



**Marine Mammal
Protection Act
of 1972**

**Annual Report
1986/87**

June 1987

Cover: Humpback whale, "Black Rakes," off Cape Ann near Gloucester, Mass. Photo by Doug Beach, Northeast Region, NMFS.

Back Cover: Humpback **whale** calf swimming with mother in Hawaiian waters. Photo by Flip Nicklin.

Marine Mammal Protection Act of 1972 Annual Report

April 1, 1986 to March 31, 1987



U.S. DEPARTMENT OF COMMERCE

Clarence J. Brown, Acting Secretary

National Oceanic and Atmospheric Administration

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National Marine Fisheries Service

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Washington, D.C. 20230

AUG 17 1987

President of the Senate
Speaker of the House of Representatives

Dear Sirs:

I am pleased to submit the Annual Report of the Department of Commerce regarding the administration of the Marine Mammal Protection Act of 1972 for the period April 1, 1986 through March 31, 1987, as required by Section 103(f) of the Act.

The Department of Commerce is responsible for implementing the Act with respect to whales and porpoises of the order Cetacea and seals and sea lions of the suborder Pinnipedia. The report details the activities of the Department regarding these marine mammals.

Sincerely,

A handwritten signature in cursive script, appearing to read "C. V. Rosten", written over the typed name of the Secretary of Commerce.

Secretary of Commerce

Enclosure

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Hawaiian monk seal with newborn pup. Photo by Marc Webber, NMFS.

INTRODUCTION

Passage of the Marine Mammal Protection Act (MMPA or the Act) in 1972 committed the United States to long-term management and research programs to conserve and protect these animals. With few exceptions, the Act places a moratorium on taking or importing marine mammals or their products into the United States. It delegates authority and responsibility for oceanic marine mammals to the Secretary of the Agency where the National Oceanic and Atmospheric Administration (NOAA) operates. Species of the order Cetacea (whales and dolphins) and the order Carnivora, suborder Pinnipedia (seals and sea lions), are the responsibility of NOAA's National Marine Fisheries Service (NMFS). The Department of the Interior is responsible for the dugong, manatee, polar bear, sea otter, and walrus.

Marine mammals may be taken for scientific research, public display, and incidentally to commercial fishing. Under the MMPA, the term "take" means to hunt, capture, kill or harass, or to attempt those actions. In 1981, amendments to the Act added two categories of "small take" to the moratorium exception; one is for commercial fishing and the other applies to other activities such as oil and gas exploration. Also, certain natives of Alaska may take marine mammals for subsistence use and production of handicrafts. Marine mammals which are managed under international agreements are exempt as long as the agreements further the purposes of the Act.

NMFS grants or denies requests for exemptions, issues permits, carries out research and management programs, enforces the Act, participates in international programs, and issues rules and regulations to carry out its mission to conserve and protect marine mammals. NMFS cooperates with the States, conservation organizations, the public, other Federal agencies, the Marine Mammal Commission, and many constituent groups including scientific researchers and zoos and aquariums.

NMFS's marine mammal research programs are the responsibility of the National Marine Mammal Laboratory (NMML), Northwest and Alaska Fisheries Center, Seattle, Wash; the Northeast Fisheries Center, Woods Hole, Mass; the Southeast Fisheries Center, Miami, Fla; and the Southwest Fisheries Center, La Jolla, Calif.

Management programs are the responsibility of the Alaska Region, Juneau, Ala; the Northeast Region, Gloucester, Mass; the Northwest Region, Seattle, Wash; the Southeast Region, St. Petersburg, Fla; and the Southwest Region, Terminal Island, Calif. Research and management programs are coordinated by the Office of Protected Resources and Habitat Programs in NMFS Headquarters, Washington, D.C.

This Annual Report to Congress is available from the Office of Protected Resources and Habitat Programs, National Marine Fisheries Service, Washington, D.C. 20235. For further information, contact Margaret Lorenz, Editor, Protected Species Management Division, (202) 673-5349.

SUMMARY

The Marine Mammal Protection Act is considered one of the principal wildlife conservation and management Acts administered by the Federal Government. To further the purposes of the Act, the National Marine Fisheries Service dedicates significant resources to study marine mammal populations, life cycles, and reproductive capacities, to manage populations in a beneficial way, and to resolve the many conflicts that arise when humans and protected species share the same resources and habitats.

Many of our management programs concern the take of marine mammals incidental to commercial fishing operations. This take is allowed by the Act, but it is governed by rules, regulations, guidelines and monitoring. General Permits are issued to both domestic and foreign commercial fishermen. The U.S. purse-seine fishery for yellowfin tuna takes the largest number of marine mammals, and they have a permit that allows an annual take of 20,500 porpoises. Until 1987, the Japanese had a permit to take 5,500 Dall's porpoise in their gillnet fishery for salmon in the North Pacific Ocean. In June 1987, NMFS issued a new permit that allows a total take over a 3-year period of 6,034 Dall's porpoise. No other marine mammal will be allowed to be taken in this fishery.

In addition to commercial fishing, the Act allows what it calls a "small take" of marine mammals incidental to other activities. To date, NMFS has issued exemptions to the seismic industry for a take of ringed seals in the Beaufort Sea and to the Air Force for a take of seals and sea lions incidental to space shuttle launches from Vandenberg Air Force Base, Calif. Congress amended the Act in 1986 to allow a "small" incidental take of depleted marine mammals. Previously, this section of the Act applied only to non-depleted species. The Endangered Species Act was amended also to allow this take.

The public display of marine mammals as well as research activities are controlled by a permit system that requires consultation with NMFS scientists, managers, and the Marine Mammal Commission. From 1973 through March 1987, 825 permit applications have been received, and 582 permits have been issued. NMFS monitors compliance with the rules, regulations, and conditions of all permits through a law enforcement program that includes special agents authorized to enforce the Act. Most violations concern unlawful taking or harassment of marine mammals.

Conflicts are increasing between marine mammals and certain fisheries. Seals and sea lions damage or take fish or gear and sometimes eat the fish that gather around fish ladders that have been built to help the fish return to their spawning grounds. In Puget Sound, scientists are concerned about sea lions affecting the wild winter-run of steelhead in the Lake Washington watershed. In Alaska, there have been reports of fishermen using large explosives to drive away killer whales who were stripping black cod from fishing lines. In this case, NMFS modified the fishermen's permits and disallowed any use of explosives other than underwater firecrackers.

Each of the five NMFS Regions has established a stranding network to assist in the recovery or disposal of stranded marine mammals and to gather data for research. Last year's (1985) most famous stranded animal, Humphrey, a humpback whale, was seen in August 1986 by researchers in the Gulf of the Farallons, offshore California. In 1986, harbor seals and harbor porpoises were trapped when Hubbard Glacier moved and sealed off Russell Fiord from the ocean. The seals made their way to the ocean by crawling across the tip of the glacial dam, and the porpoises were freed when the glacial dam washed out from the pressure of water building up behind it.

The incidental take of porpoise in the purse seine fishery for yellowfin tuna in the eastern tropical Pacific was one of the main reasons legislation was enacted to protect marine mammals. This issue continues to account for one of NMFS' largest management and research programs. NMFS places observers aboard tuna seiners to collect scientific data as well as to observe the incidental take. This program is operated out of the Southwest Region which assists vessel operators and inspects the vessels to ensure that the required porpoise safety gear is present and properly installed. The Southwest Fisheries Center is coordinating an extensive research program to improve knowledge of the porpoise that associate with tunas. In 1984, Congress amended the Act to include this major research program. After 5 years of research, the status of stocks in the eastern tropical Pacific will be reviewed to determine whether the quota for an incidental take should be changed.

Some marine mammals are so popular for public display, research, and whale watching that NMFS takes special measures to ensure their safety. For example, many people watch and study the humpback whale both while the Pacific stock winters in the Hawaiian Islands and the Atlantic stock summers off New England. NMFS has proposed regulations to restrict approaching

humpback whales in Hawaii and has issued similar guidelines in the northwest Atlantic Ocean.

The bottlenose dolphin is a popular animal to acquire for public display, and NMFS has established special management and research programs to ensure that it is not adversely affected by too many takings. A take is authorized only from areas along the Atlantic and Gulf coasts where populations have been assessed.

Some marine mammals are protected by the Endangered Species Act (ESA) as well as the MMPA. Under the ESA, NMFS designated critical habitat for the Hawaiian monk seal out to 10 fathoms in areas where special management consideration are necessary. A new recovery team has been named to assist NMFS in implementing the recovery plan developed in 1983. Also, NMFS has started a status review under the ESA of five river dolphins; they include the Amazon, Chinese, Ganges, Indus, and LaPlata dolphins.

