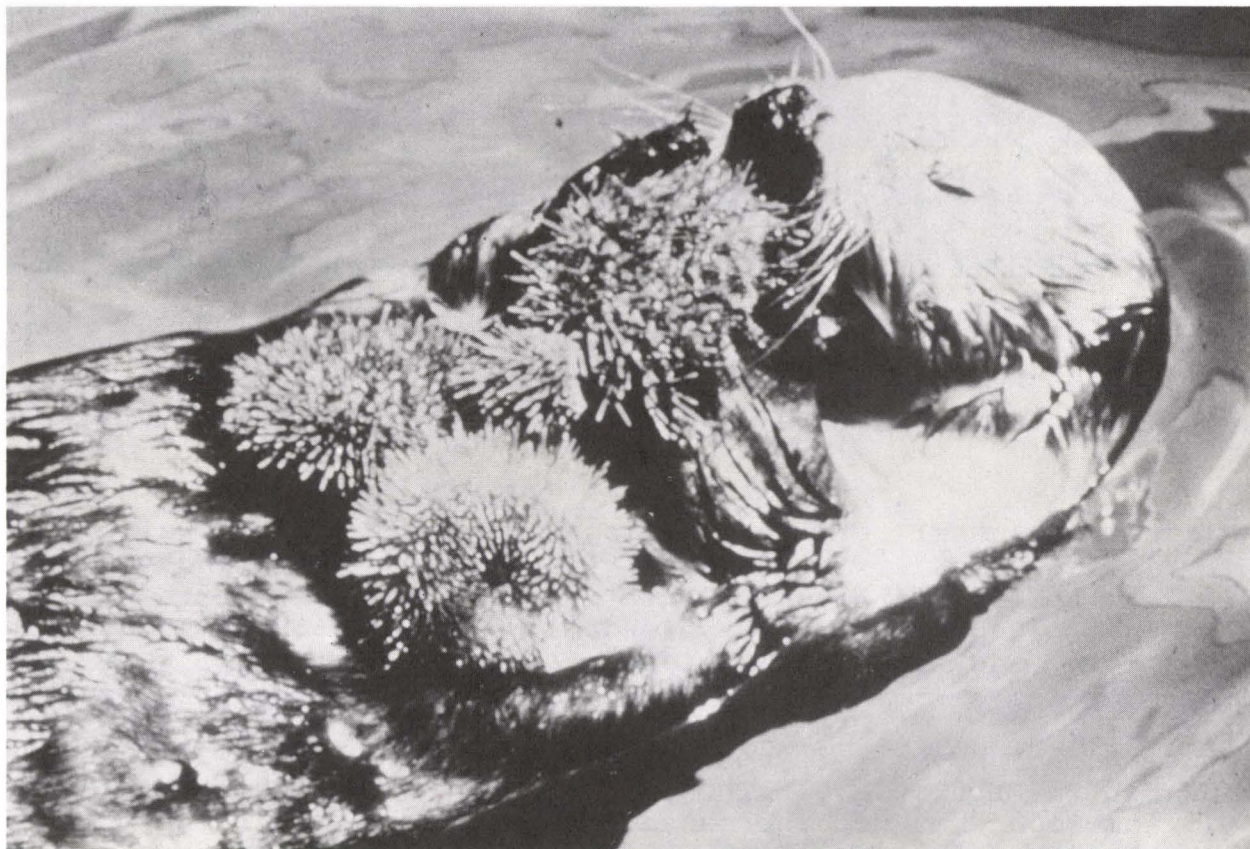
nine year period between surveys (1975-1984) for the same area. Major distributional shifts were observed with apparent changes in population centers.

An increasing number of complaints of sea otter damage to shellfish fisheries is being received. The actual cause of shellfish declines is unknown, but complaints have been received from Cordova, Kodiak and their environs. Total sea otter mortality is unknown, but it is suspected to be increasing from human activities such as setnet fishing (dead sea otter pups have been observed in setnets), and from Native take. One to two telephone calls per week have been received from Natives seeking information on legalities of their taking sea otters.

A Marine Mammal Commission Workshop on sea otter containment was attended.