NMFS manages the northern fur seal under the MMPA and the Fur Seal Act. Since the U.S. Senate did not ratify the treaty that allows a commercial harvest of fur seals on the Pribilof Islands, there has been only a subsistence harvest for the last 2 years. NMFS has proposed declaring the northern fur seal a depleted species since its population is declining. The current size of the Pribilof Island population is below 50 percent of the levels observed in the 1940s and early 50s.

Most marine mammals are wide-ranging migratory animals, and international laws, treaties, and conventions are necessary for their protection. At the 38th Annual Meeting of the International Whaling Commission (IWC), no changes were made in a 1982 decision to end commercial whaling by the 1985-86 whaling season. The U.S.S.R., Japan, and Norway filed objections to the moratorium which removed any technical obligations for them to comply. The IWC also sets bowhead whale quotas for Alaska natives which are based on the Commission's aboriginal/subsistence whaling management scheme. One of the management principles adopted by the IWC includes requiring that hunting be managed to provide for the recovery of depleted whale populations.

Other international activities include participation in the Inter-American Tropical Tuna Commission which provides funds for observers on tuna purse seiners; the International North Pacific Fisheries Commission under which the United States and Japan have an agreement that provides for research on Dall's porpoise incidentally taken in the Japanese high-seas salmon fishery; and the U.S.-U.S.S.R. Marine Mammal Project which provides for joint research and exchange of information concerning marine mammals.

Congress Amends the MMPA

In 1986, Congress amended Section 101(a)(5) of the MMPA and Section 7 of the Endangered Species Act to allow a "small" incidental take of endangered, threatened and depleted species of marine mammals under certain conditions.

Previously, this section of the MMPA applied only to non-depleted species. Since all endangered and threatened marine mammals are considered depleted and the more restrictive provisions of the MMPA prevailed, the ESA provisions that allowed an incidental take could not be used to authorize the incidental taking of endangered or threatened marine mammals, even if the take involved resulted in only negligible impacts.

To allow a take under the new amendments, NMFS must find that the total taking will have a negligible impact on the species or stock. A finding of negligible impact means that the specified activity is not reasonably likely to adversely affect the species or stock by harming its recruitment or survival. If mitigating measures would make the impacts negligible, NMFS may make a negligible impact finding if these measures are implemented. Also, the regulations must include measures to ensure the "least practicable adverse impact" on the habitat.

The amendments changed the standard used to evaluate the impact on subsistence uses from "negligible impact" to "not having an unmitigable adverse impact." An unmitigable adverse impact is one that results from the specified activity and cannot be made less intense, serious or severe. It would likely result in reducing the availability of the species to a level insufficient for a harvest to meet the subsistence needs of the community. The regulations must include measures to ensure the least practicable adverse impact on the availability of the species for subsistence users.

The amendments also changed Section 7(b)(4) of the ESA to clarify that any taking authorized in an incidental take statement issued in conjunction with a Section 7 consultation, must satisfy Section 101(a)(5) of the MMPA. Therefore, in addition to reasonable and prudent measures to minimize the impact of the incidental take, an incidental take statement will include required measures that are necessary to comply with Section 101(a)(5) of the MMPA and applicable regulations.

I. PERMIT PROGRAMS

General Permits Allow Commercial Fisheries an Incidental Take of Marine Mammals

Foreign Permits. General permits are issued to foreign fishing associations or embassies whose governments have a governing international fishery agreement (GIFA) with the United States allowing them to fish in the U.S. exclusive economic zone (EEZ). In 1986, NMFS issued or continued 10 foreign general permits that allow a total taking of 5,750 mammals. This included the take of 5,500 Dall's porpoise during salmon gillnet operations under a general permit issued to the Federation of Japan Salmon Fisheries Coperative Association. This permit expired before the June 1987 fishing season and a new permit issued by NMFS allows the following quotas for Dall's porpoise: Bering Sea--448 in any one year, 789 for 1987-1989. North Pacific--2,494 in any one year, 5,250 for 1987-1989.

Domestic Permits. U.S. fishermen who incidentally take marine mammals in a commercial fishing operation may apply for a certificate of inclusion issued under a general permit. Excluding the general permit issued to the American Tunaboat Association and its annual quota of 20,500 porpoise, NMFS has issued 9 domestic general permits which are valid until 1988. These permits allow a total taking of 6,425 animals each year. Table I in the Appendix includes a list of foreign and domestic fishing corporations with permits and the number of marine mammals they are allowed to take.

"Small Take" Exemptions for Commercial Fishing. A 1981 amendment to the MMPA allows an incidental, but not intentional, taking of small numbers of nondepleted species or stocks of marine mammals by U.S. citizens engaged in commercial fishing operations. This exemption to the general permit requirements of the Act can be granted only if the total taking will have a negligible impact on the species or stocks involved and if a system to monitor and report any taking has been established among the fishermen involved.

Exemptions have been granted for a small take of marine mammals to the National Fish Meal and Oil Association, which includes owners and operators of U.S. menhaden vessels in the Atlantic Ocean, and to New England groundfish gillnetters. (See Table I in Appendix for allowed take).

NMFS Issues Permits for Public Display and Scientific Research

Under the MMPA, NMFS may issue permits for taking or importing marine mammals for scientific research or public display. This agency reviews and decides whether to issue the requested permits, and, also continues to monitor the permits as long as they are valid. Currently, NMFS is monitoring 358 permits for scientific research and public display.

During the past year, NMFS considered 43 applications for permits. Of these, 30 have been issued for scientific research and 13 for a public display. Also, NMFS processed 107 requests for modifications or authorizations.

The process for granting a permit involves three steps:

1. Receipt and initial review of the application by NMFS, publication of a notice of receipt in the FEDERAL REGISTER, and transmittal of the application to the Marine Mammal Commission;
2. A 30-day review of the application by NMFS, the Commission, the public, and other Federal agencies; and
3. Final processing by NMFS, including consideration of comments, and approval or denial of the application.

See Tables 2 through 9 in the Appendix for an overview of this permit program since it began in 1973.

"Small Take" Exemptions Granted

The Act allows a "small take" of marine mammals incidental to specified activities in specific geographical locations. However, unlike the authorization for a small take incidental to commercial fisheries, these exemptions require that regulations be issued for each activity. In 1982, NMFS issued regulations that govern a small take of ringed seals incidental to seismic activities on the ice in the Beaufort Sea. Each year individual seismic companies apply for an authorization to take ringed seals under this exemption. These regulations were extended in 1987, and will be effective until December 31, 1991.

In response to a Department of the Air Force request to take seals and sea lions incidental to launchings of the space shuttle over the Northern Channel Islands from Vandenberg Air Force Base (VAFB), California, NMFS issued final regulations governing that take on April 7, 1986.

II. SPECIAL AGENTS ENFORCE THE MMPA

The provisions of the MMPA are enforced by Special Agents of NMFS with support from state enforcement officers. NMFS employs about 95 Special Agents and has entered into cooperative enforcement agreements or memoranda of understanding which permit the deputization of officers in the following states: Maine, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, South Carolina, Florida, Louisiana, California, Oregon, and Washington.

In the past year, Special Agents spent about 4,620 work hours investigating 112 alleged violations of the MMPA. Of these, 58 percent involved the unlawful taking (including harassment) of marine mammals and 30 percent involved unlawful importations.

Cases involving unlawful taking of marine mammals included the following:

- A U.S. citizen was fined \$8,700 for encircling, capturing and killing a sei whale with a tuna seine north of Papua, New Guinea in December 1984 while he was the master of a vessel of United Kingdom registry.
- Four U.S. fishing vessels were assessed penalties ranging from \$1,300 to \$2,000 for accidentally taking gray whales by entangling them in gillnets between Santa Barbara and Long Beach Harbors in California. All four whales involved were released alive.
- Four individuals were assessed civil penalties ranging from \$150 to \$200 for unlawfully removing harbor seal pups from California beaches.
- In May 1986, Special Agents in New Haven, Connecticut, investigated the shooting death of a beluga whale. A suspect has been identified, but apparently has fled the area to avoid prosecution. Efforts to locate the suspect continue.

III. REGIONS OPERATE STRANDING NETWORKS

All five NMFS Regions operate marine mammal stranding networks which include individuals and organizations that have volunteered to cooperate with NMFS. Authorized members collect scientific specimen materials, record stranding events with the Regional Coordinator, and assist local and Federal authorities to remove stranded animals.

Alaska Region

The Alaska Region Cetacean Stranding Network investigated the strandings of 17 whales and porpoises. Sperm whales were the most commonly stranded cetacean; five were found in an area extending from Prince William Sound to the western Aleutians. Other species included Stejneger's beaked whale (3), gray whale (2), minke whale (2), killer whale (2), humpback whale (1), Cuvier's beaked whale (1), Baird's beaked whale (1), and harbor porpoise (1). Two whales were freed from entangling fishing gear. In August 1986, when a humpback whale calf was reported entangled in crab pot lines in Seymour Canal near Juneau, NMFS requested the assistance of two whale biologists working in the area. Because the animal continued swimming throughout the rescue attempt, it was necessary for the rescuers to take a "Nantucket sleigh ride" as they worked their way up the entanglement, cutting off segments of line and buoys as they worked. When last seen, the animal was swimming normally.

During late summer, an entangled gray whale was also freed from crab pot lines near Chignik Lagoon. In this case, the animal remained relatively stationary during the rescue work. The fishermen who cut the lines away found that they had cut about 6 to 8 inches into the right fluke and approximately 12 inches into the left fluke. In mid-December, NMFS biologists chartered planes to search for a small humpback whale that had been seen entangled in a can buoy near Port Frederick. The animal was never located.

Marine Mammals Trapped in Russell Fiord, Alaska

Russell Fiord extends about 30 miles in two directions from the head of Yakutat Bay in eastern Alaska. On June 1, 1986, a surge in the Valerie Glacier pushed the Hubbard Glacier across the entrance to Russell Fiord, sealing it off from the ocean. On June 26, NMFS biologists made an aerial survey of the area and

determined that about 100 harbor seals and an estimated 30 to 40 harbor porpoise and possibly Dall's porpoise had been caught behind the glacial dam. As water levels began rising, public concern for the animals grew. In late August, the Whale Museum at Friday Harbor requested authorization from NMFS to rescue the trapped animals. Throughout the month of September, volunteers from the Whale Museum, the California Marine Mammal Center, Greenpeace, the International Fund for Animal Welfare, and several private individuals attempted to rescue the trapped animals. A NMFS observer was on the scene at all times to oversee the rescue activities. Attempts to lure them toward boats by using frozen herring were unsuccessful. After it was discovered that some of the seals left the area by crawling across the tip of the glacial dam, rescuers assisted eight others and then turned their efforts toward helping the porpoises. Two attempts were made to drive them into net enclosures, but both times they turned away at the last second. As weather deteriorated, the rescuers were forced to leave the area. However, on October 8, the glacial dam washed out under pressure from the 84 foot head of water which had built up behind it, and the porpoise were able to free themselves. Glaciologists predict that the Hubbard Glacier will eventually seal the area off again, but cannot agree when this will occur. NMFS, along with several other Federal Agencies, is monitoring the movement of the glacier.

Northwest Region

Participants in the Northwest Marine Mammal Stranding Network investigated over 300 marine mammal strandings in Washington and Oregon in 1986. In the Northwest, the general public is advised to report strandings to the Washington State Patrol or the Oregon State Police who relay the information to one of five volunteer Stranding Network Response Centers. The Response Centers coordinate the appropriate action which varies from providing advice to dispatching a team of scientific investigators. Since many of the reported "strandings" cannot be found or verified and others are live healthy seals or sea lions that were perceived to be sick or ill by the public, the Response Centers screen all calls to determine which reports are verifiable sightings of sick, injured, or dead marine mammals that might warrant a prompt response or scientific investigation. The Response Center notifies appropriate state or local authorities or scientists, or other volunteer network participants who investigate the stranding and submit reports to NMFS.

Southwest Region

The Southwest Region stranding coordinator prepared a report regarding the rescue of a humpback whale that wandered into the San Francisco Bay/Sacramento River Delta on October 11, 1985. This whale, nicknamed "Humphrey" was successfully led out to sea 24 days later through the combined efforts of various public agencies and volunteer groups. A research team studying humpback whale distribution and abundance in the Gulf of the Farallons, offshore California, resighted this whale on August 16, 1986.

In 1986, 52 cetaceans (Table 1) were reported stranded on the California coast. Overall, the frequency of cetacean strandings declined somewhat from previous years. This decline was likely related to the mild winter weather off the coast of California.

In Hawaii, the stranding network includes Federal, State, and local agencies, and one private enterprise, Sea Life Park. All marine mammal and endangered species strandings are coordinated by NMFS.

Table 1. Cetaceans reported stranded to the California Marine Mammal Stranding Network.

Common Name Scientific Name	Number Reported	Percent of Total
Common dolphin <u>Delphinus delphis</u>	15	28.8
Harbor porpoise <u>Phocoena phocoena</u>	13	25.0
Gray whale <u>Eschrichtius robustus</u>	6	11.5
Bottlenose dolphin <u>Tursiops truncatus</u>	5	9.6
Blue whale <u>Balaenoptera musculus</u>	3	5.8
Fin whale <u>Balaenoptera physalus</u>	1	1.9
Hubbs' beaked whale <u>Mesoplodon carlhubbsi</u>	1	1.9
Pacific white-sided dolphin <u>Lagenorhynchus obliquidens</u>	1	1.9
Sperm whale <u>Physeter catonon</u>	1	1.9
Stripped dolphin <u>Stenella coeruleoalba</u>	1	1.9
Unidentified Balaenopterid	3	5.8
Unidentified delphinid	1	1.9
Unidentified small cetacean	<u>1</u>	<u>1.9</u>
TOTALS	52	99.8 -

Northeast Region

Over a 2-week period in December 1986, NMFS Special Agents and the Northeast Regional Stranding Network responded to two mass strandings of pilot whales in Cape Cod Bay. The first stranding occurred on December 3, and involved over 60 pilot whales. The second, on December 19, involved 50 pilot whales on the beach and over 250 more in the Bay.

Southeast Region

There are over 100 participants in the Southeast Region Marine Mammal Stranding Network. A meeting conducted in 1986 for active Florida participants was held at The Living Seas at Epcot Center, Orlando. The Region issues Letters of Authorization (LOA) to qualified individuals who want to participate in the network.

IV. INTERACTIONS INCREASE BETWEEN MARINE MAMMALS AND FISHING OPERATIONS

Interactions between marine mammals and fishermen present difficult problems both for the animals and the humans who depend on the fishery resource. During some commercial fishing operations, marine mammals are killed, injured, or harassed. On the other hand, marine mammals take or damage fish caught on lines or in traps and nets; they damage fishing gear during these encounters or when they accidentally become entangled. Sometimes, they compete with fishermen for the same fish resources.

Before the Act, various forms of harassment were used to control the distribution, abundance, and behavior of marine mammals. However, since the Act imposed a moratorium on these activities, animals in certain areas have become more numerous and bolder in their interactions with fishermen and fishing gear. Through research studies and management programs, NMFS is attempting to solve this issue.

Alaska

Longline fishermen for blackcod (sablefish) continue to lose gear and fish catches to killer whales in Prince William Sound and the southern Bering Sea. For more information on the problem, NMFS contracted with whale biologists in Prince William Sound to set black cod longlines in areas frequented by killer whales. Attacks by the whales were highly efficient and resulted in almost total losses of fish. Several methods of deterring or confusing the whales (seal bombs, tangle lines around the hooks, and fishing with unbaited hooks) did not work. In the meantime, fishermen began using large explosive charges to drive the whales away. Because the effects of these charges on the whales were unknown, NMFS modified the fishermen's general permits and disallowed any use of explosives other than seal bombs and cracker shells. To date, nothing appears totally effective in discouraging the whales. Several killer whales have disappeared from the Prince William Sound area, and bullet wounds on killer whales have been observed by researchers working in the area. The wounds have been attributed to fishermen attempting to protect their catch.

There is little information on the status of this problem in the Bering Sea and Aleutian Island areas although killer whale predation apparently has occurred on sablefish in these areas for

over 20 years. The National Marine Mammal Laboratory is working with industry to design a survey form for fishermen to fill out during 1987 fishing operations. These investigations may provide information on the kinds and extent of the problem in the Bering Sea region.

Pacific Northwest

In the Pacific Northwest, seals and sea lions are frequently involved in fisheries conflicts. Although these conflicts are not adversely affecting harbor seal and California sea lion populations, they are having an adverse impact on fishermen and, possibly, the fishery resource. Conflicts with seals and sea lions have been reported from almost all of the Northwest fisheries. There are significant and increasing problems in most salmon fisheries resulting in damage or loss of catch and gear, loss of fishing time, and, in some cases, the need to modify normal fishing procedures. The conflict is most severe in the salmon gillnet fisheries.