Sea Otter-Southern

In 1977 the southern sea otter, already afforded protection under the MMPA, was listed as a "threatened" species under the ESA. That Act required that a recovery plan be prepared by the Service for each listed species. The Southern Sea Otter Recovery Plan, developed and approved by the Service's Director in February 1982 and currently under revision identified and set priorities on



Sea otter with three sea urchins. U.S. Fish and Wildlife Service photo.

management and research actions that are needed to protect and recover the species. The Office of Sea Otter Coordination (OSOC) was created in 1984 for the purpose of implementing an effective and coordinated recovery program.

The southern sea otter was reduced to possibly as few as 30-50 animals at the turn of the century as a result of overharvest by the commercial fur trade industry. Although this population apparently increased at about five percent per year from 1914 until the mid 1950's, surveys conducted by the California Department of Fish and Game (CDF&G) and the Service have not detected any increase in the population in recent years and even suggest a possible modest decline. Population surveys conducted in 1984 by the CDF&G and the Service resulted in actual counts of 1,203 and 1,304 sea otters, respectively.

Five-Year Status Review. The Five-Year Status Review required by the ESA was completed in 1984. It assessed the status of the southern sea otter after five years of Federal protection under the Act. The review also addressed two petitions: one to delist the sea otter (submitted jointly by Save Our Shellfish, the Greater Los Angeles Council of Divers and the Pacific Legal Foundation) and one to reclassify it as endangered (submitted by Friends of the Sea Otter). A comprehensive assessment of all pertinent issues relevant to the contemporary status of the sea otter was made. Based on the findings pursuant to Section 4(b)(3)(B) and Section 4(c)(2)(B) of the ESA, the Service determined that the southern sea otter is appropriately classified as a threatened species. The principal threats to the population are: potential contamination of individuals and/or habitat by accidental oil spills, incidental take in gill and trammel nets, increases in toxic pollutants within its range, and intentional shooting. The classification as threatened is appropriate because the Service is implementing an active recovery program.

Translocation. A primary goal of the MMPA is to restore marine mammal populations that have diminished below their Optimum Sustainable Population (OSP) levels. The Southern Sea Otter Recovery Plan identifies research and management actions considered necessary for the conservation of the southern sea otter as well as steps necessary to determine and attain the OSP level. One of the primary goals is to conduct appropriate research and take appropriate management actions to establish at least one additional colony of sea otters at a site sufficiently distant from the extant population in order to preserve a portion of the population in the event of a catastrophic oil spill. The research associated with translocation will aid the Service in evaluating the impacts on the ecosystem of reestablishing a sea otter population in unoccupied historical habitat, the effectiveness of containing a translocated population, and the population dynamics of a reestablished population. Results will be useful in determining OSP and assessing the need for, and likely consequences of, future translocations. Steps have been taken toward the establishment of an additional sea otter colony.

For the purpose of identifying potential translocation sites, the Service in 1983 contracted with J. L. Dobbins Associates, Inc., to compile and analyze available biological, ecological and socioeconomic information for the Pacific coast of Washington, Oregon and California. The analysis included such subjects as habitat suitability for supporting otters, present and proposed oil and gas development, other resource conflicts, and potential of natural barriers to contain the population's expansion. The analysis culminated in May 1984 with the publication of Compilation and Mapping of Available Biological, Ecological and Socio-Economic Information Bearing on the Protection, Management and Restoration of the Southern Sea Otter. Four sites (San Nicolas Island, Ventura County, California; the northern coast of California; the southern coast of Oregon; and the northern coast of Washington) showed the most promise as translocation sites.

Because of the controversial nature and potential environmental impacts of a sea otter translocation, the Service decided to prepare an Environmental Impact Statement (EIS) to evaluate various issues, alternatives and consequences associated with a translocation and to seek public input to the decision-making process. A Notice of Intent to prepare an EIS was published June 27, 1984, and scoping meetings were held on July 23 (Santa Barbara) and July 25 (Monterey).

The most frequently raised issues regarding the translocation involved economic impacts on commercial shellfish fisheries and oil development, risks of oil spills to sea otters, the need for a plan to contain the translocated population, threats of environmental contaminants to the sea otter, economic impacts on kelp harvesting, the need to establish a reserve breeding colony, the need for a law enforcement plan, and the need for a public education program.