Also, there are increasing concerns over the potential impact of seals and sea lions on free swimming salmonids. A recent study at a steelhead hatchery investigated the incidence of scars and scratches on returning steelhead caused by pinnipeds. Over 30 percent of the returning steelhead in this study had scars inflicted by harbor seals. Private salmon aquaculture facilities have reported that about 15 percent of their returning coho and chinook have seal inflicted scars and damage.

Sea Lions in Puget Sound. A number of California sea lions (one of which was nicknamed "Herschel") have "learned" that the entrance to fish ladders is an ideal site for easily capturing and consuming salmonids without fear of human retaliation. These sea lions, which migrate from California into the inland waters of Washington (Puget Sound) each winter, have become annual residents in the tailrace of the Ballard dam/locks (which separates fresh water from the salt water of Puget Sound) where steelhead and salmon migrating to the Lake Washington watershed gather before entering a fish ladder next to the dam. Up to seven animals at a time have been observed consuming salmonids in front of this fishway every day from October to April.

The WDG in cooperation with NMFS, the Army Corps of Engineers, and the Muckleshoot and Suquamish tribes initiated non-lethal removal programs in the last 2 years to keep the sea lions out of the area adjacent to the fish ladder. This effort

is conducted under the authority of Section 109(h) of the MMPA which provides for the non-lethal removal of nuisance animals. A harassment program using firecrackers and chaser boats was effective in minimizing sea lion predation on wild steelhead at this site in 1985/86. As a result of the harassment program, escapement goals (the number of spawning fish) were met in the Lake Washington watershed.

However, during the 1986/87 season, additional efforts had to be undertaken to protect the wild steelhead as the "repeat offenders" had become oblivious to harassment. Additional efforts included attempts to condition the animals to avoid steelhead by applying taste aversion techniques using lithium chloride and attempts to capture and transport the animals back to their breeding range off southern California. Both the taste aversion conditioning and capture efforts were unsuccessful. Therefore, more intense harassment efforts, including chasing the animals for long distances with boats, were implemented in February and March, the peak period of the wild steelhead run. Despite the harassment program, a substantial portion of the returning adult fish were lost because of the sea lions.

California

California sea lions, harbor seals, and northern elephant seals are incidentally taken by commercial fishing operations in California. The current general permit which allows this take expires at the end of 1988. Before approving a new General Permit to authorize this incidental take, NMFS must determine that these species are at optimum sustainable population levels in California. The Southwest Fisheries Center working with the Southwest Region, the National Marine Mammal Lab, and the California Department of Fish and Game, is reviewing the status of these three species in California. A final report will be available this year from the Southwest Fisheries Center.

NMFS published reports completed by the California Department of Fish and Game (CDFG) estimating the incidental mortality of harbor porpoise in California set-net fisheries for the 1983/84 and 1984/85 fishing seasons. These reports are available from the NMFS Southwest Region, 300 South Ferry Street, Terminal Island, California 90731.

NMFS is continuing the CDFG studies monitoring the incidental take of marine mammals. The CDFG is preparing a report estimating the total incidental mortality of harbor seals in all California gillnet type fisheries for the 1983/84 -

1985/86 fishing seasons. These studies were continued in the 1986/87 season.

Marine mammals, California sea lions in particular, interact frequently with sport fisheries. In response to a petition, NMFS issued regulations that authorized commercial passenger fishing vessels to harass marine mammals interacting with their passenger's catch. In June 1986, NMFS issued a General Permit to the Sportfishing Association of California authorizing use of various devices for the non-lethal, non-injurious harassment of California sea lions in waters south of Piedras Blancas, California. During 1986, 39 certificates of inclusion were issued under this General Permit.

Northwest Atlantic Ocean

The University of Maine, under contract from NMFS, investigated marine mammal-fisheries interactions in groundfish gillnets in the Gulf of Maine. This 4-year study documented the number of species, seasonality, and population characteristics of marine mammals taken in groundfish gillnets. The harbor seal and harbor porpoise are the predominate species taken in this fishery; other fisheries that incidentally take marine mammals were also identified.

NMFS issued a finding (under the Endangered Species Act) of "no jeopardy" in a Biological Opinion issued to the New England Fisheries Management Council's proposed Multispecies Groundfish Fishery Management Plan (FMP). Fishing gear covered under the FMP includes trawl gear, gillnets, and longline gear. Several entanglements of endangered whales were reported in gillnets in the Gulf of Maine in 1985-1986. However, using recent information on the distribution and seasonality of right and humpback whales and the distribution, seasonality, and effort of gillnetting in areas where whales and fishing practices occur, NMFS determined that fishing activities under the proposed FMP were not likely to result in increased mortality to right and humpback whale populations.

V. NMFS MONITORS AND STUDIES THE INCIDENTAL TAKE OF
MARINE MAMMALS IN COMMERCIAL FISHERIES

Incidental Take of Porpoise*
in the Yellowfin Tuna fishery

Although considerable progress has been made in reducing the number of porpoise killed each year in the purse-seine fishery for yellowfin tuna in the eastern tropical Pacific, NMFS continues to commit its resources to reduce further this incidental take of marine mammals.

Management programs are carried out by the Southwest Region. NMFS places observers aboard tuna seiners to collect scientific data as well as monitor the incidental take of porpoises and methods used by the fishermen to avoid a take. During 1986, 40 tuna/porpoise observers were placed aboard commercial tuna purse-seine vessels operating under U.S. flags. The Inter-American Tropical Tuna Commission (IATTC) placed half of the cruises and half were placed by NMFS. In 1985, the Southwest Region held tuna seiner operator's workshops for 14 skippers. NMFS issued Certificates of Inclusion (under a general permit that allows an incidental take of porpoise) to 81 operators and 34 vessels.

Net and gear inspections were completed for 12 vessels to ensure that required porpoise safety gear was properly installed and functioning correctly. Additionally, 18 preliminary inspections were conducted by observers at sea. Assistance was provided for a vessel in the alignment of its super apron during a trial-set in waters off San Diego.

The porpoise mortality quota (20,500) was reached before the end of the fishing season causing NMFS to prohibit further fishing for tuna associated with porpoise. The prohibition on setting nets on porpoise began October 21, 1986, and ended January 1, 1987.

Importing Yellowfin Tuna. To implement a 1984 amendment to the MMPA, NMFS has proposed regulations regarding the importation of yellowfin tuna caught with purse seines in the eastern tropical Pacific Ocean (ETP). Under this rule, any nation that

*NMFS uses the term porpoise, rather than dolphin, to prevent confusion with the dolphin fish, an object of sport and commercial fishing. However, the common name, or dolphin, is used when discussing research programs for individual species or stocks.

wishes to export yellowfin tuna to the U.S. and has purse seine vessels in the ETP must provide documentary evidence that the nation has adopted a regulatory program governing the incidental take (mortality) of marine mammals in the fishery that is comparable to the program of the U.S. The nation must also supply documentation that the average rate of incidental mortality of porpoise in the fishery by its vessels is comparable to the rate of incidental mortality of porpoise from fishing by the U.S. fleet.

Also, if the U.S. fishery reaches its allowed quota of porpoise killed, imports of yellowfin tuna will be prohibited from nations whose flag vessels fish in the ETP, unless certain conditions are met that demonstrate the tuna was not taken by fishing on porpoise during the closure. After the closure becomes effective, any country wishing to export yellowfin tuna to the U.S. must place an observer approved by the government on any vessels for any trip, of which any part is in the ETP and from which yellowfin tuna is to be imported into the United States. The observer must verify that no sets for tuna were made on porpoise after the closure date. The imported tuna must be accompanied by a statement from a responsible government official to this effect.

Research Studies. A 1984 amendment to the MMPA calls for a research program to monitor trends in abundance of stocks of dolphins killed incidental to this fishery. The research program is coordinated by NMFS' Southwest Fisheries Center. The purpose of this program is to improve our knowledge of the population biology of dolphins associated with the purse-seine fishery for tunas in the eastern tropical Pacific Ocean (ETP). The mandated monitoring program is to last at least 5 years after which the status of dolphin stocks in the ETP will be reviewed.

NMFS has initiated a monitoring program that uses data collected by observers on research vessels and U.S. tuna vessels. Surveys using research vessels have been designed to detect an annual change in relative abundance as small as 5 percent per year for spotted dolphins. The experimental design involves two vessels transecting the study area for 120 days per year for a minimum of 5 years. In 1986, the first survey was completed by two NOAA research vessels, the David Starr Jordan and the McArthur, serving as sighting platforms for observers from late July through early December. During the surveys, 790 schools of dolphins were sighted (58,568 animals). A cruise report describing the type of data that was collected by each vessel is available from the NMFS Southwest Fisheries Center, P.O. Box 271, La Jolla, California 92038. A data report for each vessel, which will provide a listing of all marine mammal sightings data, is scheduled to be completed in June 1987. A

report summarizing the results of the 1986 cruises will be submitted to Congress.