An Interagency Project Review Team (IPRT) was established to provide assistance in defining issues and alternatives as well as to provide suggestions concerning the content of the EIS. The IPRT is comprised of Federal and State officials including representatives of the Service, MMS, MMC, National Oceanic and Atmospheric Administration, U.S. Coast Guard, CDF&G, California Fish and Game Commission, California Coastal Commission and California State Lands Commission. Meetings (open to the public) were held August 6 and October 4, 1984, in San Francisco, and November 8, 1984, in Sacramento.

In addition to personnel from the Service's OSOC, the Division of Wildlife Research and the Division of Program Plans, the drafting of the EIS has also been carried out through a Cooperative Agreement with the University of California-Santa Cruz. To assure technical accuracy of the draft EIS the Service has also selected an Expert Review Group comprised of experts in physical oceanography, modelling risks of marine pollution, marine ecology, marine mammal behavior/population dynamics and marine socio-economics. This group was selected to provide objective, impartial review and commentary on the draft and preliminary final EIS.

By the end of 1984, a complete working draft of the EIS had been completed. The draft EIS was scheduled for release to the public before the end of this fiscal year.

In conjunction with the EIS, the Service is preparing a proposed rulemaking and translocation plan for establishing an experimental population of sea otters, as authorized by Section 10(j) of the ESA. The translocation plan will serve as the basis for requesting a research permit under Section 101(a) of the MMPA.

In 1984 the Service, the MMC and the CDF&G intensified their efforts to determine why the sea otter population has not expanded in the past decade. Preliminary data indicated that commercial gill and trammel nets were incidentally entangling and drowning a significant number of southern sea otters. In September of this year CDF&G completed a preliminary analysis of data collected over the last three years and released the information at a public meeting in Morro Bay. The report indicated that otter mortality throughout its range is substantial, estimating that an average of 105 otters per year had drowned since 1973. This rate of loss means that 5-10 percent of the population may be drowning in nets each year. Continuation of this level of mortality seriously threatens the recovery of sea otters and if the situation is left unchecked, could result in the reclassification of the southern sea otter to an endangered status.

The CDF&G held public meetings in Morro Bay (September 11 and October 29, 1984) and Monterey (October 2, 1984) to give fishermen, conservation groups and other concerned citizens the opportunity to comment and offer recommendations on ways to eliminate accidental drowning of sea otters in commercial fishing nets. Since incidental take is significantly impacting the sea otter population CDF&G, on January 27, 1985, invoked a temporary emergency closure of the sea otter range to gill and trammel net fishing until long term legislative solutions to the entanglement problems can be implemented.

State Senate Bill 89 was introduced on December 20, 1984, as a legislative solution to entanglement. The Bill, which proposed to ban the use of all large mesh (larger than three inches) entangling fishing nets within the 15 fathom depth curve throughout the sea otter's range, was approved by the Senate on March 14, 1985. The State Assembly approved an amended version (increasing net mesh size to 3.5 inches) on May 9, 1985. If the Senate concurs on the new version, it will be sent to the Governor for signature.

Section 7 Consultations. Pursuant to Section 7 of the ESA, the Service reviews federally funded, conducted or permitted activities which may affect the southern sea otter and issues Biological Opinions and recommendations to minimize impacts. In 1984, the Service issued two non-jeopardy opinions to the MMS for proposed offshore oil and gas development and production. The first consultation (March 14, 1984) involved proposed oil

development and production in the Santa Ynez Unit of the Santa Barbara Channel, California. The data suggested that the probability is low that an oil spill resulting from the project would reach the southern sea otter range along the central California coast or San Nicolas Island (a potential translocation site).

The second consultation (October 31, 1984) involved proposed oil development and production in the Point Arguello Field. This project is located approximately 30 miles south of the southern extent of the current sea otter range (Santa Maria River). The draft EIS for the proposed production plan predicted that the likelihood of a spill occurring and contacting the sea otter range is very low (less than 0.1 percent per spill). Because of the low probability of a spill and the low numbers of otters in the southern portion of the range, a local spill in the project area is not likely to have a significant adverse impact on the sea otter population at this time.

The Service also issued a non-jeopardy Biological Opinion to the Corps of Engineers (COE) on October 24, 1984, regarding maintenance dredging of Morro Bay, San Luis Obispo County, where up to 60 otters have occurred during the past year.