On the next research vessel survey (1987), a helicopter will be used to provide vertical photographs of dolphin schools for an accurate estimation of school size. The aerial photographs should provide information on species proportions in mixed schools and possibly the number of calves in a school. An experimental design, incorporating two vessels and a helicopter, will be completed in June 1987.

In addition to gathering information about the numbers of dolphins in the ETP, scientists collected information on the physical and biological environment in which these animals live. Continuous data on surface temperature, salinity, and fluorescence were collected by both vessels. Water samples for nutrient and chlorophyll analyses were also collected. These data will be used to interpret distribution (which does not appear to be random) of dolphins in the ETP and to help predict how large scale environmental features, such as the recent El Nino event, will affect the analysis of encounter rate data from research vessels and tuna vessels.

Besides using data collected by observers on research vessels, NMFS is developing methods to use information collected by observers on tuna vessels to monitor changes in the relative abundance of ETP dolphins. This approach utilizes marine mammal encounter-rate data and life history data which are collected on an opportunistic basis by observers. Since it is not possible to control the sampling regime, data analysis techniques that are suitable for data collected by observers on research vessels may not be suitable for data collected by observers on tuna vessels.

The goal of the program to analyze encounter-rate data from tuna vessels is to define and identify various attributes of the fishery, describe the environmental features that affect the distribution of dolphins, and then to develop a model that can be used to test which methods are effective in detecting trends in the relative abundance of ETP dolphins, based on observer data. This work is being closely coordinated with scientists at the IATTC who are working on this issue from an international perspective. NMFS has developed a formal research plan to coordinate all of the various elements in the analysis of observer data. In addition, SWC staff are analyzing the relationship between various environmental features of the ETP and the distribution of dolphins. Also, a comparison of encounters of porpoise schools by observers from tuna vessels and research vessels will be completed in 1988.

Finally, the SWC has initiated the development of a systems model for the ETP ecosystem that will be used to test the sensitivity of different methods used to analyze the encounter rate data. For example, the IATTC is currently applying standard line-transect techniques to encounter rate data collected by observers on tuna vessels. The SWC will work with the IATTC to determine how sensitive conclusions from a line-transect analysis are to any assumptions in the methodology.

The goal of the program to analyze the life history data collected by observers on tuna vessels is to correlate various changes in specific life history parameters with either changes in the relative abundance of ETP dolphins or the level of fishing effort in a particular area. Specific studies on changes in the growth rate, age of sexual maturity, pregnancy rate and sex ratio of animals killed incidental to the fishery are currently underway. Concerning the latter, SWC scientists have recently found that changes in the sex ratio of spotted dolphins is significantly correlated with changes in fishing effort. These results hold for all age classes of animals, except fetuses. This information will be used to test various hypotheses about the affect of the tuna fishery on different stocks of dolphins.

In addition, the SWC is studying the stock structure of dolphins in the ETP and elsewhere. Studies on the use of mt-DNA to discriminate between dolphin stocks have been carried out at the SWC since 1984. Also, studies on differences in the incidence of tooth pathology relative to geographic area and fishing pressure have been initiated. The preliminary results of this work suggest that the incidence of pathological calcium resorption in ETP dolphins, as observed in their teeth, may not be uncommon. Because this condition has not been previously reported in mammals, the underlying mechanisms, as well as the inferences to stock structure, are being investigated. Reports summarizing these studies are scheduled to be completed in 1987 and will be available from the Center.

A large series of dolphin skulls collected from areas poorly represented in previous analyses of geographical variation and stock identity are being analyzed. The specimens have been prepared under contract by the Los Angeles County Museum and the data are now being extracted that will be used in a re-analysis of stock structure using multivariate approaches. The specific questions being addressed deal with the degree of distinctness between spotted and spinner dolphins north of the equator and those south of the equator and between dolphins in the core area of the eastern tropical Pacific and those farther to the west in the Central Pacific. As part of the overall study of relationships between populations in the Central and Western Pacific and the Indian Ocean, summaries of worldwide distribution

of spotted, spinner and striped dolphins are in preparation. They will include records from the literature and a variety of unpublished sources.

The Southwest Fisheries Center has worked closely with the Southwest Region to review methods of estimating dolphin mortality in the ETP. Following a series of workshops, the Center completed a series of computer simulations to generate data sets that could be used to compare bias and precision in different methods of estimating dolphin mortality. These analyses indicated that the methods used to estimate dolphin mortality could be improved by discontinuing the practices of breaking the year into three separate periods and by holding the observer coverage rate constant through the year. Both changes have been incorporated into the proposed methods for monitoring the incidental mortality in 1987. In addition, research at the Center demonstrated that the kill-per-day statistic that has been used in previous years compares favorably with other kill statistics, such as kill-per-set or kill-per-ton, which are considerably more difficult to estimate in real time.

Incidental Take of Dall's Porpoise in the Japanese Salmon Gillnet Fishery

Marine mammals, primarily the Dall's porpoise, are taken during commercial gillnet operations by Japanese fishing vessels both in and out of the U.S. exclusive economic zone (EEZ) in the North Pacific Ocean and Bering Sea. Until 1987, the Japanese salmon mothership fishery was allowed to take up to 5,500 Dall's porpoise annually inside the EEZ. A new permit allows a total take of 6,039 animals over the next three years.

In 1986, incidental take of Dall's porpoise by the Japanese high-seas salmon mothership fishery was monitored during 6 percent of the gillnet operations by U.S. and Japanese observers onboard the commercial catcherboats. Estimated incidental take in 1986 in the EEZ was 1,456 Dall's porpoise. Specimens for ongoing studies of reproductive biology were collected from 898 Dall's porpoise.

A new program was implemented to obtain data on the incidental take by the Japanese high-seas squid gillnet fishery operating in international waters in the North Pacific. During 30 gillnet operations in the eastern North Pacific, 7 Dall's porpoise, 43 northern right whale dolphins, 8 Pacific white-sided

dolphins, 1 striped dolphin and 14 northern fur seals were taken. There are no quotas for marine mammals in this fishery because it takes place in international waters.

Data collected from 1981-1985 demonstrated the geographic segregation of age and sex classes of Dall's porpoise in the salmon mothership fishing area. NMFS has completed studies on the response of Dall's porpoise to survey vessels, the effect of that response and visibility conditions on population estimates, and age structure of the population. Studies were initiated on the genetic variability of Dall's porpoise using mitochondrial DNA and on local populations of this species in Puget Sound.

An assessment of the status of the Dall's porpoise population was completed indicating that Bering Sea and Western North Pacific stocks were above OSP (optimum sustainable population) levels.

Incidental Take of Marine Mammals
in the Western North Atlantic

Marine mammals are incidentally caught in foreign and joint fishery operations (domestic and foreign) for squid and mackerel off southern New England and the Mid-Atlantic. NMFS observers reported 113 marine mammals captured (1 minke whale, 35 pilot whales, and 76 common dolphins). Analyses of the data indicate that the total take of marine mammals in foreign and joint fishery operations is not seriously threatening any marine mammal populations. Incidental take and biological data collection will continue so that trends in the level of take can be monitored.

VI. THE MMPA ALLOWS A SUBSISTENCE TAKE
OF MARINE MAMMALS

Taking Bowhead Whales
in the Beaufort and Chukchi Seas

Although bowhead whales are listed as an endangered species, Alaska natives are allowed to hunt them for subsistence purposes. Catch limits for the hunt are set by the International Whaling Commission and regulations for management of the harvest are implemented under the Whaling Convention Act of 1949. Both the MMPA and the Endangered Species Act provide for a subsistence take by Alaska natives of endangered and depleted species.

The quota set for 1986 and 1987 was 26 strikes; however, strikes not used in previous years may be added to the limit as long as the total number of strikes does not exceed 32. Although the full 32 strikes were available in 1986; only 28 were used. Therefore, 32 strikes will be available in 1987. Of the 28 strikes used in 1986, 24 were used in the spring hunt and 4 were used in the fall hunt. A total of 20 whales were landed (Table 2).

NMFS is the Federal agency with primary responsibility for bowhead whales, but several other agencies including the State of Alaska, the Alaska Eskimo Whaling Commission, the North Slope Borough, and the Minerals Management Service, are involved. Each year, NMFS' Alaska Region staff participates in monitoring the fall bowhead migration as the animals pass through areas of oil activity in the Beaufort Sea. Studies of population size and recruitment, seasonal distribution and migration, and behavior relative to the availability of food or human disturbance, are carried out by NMFS and the North Slope Borough, a group representing Alaska natives.

Table 2. Annual Quotas and Catch of Bowhead Whales 1978-1987

	Quota ¹		Landed	Actual Take	
	Landed	Strikes		Lost	Strikes
1978	14	20	12	6	18
1979	18	27	12	15	27
1980	18	26	16	18	34
1981 ²	17	32	17	11	28
1982	16	19	8	11	19
1983	18	18	9	9	18
1984	--	27 ³	12	13	25
1985	--	18	11	6	17
1986 ⁴	--	32	20	8	28
1987	--	32			

¹Quotas were first set for this population in 1978. Since 1982, a landed whale counts against the strike quota. Hunting is to cease when the quota of total strikes, including landed whales, is reached.

²Based on IWC quotas, totals for 1981, 1982, 1983 combined could not exceed 45 landed or 65 struck.

³A two-year quota (for 1984-85) not to exceed 43 strikes was put into effect at the July 1983 IWC meeting. A domestic limit of 27 strikes was set for 1984 consistent with the IWC decision. Of these, 25 strikes were used in 1984 allowing a possible total of 18 strikes in 1985.

⁴The strike limit for 1986 (as set at the IWC meeting in 1985) was 26 strikes; however, those strikes not used in 1985 could be added to the 1986 limit so long as the total number of strikes did not exceed 32. Because the total number of whales which could be struck in 1985 was raised from 18 to 26 at the 1985 IWC meeting, and because only 17 whales were struck in 1985, the full 32 strikes were available in 1986.

----- from photogrammetric length data, 2) age determination techniques through use of bullae and baleen; 3) reidentification of individuals (for estimation of life history parameters) through aerial photographs; and 4) distribution of migrating whales within the nearshore lead near Barrow, Alaska.

For the field component of the research, 131 hours were flown in a twin otter aircraft between May 1 to June 1. Over 14,000 km were surveyed and 712 images of whales were collected. About 280 whale photos are suitable for inclusion in an identification catalogue. Analysis continues on the population size-structure, temporal size segregation of animals during migration, and the traveling associations of whales by size class.

The preliminary results from a study of stable carbon isotope ratios in baleen have proved highly interesting. In older animals, the ratio taken along the length of baleen may show an annual signal which can be used to estimate animal age. In young whales, the signal may be confused by rapid baleen growth.

In support of the North Slope Borough's census efforts, NMFS flew 51 transects of the zone perpendicular to the Borough's counting camps. Thirty-one whales were seen and 42 percent of these were traveling within 5 km of the shorefast ice edge. These results are virtually the same as those of 1985.

Taking Northern Fur Seals on the Pribilof Islands

NMFS has published a proposal to designate the North Pacific fur seal as depleted under the MMPA. This action is required by the MMPA when a species or population stock falls below its optimum sustainable population (OSP). Since the current Pribilof Island population of North Pacific fur seals is below 50 percent of the population levels observed in the 1940s and early 1950s, this population is believed to be below a level which can maintain maximum net productivity, the lower bound of the OSP range. If this population stock is designated as depleted, the MMPA requires that certain additional restrictions on taking and importing be applied. A public meeting on the proposed rule was held in January in Anchorage, Alaska. The final rule is expected to be issued July 1987. The United States Senate has not ratified the 1984 protocol extending the Interim Convention on Conservation of North Pacific Fur Seals. Consequently, there has been no commercial harvesting of fur seals in the Pribilofs since 1984. To ensure that the dietary requirements of Pribilof Island

residents would be met, and that the fur seal population would be protected, NMFS issued regulations under which subsistence harvests of fur seals were allowed under the Fur Seal Act of 1966. In 1986, harvests were carried out independently on St. Paul and St. George Islands. The harvest on St. Paul Island took 1,299 seals, most of which were two or three-year-old males. On St. George Island, about 100 subadult male fur seals were found dead of unknown causes in late summer and this finding resulted in concern among island residents that the seals might not be fit for human consumption. To alleviate these concerns, NMFS sent a veterinarian to St. George to inspect the animals. Tissue samples were also collected and analyzed for trace metal and organic pesticide levels. However, no cause of the deaths has been identified. Only 124 seals were harvested on St. George Island.

Biological information collected on fur seals on the Pribilof Islands of St. Paul and St. George included determining the age of fur seals harvested, the number of adult males on the rookeries and hauling grounds, and the number of pups and older seals that died on the rookeries and adjacent beaches. In 1986, approximately 167,700 pups were born on St. Paul Island. Less than 5 percent of these died during the summer.

Behavioral research was analysed from data collected on St. George Island since 1973. A synthesis of these studies is underway. Field work involved continued studies of marked animals and the study of diving behavior using time-depth recorders attached to females.

Entanglement studies. Since entanglement with discarded fishing nets and other debris may be one of the reasons for the declining population of the northern fur seal, NMFS is studying several aspects of this problem. Studies in 1986 involved several separate projects. In a continuation of the monitoring work begun in 1985, juvenile males were rounded up in the area of hauling grounds and examined for entanglement or tags. Those with either were captured and examined to calculate the relative rates of resighting in order to gain information on the extra mortality suffered by entangled animals. Surveys of rookery areas confirmed last year's observations of the appearance of entangled pups as they enter the water before weaning. The diving behavior of entangled seals (juvenile males) was studied by using time-depth recorders (using microprocessors) attached to a sample of both entangled and unentangled animals. The time at sea and duration of dives appear to be longer for entangled animals. Debris from selected rookery areas was removed and examined. Observations indicate that entanglement occurs primarily, if not exclusively, in the water.

VII. INTERNATIONAL PROGRAMS
FURTHER THE PROTECTION OF MARINE MAMMALS

International Whaling Commission (IWC)

1986 IWC Meeting. The United States had two primary objectives for the 38th Annual Meeting: to support implementing the moratorium decision and to support the IWC's future programmatic and fiscal integrity. These objectives were substantially achieved.

The IWC Moratorium Decision. The 38th Annual Meeting did not amend the moratorium decision or take any action to modify its subsistence. The following decision was reached at the July 1982 IWC meeting:

"Notwithstanding the other provisions of paragraph 10 (which provide for otherwise allowable commercial whaling), catch limits for the killing for commercial purposes of whales from all stocks for the 1986 coastal and the 1985/86 pelagic seasons and thereafter shall be zero. This provision will be kept under review, based upon the best scientific advice, and by 1990 at the latest the Commission will undertake a comprehensive assessment of the effects of this decision on whale stocks and consider modification of this provision and the establishment of other catch limits."

Three member governments (Japan, Norway, and the USSR) objected to the moratorium which removed them from any technical obligation under international law to comply.

The Government of the Philippines, which had earlier announced that it was not bound under the moratorium even though it had not filed a timely objection, changed its view. The Philippine Commissioner announced that his Government did not reissue a license for whaling; there would be no whaling in 1986; and the new policy is to abide by the moratorium.

Aboriginal Whaling. In 1982, the IWC adopted management principles and procedures to govern aboriginal/subsistence whaling, and recognized in a separate management scheme any distinction between commercial and aboriginal/subsistence whaling. The scheme codified the IWC's attempt to balance the needs of aboriginal people who depend on limited whaling to meet subsistence, cultural, and nutritional needs and the conservation needs of the affected whales. It requires that hunting be managed to provide for the recovery of depleted whale populations.

The Aboriginal/Subsistence Whaling Subcommittee considered reports from Denmark and the United States on whale catches required to meet nutritional, subsistence and cultural needs. The Soviet Union reported that studies were continuing on the specific uses of whale products by the Soviet aboriginal population and documentation would be submitted at next year's meeting. Japan presented a paper on the small-type coastal whaling around Japan which, it said, has similar characteristics to aboriginal/subsistence whaling. Questions were raised concerning the whaling operations and disposition of the whale meat and other products.

The Subcommittee heard a presentation by Denmark on the aboriginal/subsistence need of East Greenlanders for Central Atlantic minke whales and concluded that such a need exists. It was also noted that a multispecies hunt was involved and dependence was not totally on minke whales. The Commission set a catch limit of 12 for minke whales and the following other aboriginal catch limits for 1987:

West Greenland fin:	10
West Greenland humpback:	0
Eastern Pacific gray:	179.

No change was made in the existing catch limits for Bering Sea bowhead or West Greenland minke whales, both of which expire after 1987. St. Vincent and the Grenadines indicated that next year they will document the need of Bequians for a small number of humpback whales.