Permits. During the 1984 reporting period, the OSOC worked closely with the Federal Wildlife Permit Office on the issuance of sea otter research permits. Sea World, Inc., of San Diego, California, received authorization to take one male sea otter for scientific research involving captive propagation and reproductive studies.

Another permit issued to Don Siniff of the University of Minnesota involved experimental telemetry studies using radio implants. The research is funded by the MMS and designed to provide more information on southern sea otter reproduction, mortality and behavior (e.g., movement patterns). After issuance of the telemetry permit, during the period of March 1984 through July 1984, an experienced veterinarian surgically implanted radio transmitters into the peritoneal cavity of five southern sea otters. To date, none of these sea otters show any adverse effects from the implants. One otter is missing and believed drowned in a gill or trammel net. Information on energy budgets, activity patterns, and behavior has been collected.

Section 6. The Service provided funding to CDF&G through Section 6 (Grant-in-Aid to the States) of the ESA. Methods for containing sea otters and controlling their movements were studied by CDF&G with these funds. This program was initiated in recognition that protection of sea otters from oil spills and managing a new colony of sea otters would be enhanced with the development of means to control their movement. The 1984 studies were designed to examine the feasibility of herding otters (using a variety of acoustic devices) and to improve methods of capturing sea otters.

The results of the acoustic herding tests (a one year study) indicated that the test animals were aware of the stimuli but the level of intensity was not sufficient to elicit a directional or avoidance response. The results indicate that herding, structured as it was in this effort, will probably not prove viable as a technique for clearing areas which have been occupied for long periods of time. Isolated kelp beds can be cleared for short periods of time, however.

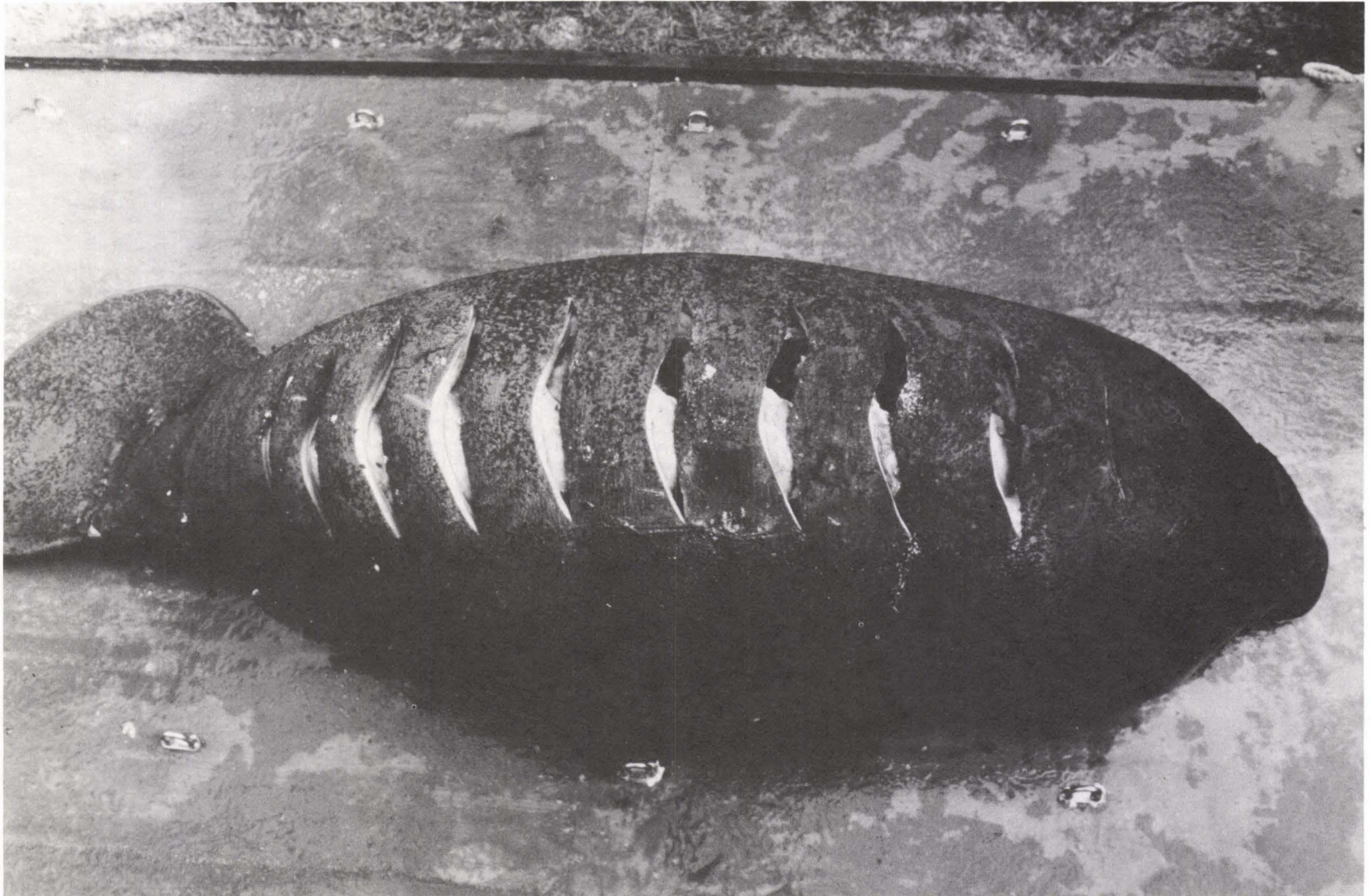
The development of effective methods of capturing otters requires several years of study. Development of rapid and effective capture techniques is vital to sea otter management and recovery. Rapid capture of specific otters could facilitate the removal of otters from an area in imminent danger of oil contamination. If translocation plans are implemented, a certain age and sex ratio must be achieved for the group of otters selected as the nucleus of the new breeding colony. Again related to translocation, otters that stray from the translocation site would be captured and returned to either the translocation site or the original capture site. The capture and recapture of otters is also necessary to monitor the progress of research animals, tag, and take body weights and measurements.