Whale Stocks and Catch Limits. Catch limits for commercially exploited stocks were automatically set at zero for the 1987 coastal and the 1986/87 pelagic whaling seasons as a result of the 1982 moratorium. The Scientific Committee had conducted stock assessments in order to provide management advice. All existing stock classifications were retained with a single exception: the classification of the Okhotsk Sea-West Pacific stock of minke whales was changed from Sustained Management to unclassified.

Comprehensive Assessment. In response to a request from the IWC to identify specific tasks, assign priorities, and establish a timetable for undertaking a comprehensive assessment of whale stocks, the Scientific Committee outlined a plan of scientific and joint scientific/technical work. The plan includes an inventory of current knowledge on the status of stocks; methodological problems in determining stock identity and population trends; an examination of the availability of data; a review of the scientific aspects of alternative management procedures; preparation of a second round inventory; examination

of general aspects of whale population dynamics; and preparation of a third round inventory. The joint scientific/technical work will focus on the management objectives of the Commission and their scientific implications.

Scientific Permits. Last year, the Scientific Committee established guidelines for considering information submitted on the status of the stocks, comments on methodology, the likelihood of achieving the stated objectives, participation by scientists from other nations, and the possible effect on conservation of the stocks.

This year, the Scientific Committee reviewed a revised program proposed by Iceland which is contemplating a scientific catch of 80 minke, 80 fin, and 40 sei whales. With regard to the catch of fin and sei whales, the Committee reaffirmed its comments of the previous year which had been divided on whether these catches would be scientifically useful. Some members were concerned that the catch of minke whales would seriously reduce the recovery of the stock or even cause it to decline.

A scientific permit program by the Republic of Korea involving the take of minke whales was reviewed and found, for the second time, not to fulfill the request for information required. The Committee noted its serious concern that permits for taking 160 animals had already been issued and that taking was presumably underway.

The Commission reviewed the report of a working group that had studied a proposed resolution by Sweden to further define the parameters by which scientific permits should be issued and to recommend actions to be taken by Contracting Governments concerning permits and the disposition of whale meat and other products. The working group had been unable to agree on the appropriate disposition of these by-products of research. The Swedish resolution proved to be the most significant negotiation that occurred at this Commission meeting.

Humane Killing. The Technical Committee Working Group on this subject prepared a report on the killing methods used in aboriginal/ subsistence whaling operations and reviewed the humane killing aspects of the pilot whaling operations in the Faroe Islands.

In adopting the report of the Working Group, the Commission commended the United States for research undertaken to improve killing methods used in bowhead whaling and asked the Group to keep this subject under review. The United States indicated that information about when a whale is struck and how long it takes to land the whale should be available in the future due to new

reporting procedures. The Commission also anticipates further information from the United States concerning struck and lost rates, and it asked the Secretary to survey material relevant to the use of neurotoxins for killing whales.

The Commission expressed grave concern at the lack of information supplied by Denmark on behalf of Greenland and at the absence of programs for training and development of more humane weaponry. Denmark was invited to submit for review in 1987 a report addressing questions such as the training programs being developed, the weaponry used and being developed, the body regions at which killing shots were aimed, the struck and lost rates for the hunt, the time to death, the monitoring mechanisms in place, and the differences in hunting practice between the various types of aboriginal catches.

Finally, the Commission noted the recent changes to Faroese legislation on whaling and the very strong concern expressed within the Working Group about the methods used in the Faros Island pilot whaling operations, particularly the use of the gaff and the spear. The Commission adopted a resolution urging that the use of these implements be minimized.

International North Pacific Fisheries Commission (INPFC)

The United States and Japan signed a Memorandum of Understanding (MOU) on marine mammals in 1984 which remains in effect until June 1987. As with two previous MOUs, the agreement provides for cooperative research on Dall's porpoise and other marine mammals incidentally caught in the Japanese high seas salmon fisheries. The general permit issued by the United States (June 1987) reduces the allowed take of Dall's porpoise by the mothership fishery in the U.S. exclusive economic zone (EEZ) from 5,500 animals a year to 6,039 over a 3-year period. The MOUs were developed in connection with the International Convention for the High Sea Fisheries of the North Pacific Ocean.

At the 1986 annual meeting of the INPFC, the scientific subcommittee of the Ad Hoc Committee on Marine Mammals presented 26 documents on marine mammals taken incidentally in Japan's high-seas salmon gillnet fishery. These documents included studies on gear modification experiments, acoustic studies, estimation of abundance of Dall's porpoise, and the biology and behavior of Dall's porpoise. The Japanese intend to provide data on the incidental take of marine mammals in the Japanese high-seas squid driftnet fishery at the 1987 annual meeting.

North Pacific Fur Seal Commission (Commission)

The Commission was established in 1957 by the Interim Convention on Conservation of North Pacific Fur Seals with the United States, Canada, Japan, and the Soviet Union as members. The Commission met annually from 1958 through 1985 to coordinate and review the results of cooperative research programs and to develop recommendations to party governments on appropriate research and management measures, including commercial harvests carried out by the U.S. on the Pribilof Islands and the Soviet Union on the Commander and Robben Islands.

The Interim Convention on Conservation of North Pacific Fur Seals was extended by a succession of Protocols, the most recent was signed on October 12, 1984, and called for extending the agreement through October 1988. Japan, Canada, and the Soviet Union ratified the Protocol. At a June 13, 1985, hearing held by the U.S. Senate Committee on Foreign Relations regarding ratification of the 1984 Protocol, concern was expressed about the effects of the continued commercial harvest on the declining U.S. fur seal stocks. The Senate took no final action on the Protocol. Without Senate ratification or provisional application of the Protocol, no commercial seal harvest can be conducted under existing domestic law which is now the exclusive authority for managing the Pribilof Island fur seal population.

The 1986 Commission meeting was cancelled since the U.S. had not ratified the Protocol, and no further meetings of the Commission are scheduled. Efforts are underway to interest former Commission members in discussions of conservation measures for North Pacific fur seals and renewed cooperation in international research.

US-USSR Marine Mammal Project, Environmental Protection Agreement

This project promotes joint research and exchange of information by U.S. and Soviet scientists on the biology, ecology and population dynamics of marine mammals of concern to both countries. The following activities were carried out in 1986.

1. Results of the fall 1985 aerial survey of Pacific walrus in the Bering and Chukchi seas by American and Soviet specialists were exchanged. The resulting data in the U.S.S.R. and the U.S. can serve as a basis for establishing rational annual quotas for walrus harvests by the native populations of Chukotka and Alaska.

2. In June and July, two American specialists from the Hubbs Marine Research Institute worked with Soviet specialists to develop materials on distinguishing non-metrical variations in color patterns of harbor seals, a species widely distributed in the North Pacific Ocean. The work took place at the VNIRO Marine Mammal Laboratory and the Institute of Developmental Biology of the USSR Academy of Sciences. During these studies, 63 discrete indicators were noted and assessed. Preliminary evaluations indicate that this method of description and classification of animals by coloration is useful and promising for monitoring and predicting the numbers of this widely distributed species.

3. Two American specialists from the National Ecology Center of the U.S. Fish and Wildlife Service conducted joint studies of craniological materials -- skulls of sea otters -- from the Commander and Kurile Islands and the Kamchatka Peninsula during August 1986 in Nakhodka, USSR. A uniform method of measuring sea otter skulls was developed and 277 skulls measured. The specialists discussed current thinking regarding the taxonomy of the species, and noted the absence among researchers of a unified point of view. Analysis of the processed craniological material will permit precise determination of the status of various groups of sea otters in their habitat ranges; and will facilitate the development of future measures for the conservation and rehabilitation of this animal.

The Working Group met in the U.S. in December to review the results of the work conducted during 1986 and adopt a program for 1987-1988. The Soviets prepared a report on "Scientific Research on Marine Mammals in the North Pacific Ocean in 1984-85", as well as a "Bibliography of Sea Otter Research Papers, published in the USSR between 1965-1984." (This work was completed in accordance with an agreement reached with the United States during the first joint workshop on Sea Otter Biology in Nakhodka in 1984.

The project leaders were Robert V. Miller, Deputy Director of the National Marine Mammal Laboratory, and L. A. Popov, Director, Marine Mammals Laboratory, All-Union Scientific Research Institute for Fisheries and Oceanography, Ministry of Fisheries (USSR).

VIII. LEGAL SECTION

Jones v. Gordon, (9th Cir. 1986). Environmental groups, including Greenpeace and the Sierra Club, and the State of Alaska challenged the issuance of a scientific research and public display permit to Sea World, Inc. Under the permit issued by NMFS, Sea World could have conducted a variety of research activities on up to 100 killer whales and could have permanently retained up to 10 killer whales for public display and captive breeding. The plaintiffs argued that NMFS failed to comply with the National Environmental Policy Act (NEPA) because the agency had not prepared an Environmental Impact Statement (EIS) or an Environmental Assessment (EA) on the permit action. NMFS contended that permits, in general, are not major Federal actions with significant environmental effects and relied on a categorical exclusion from NEPA in deciding not to prepare an EA or EIS.