Section 6 funds are also being used to obtain an index of the sea otter mortality rate and to determine the causes of death. The CDF&G program involves sea otter carcass salvage and observation of incidental take of sea otters in commercial fishing nets.

The carcass salvage program involves computer cataloging of all verified observations of dead sea otters. Necropsies are performed on fresh carcasses; those animals suspected of being shot are X-rayed. During the reporting period, 131 sea otter mortalities were reported by salvage personnel. Of the 131 animals that were recovered, 24 animals were known to have died directly or indirectly by human causes (18 by gill net operations and 6 by gun shot wounds). A large percentage of the salvaged otters were classified as "unknown" for cause of death. It is believed that a large number (105) of these "unknown" cases were drowned in gill and trammel nets.

Manatee

Service and University of Miami salvage personnel recovered a record 131 manatee carcasses in 1984. Results of necropsies indicated the following causes of death: 35 (27 percent) boat/barge collision; 3 (2 percent) crushed/drowned in flood gates in canal locks; 1 (1 percent) human poaching; 26 (20 percent) dependent calves; 25 (19 percent) natural causes; 40 (30 percent) undetermined; and 1 (1 percent) non-related, not examined. While 21 cold-related mortalities partially account for the high total mortality figure, the 35 boat/barge mortalities reflect a record number in this category and are more than double the 1983 level.



Fresh, fatal boat collision propeller wounds on a West Indian manatee.
U.S. Fish and Wildlife Service photo.

A variety of materials continued to be collected from carcasses for study by cooperating scientists. External measurements, photographs and notes were taken for each salvaged carcass. While in the past the complete skeletons were cleaned and sent to museums, this year only skeletons from carcasses in select size classes were curated with the emphasis being on finding appropriate repositories for the large number of curated skeletons already stored at the Sirenia Project laboratory in Gainesville, Florida.

This year an agreement was reached with the Florida Department of Natural Resources (FDNR) to assume responsibility for the salvage program in 1985. The shift of responsibility will occur over a transition period and be completed by July 1, 1985. The Service also has provided \$106,000 in ESA Section 6 funds to FDNR for the salvage program over a three-year period.

Coordination with the COE continued in an effort to minimize manatee mortality in water control structures and navigation locks operated by that agency. While the reduction in this category of deaths from six in 1983 to three in 1984 would appear to indicate progress, it cannot be related to any action on the part of the COE. Although the COE did install screens at the St. Lucie lock in May 1983 in an effort to reduce mortalities, two mortalities subsequently occurred at this lock. Based on a review and analysis of 1984 lock mortality data relative to current COE operation practices, the Service has renewed its effort to focus COE attention on devising a solution to the lock mortality problem.

Through a cooperative agreement with the Florida Cooperative Fish and Wildlife Research Unit (FCFWRU), the Service funded Dr. Jane Packard to prepare a draft "Proposed Research/Management Plan For Crystal River Manatees" (see 1980 and 1982 Annual Reports). The draft research/management plan, distributed for review in early 1984, consists of three volumes: an illustrated executive summary; the technical plan in loose-leaf format and a compendium of background material. Land-use planning techniques were used to map manatee habitat, human activities and to examine the overlap. Throughout the project, emphasis has been given to encouraging local participation and responsibility in making land-use decisions that affect manatees and their habitat. Local citizens and city, county, regional and State agencies contributed information used to define problems and opportunities for resolution of these problems. The Service has considered all responses from reviewers, and a Service position on the plan will be announced by the Regional Director in Atlanta by mid 1985.

The Service continued to fund other manatee studies at the FCFWRU. These studies, also conducted by Dr. Packard, involved an assessment of techniques for manatee population surveys, development of a standardized population survey technique, and a review of manatee marking techniques. Dr. Packard's research resulted in two research reports in 1984: "Report No. 6, Review of Manatee Marking

Techniques," and "Report No. 5, Factors Influencing Indices of Manatee Abundance in the Ft. Myers Region, Winter 1983/84." Continued field trials during the winter of 1984/85 will hopefully result in a refined methodology which, with appropriate modification, can be applied at several locations within Florida and form the basis for a statewide population index. This, in turn, will enable the Service to determine manatee population trends.

Researchers at the Service's Sirenia Project laboratory continued studies of basic reproductive and behavioral characteristics of manatees individually recognized by unique scar patterns. These studies continue to provide valuable information germane to understanding reproductive characteristics as they relate to manatee population biology. A female observed at Blue Spring this year appeared to be pregnant at three years of age, which is two years younger than pregnant females observed at Crystal River two years ago. However, if she was actually pregnant, she failed to have a successful birth. Data analysis on reproduction is nearly complete, and a manuscript is in preparation. The Service will continue monitoring the Crystal River population and a tentative agreement has been reached with FDNR to assume monitoring the Blue Spring population for the purpose of gathering data on various population parameters.

The Manatee Identification Catalog initiated in 1981 was updated and now includes three years of data from statewide observations. This study, funded by the Service and Florida Power and Light Company, has proved to be particularly useful in documenting long distance manatee movements throughout the State. Thus far, 746 individual manatees have been included in the catalog, providing some indication that the Florida population of manatees may be larger than the frequently reported figure of 1,000.

A major achievement this year was the successful development of a saltwater radio transmitter. Last winter 14 manatees were fitted with the tethered, floating transmitter at Crystal River, and based on these trials and subsequent modifications a reliable transmitter is available for field research to determine manatee distribution and movements in southwest Florida in 1985. As a result of these field trials on Crystal River manatees and aerial surveys flown by staff at the Chassahowitzka National Wildlife Refuge (NWR), valuable information was also gained on manatee movements in the south Big Bend area which will prove extremely useful as the Service assesses the need for additional habitat protection in that area. Service manatee researchers also collaborated with Florida State Museum researchers under contract with the U.S. Navy in efforts to determine manatee distribution in Puerto Rico in general and more specifically at the Roosevelt Roads Naval Base. These studies were completed in March 1985, and a final report is due by June 1985.

The Service continues to pursue acquisition of approximately three acres of water bottoms adjacent to the Crystal River NWR. Control of the water bottoms is necessary to post a manatee



A West Indian manatee being fitted with a tethered, floating transmitter in the Crystal River, Citrus County, Florida. U.S. Fish and Wildlife Service photo.

sanctuary area. Appraisals are being completed to determine a fair market price. Presently the bottoms continue to be leased from the owner during the winter months. An environmental assessment and initial planning have been completed for acquisition of a site and facilities on Kings Bay for a refuge headquarters and interpretive center.

During the report period, the Service conducted 33 formal endangered species consultations for actions that might impact the West Indian manatee. This is a major increase from the five formal consultations in 1983, reflecting an increased awareness by the COE and increasing development pressures in Florida. Consultations are required under Section 7 of the ESA for actions that are federally funded, authorized or carried out that may affect a listed species or its critical habitat. Consultations result in biological opinions which are issued by the Service's Washington Office, regional offices, and/or field stations. The results of biological opinions, although not binding, must be considered before decisions are made. Since manatees are distributed throughout most of Florida's estuaries, bays and coastal waters, a considerable number of Federal actions affect these marine mammals. Most of the consultations conducted during the reporting period were with the COE and concerned proposed construction or expansion of boating facilities. The Service in 1984 issued one finding of "will promote the conservation," 29 findings of "is not likely to jeopardize," and three findings of "is likely to jeopardize" the continued existence of the West Indian manatee.

The Service continues to support the Manatee Rescue Contingency Plan conducted through cooperative agreements with Sea World and Miami Seaquarium. The agreements provide for rescue services and rehabilitation for injured or distressed manatees. The Service has renewed the agreements with these two organizations for 1985.

The FDNR, through the Florida Marine Patrol, continued to operate the toll-free "Resource Alert Watch Line" whereby people in Florida can report observations of injured, distressed or dead manatees. If the reports are valid, Marine Patrol notifies the Service's Jacksonville field station of injured or distressed animals or it tows and secures the carcasses of dead animals and notifies one of the three salvage/necropsy teams.

The FDNR manatee program received a large boost this year with a new source of funds available from the Boating Improvement Fund. The Service is cooperating fully with FDNR as they shape their manatee program and assume an expanding role in the conservation of the manatee.

Dugong

Dugongs occur in limited numbers throughout Indonesia including Palau Island, Trust Territories of the Pacific Islands. This island group has opted for Republic status under the Compact of Free Association between the United States of America and the Trust Territories.

The Service has executed a Memorandum of Understanding (MOU) with the Republic of Palau providing for technical assistance in resource conservation. An item in the MOU is the provision for review of research proposals. This provision was included at the specific request of the Republic of Palau. They do not presently have the staff to make these evaluations or to conduct baseline studies of their resources.

Aerial surveys and citizen interviews designed to determine the distribution and status of dugongs around the Island of Palau were completed. The Service continues to assemble literature on the distribution and status of dugongs.

Traditionally, the dugong had high cultural significance to the Palauans, as well as affording a good source of protein. A bracelet made from the atlas vertebra of a dugong could be worn only by the chiefs of villages or municipalities, and as a consequence, the dugong was effectively conserved by the chief. At the present, the role of traditional chiefs has been greatly diminished resulting in little protection for this species.

Modern technology (speed boats, explosives, spear guns, etc.) has also had a tremendous impact on the taking of this species. The limited resources of the Republic of Palau are insufficient to promote protection of the dugong from illegal taking.

Unregulated taking of the dugong has become critical. There is substantial disagreement among Palauans and outside researchers on the number of dugongs present in Palau. Aerial surveys made by Brownell, Anderson, Owen, and Ralls in 1977 and 1978 led them to estimate that the population consisted of not more than 50 individuals, substantially less than estimates offered by most local residents. An additional survey was conducted by Service personnel in 1983, which indicates that the population size probably remains about the same. Certainly, there has not been any improvement in the situation. Data from this survey will be analyzed along with those from previous surveys and a more detailed report will be presented in the future. Brownell, et al., speculated that even if there were 150 animals, the estimated poaching rate of 20 dugongs per year probably exceeded annual recruitment. Therefore, the Palau dugong population could be exterminated by the end of this century.

Service efforts have been directed towards developing a census methodology that is understood and accepted by the Palauans. Without this acceptance, any results derived will be suspect. However, this effort has not been a sustained one due to insufficient resources. An effective methodology which incorporates the observations and concerns of the Palauans is essential. Unless the fragile nature of this isolated dugong population can be clearly demonstrated to the Palauans, any effort to promote conservation of the dugong will be virtually ineffectual.

Two formal Section 7 consultations under the ESA were completed during 1984. Both involved applications received from the COE requesting permits for dredge and fill activities in the Republic of Palau. Both biological opinions issued by the Service concluded that the actions were not likely to jeopardize the continued existence of the dugong.

Hawaiian Monk Seal

Endangered species funding in 1984 for the Hawaiian monk seal was utilized in support of the Service's Field Station at Tern Island, French Frigate Shoals (FFS). Service activities in relation to monk seals focused on management studies at FFS and Laysan Island, and on cooperative research projects with the NMFS in the Hawaiian Islands NWR and Johnson Atoll NWR.

The Refuge staff operated the Tern Island facility throughout 1984, and, in so doing, provided an opportunity to continue management studies initiated in 1979. The seal population using Tern Island was monitored via surveys conducted every four days. The location of all animals identifiable by scars or other marks was recorded. Monthly atoll surveys of the other islets were also made by boat from Tern Island. A Service volunteer at Tern



Hawaiian monk seals on a beach in the Hawaiian Islands National Wildlife Refuge. U.S. Fish and Wildlife Service photo.

Island assisted in the census and individual identification of seals that haul out there. Service personnel also served on the Monk Seal Recovery Team which met during the year.

Data collected by NMFS and FWS personnel during October 1983 - September 1984 indicate that pup production was up from the previous year (estimated 106 vs. 90 pups), and the number of seals hauling out on Tern Island continues to increase; more than 100 seals were observed hauled out during surveys conducted in 1984. Seal surveys at FFS in 1984 included continuation of the aerial photo project begun in 1981. During supply flights to Tern Island, all sandy islets at FFS were photographed using 35mm slide film. The objectives of this project are to monitor abundance and distribution of seals within the atoll, to derive an estimate (or index) of pup production, to estimate age (size) structure of the population, and to monitor habitat conditions and habitat selection by seals. December 23, 1984, was the last day of this aerial monk seal pilot survey. FWS personnel have compiled all aerial photo data and will now analyze that information to determine if the aerial photo survey has met program objectives. If determined to be effective, aerial surveys will be continued in the future when NMFS long-term studies are not taking place on the atoll. During 1985, NMFS personnel will be at the atoll conducting studies to determine the population and production of monk seals.

Special Use Permits were issued to the NMFS for cooperative monk seal studies conducted in the Hawaiian Islands NWR. These studies involved field camps on three remote Refuge islands and NMFS personnel stationed at FFS. The primary purpose of these studies was to assess populations and production of seals through tagging. At Laysan Island, efforts were concentrated on documenting mobbing behavior of adult male monk seals so as to identify individual adult males involved in such attacks. Marine debris that would entangle seals was destroyed and samples were taken for analysis of origin. Field camps were established at Necker Island (June 20-28 and August 5), Laysan Island (May 29-August 7 and October 22-November 6), Lisianski Island (July 2-August 6), and Pearl and Hermes Reef (July 3-August 5). NMFS personnel were stationed at Tern Island at FFS from January 1-27 and March 7-August 31.

Other cooperative studies involved the capture and removal of six underdeveloped pups from FFS for transfer and headstarting at Kure Atoll; one underdeveloped pup was transported to the Waikiki Aquarium for research purposes. Five of the six seals taken for rehabilitation survived through 1984. These remain in Honolulu pending screening for disease. The male pup will be retained in captivity. Ten adult seals which were identified by NMFS personnel as mobbers were captured on Laysan Island during October 1984. Nine of these survived, and were later transferred to and released at Johnston Atoll NWR on November 9 in an attempt to reduce the frequency and severity of mobbing incidents. By the end of 1984, none of the seals had been recently sighted after their release. An extensive coordination effort was

required for this project between the Service, Defense Nuclear Agency, U.S. Air Force and NMFS.

Monk seal field surveys were conducted on Nihoa and Midway by FWS personnel. Field efforts on Midway also included coordination with the U.S. Navy and the contractor to minimize conflicts with monk seals. A proposal to develop an overlay NWR on Midway is presently being negotiated with U.S. Navy staff. A cooperative agreement involving U.S. Navy lands was finalized between the NMFS, FWS and U.S. Navy.

The Service continued work on a Refuge Master Plan for the Hawaiian Islands NWR. The Master Plan includes long range management alternatives for FFS in view of its importance to monk seals and monk seal recovery efforts. Intra-Service formal consultation as required by Section 7 of the ESA was initiated to assess the impact of the Master Plan on the monk seal. The biological opinion issued by the Service's Regional Director in Portland concluded that the adoption and implementation of the Plan would promote the conservation of the species.