The district court (D. AK. 1985) found that the claims under NEPA were not time-barred by the MMPA requirement that permits be challenged within 60 days of issuance, and ruled that exceptions to the categorical exclusion mandated that an EIS be prepared. The court declared the permit invalid.

NMFS and Sea World, Inc., which had intervened in the lawsuit, appealed to the U.S. Court of Appeals for the Ninth Circuit. The Ninth Circuit ruled on June 18, 1986, agreeing with the district court that NEPA claims are not barred by the statute of limitations for permits under the MMPA. The appellate court reversed the lower court on its determination that an EIS must be prepared, but ruled that NMFS had not adequately explained how it had complied with NEPA absent the preparation of an EA or an EIS. As a consequence, the permit was declared to be void. At this time, Sea World has not submitted an application for a new permit to capture, retain, or conduct research on killer whales.

Greenpeace International, Inc. v. Baldrige, (D. Hawaii). On February 20, 1986, Greenpeace and the Sierra Club filed suit challenging NMFS' failure to designate critical habitat for the Hawaiian monk seal within one year of publishing a proposed rule. The 1-year limit is imposed by the Endangered Species Act (ESA), but the lawsuit was brought under both the ESA and the MMPA. On April 25, 1986, NMFS designated critical habitat for the Hawaiian monk seal including beaches, lagoons, and waters surrounding the Northern Hawaiian Islands (NWHI) to a depth of 10 fathoms.

In 1983, NMFS approved a recovery plan for the monk seal that included the recommendation that critical habitat be designated out to the 20 fathom isobath around the NWHI. In designating critical habitat to 10 fathoms, NMFS determined that

deeper waters did not "require special management considerations or protection" and, therefore, did not fit the definition of critical habitat. Plaintiffs filed an amended complaint on November 4, 1986, to compel designation to 20 fathoms, alleging that the area to that depth fit the ESA definition. Plaintiffs also allege that the MMPA imposes a duty on the Federal government to protect the monk seals habitat and that defendants have violated Section 2 of the MMPA (16 U.S.C. §1361(2)) by refusing to designate critical habitat as advised in the recovery plan. Additionally, plaintiffs argue that Section 202 of the MMPA (16 U.S.C. §1402(d)) has been violated because NMFS did not designate critical habitat to beyond 10 fathoms as recommended by the Marine Mammal Commission and did not provide the Commission with a detailed explanation of why the recommendation was not adopted.

A hearing on this matter was held in district court on March 9, 1987, and Judge Fong issued an order three days later. The court agreed with NMFS that both parts of the definition of critical habitat under the ESA must be satisfied before an area can be properly designated as critical habitat. The court further ruled that whether or not the 10 to 20 fathom area "may require special management considerations or protection" is a "genuine and material issue of fact" and determined that a trial on that point should be held. The claims arising under the MMPA were not specifically addressed in the order. A trial schedule has not been set.

Greenpeace U.S.A. v. Evans, (W.D. Wash.). This case arises from an MMPA research permit issued to A. Rus Hoelzel to take dart biopsy samples from killer whales in Puget Sound, Washington. The skin and blubber samples were to be used for genetic tests and to measure the levels of organochlorine contamination in the whales. In issuing the permit, NMFS prepared neither an EA nor an EIS but, relied upon the categorical exclusion for MMPA permits. NMFS specifically determined that none of the exceptions to the categorical exclusion that were recognized in Jones v. Gordon were present. Plaintiffs contend that exceptions to the categorical exclusion are also present in this case and that a NEPA document should have been prepared before issuing the permit. Plaintiffs also allege that the MMPA has been violated in that the research activities are not consistent with the purposes and policies of the MMPA and that the research will not further a bona fide and necessary or desirable scientific purpose.

Plaintiffs have informed NMFS that they will seek a temporary restraining order before Mr. Hoelzel's research is scheduled to begin in May 1987.

IX. REPORTS ON THE STATUS OF SELECTED SPECIES

WHALES

Humpback whale

Most of the North Pacific populations of humpback whales winter in the waters around the main islands of Hawaii. NMFS' primary concern for humpbacks is related to whale watching, vessel traffic and research activities. In 1979, the Southwest Region began issuing yearly "Notices of Interpretation" explaining that certain whale watching activities are "taking by harassment" and, therefore, illegal. NMFS' enforcement agents monitor both whale watching and research activities.

Recent studies found that whales were avoiding vessels in Hawaiian waters, and NMFS believes this may be caused by a lack of compliance with the Notice. In response, NMFS has proposed regulations that would limit human approaches to humpback whales. A final rule will be published this year. Press releases were issued on all of the main islands at the beginning of the 1986-87 whale watching season to remind everyone of the rules. Although it is a relatively rare occurrence in Hawaii, boat operators were reminded of two incidents of vessels striking humpback whales. Research activities, including acoustic playback experiments, cow-calf behavior, and general distribution, were monitored at Maui and the Big Island.

As part of the continuing management program for humpback whale, NMFS conducted consultations under Section 7 of the Endangered Species Act. Federal projects were reviewed and recommendations made to ensure that associated activities would not jeopardize the continued existence of humpback whales. Also, as a part of its ESA responsibilities, NMFS has appointed a Recovery Team for the humpback whale, and a Recovery Plan will be developed and implemented.

North Pacific Ocean. Humpback whale researchers met at the NMML to preview and provide suggestions for improving a computerized system for cataloging and sorting humpback whale fluke photographs. The system will aid scientists in estimating population abundance and stock identification. It is the first system established for the entire North Pacific.

Atlantic Ocean. The congregation of humpback whales off the New England coast in the summer has been responsible for the growth of a large whale-watching industry. However, 1986 witnessed a shift in the summer distribution of humpback whales. Since the late 1970's, humpbacks have spent their

summers feeding in an area known as Stellwagen Bank in the lower Gulf of Maine. This past summer, few humpbacks appeared, and vessel cruises and aerial work revealed that the majority of animals were in an area of the Great South Channel south of Cape Cod. However, right whales and sei whales were sighted frequently in Gulf of Maine waters although sei whales do not normally occur there. The shift in humpback whale distribution may be related to a decrease in abundance or change in distribution of sandlance, their primary prey species.

The College of the Atlantic continues to maintain, with funding from NMFS, the North Atlantic humpback fluke photo-catalogue. This catalogue helps researchers monitor the population demographics, mortality, and habitat use of individual animals, and will be used in determining population estimates through mark-recapture analysis.

Also, NMFS awarded funds to University of Florida researchers to continue humpback stock identification studies. Humpback tissue samples, collected by using a biopsy dart, were cultured for karyotypic analyses. Karyotypic analyses will include sex determination according to chromosome complement (XX vs XY), measures of chromosome variability, and the application of these measures to the problem of stock definition. Geographically isolated populations were sampled to allow a quantitative comparison of chromosome variability between Atlantic and Pacific humpback whale populations. The final report is in preparation.

Researchers at the Provincetown Center surveyed the seasonal distribution and abundance of fin, humpback, and right whales in Cape Cod Bay and Stellwagen Bank. Also, oceanographic, behavioral, photographic, and population demography information was collected. Additionally, in habitats that are frequently used by whales, researchers documented the oceanographic (biological, physical) and geographic characteristics of those areas to identify the mechanisms which attract and maintain groups of whales. This research will continue in 1987.

Right Whale

Through a cooperative agreement with the University of Rhode Island, NMFS has implemented an integrated research program on the North Atlantic right whale. A consortium of research institutions will take part in studies to detect changes and causes of change in the population distribution and size of the North Atlantic right whale. The research involves four tasks:

- 1) Development of a data base that incorporates data collected since 1956. The format will allow each sighting event to be recreated.
- 2) Aerial surveys will be made principally in the southeast region (Cape Hatteras to southern Florida) to collect distribution, abundance, population demographics, photo-identification, and other data.
- 3) Shipboard surveys will be made principally in the northeast region (Nova Scotia to Great South Channel) to obtain data on distribution, respiration rates, micro-scale movements, high-use habitats, behavior, social groups, ecological and oceanographic parameters. Photographs will be taken for individual identification and of cow/calf pairs to determine size/age estimations and reproductive and mortality rates.
- 4) Data Analyses will include abundance estimates using standard line and strip transect methods; mark-recapture studies; and population demographics using field sighting data including length and size composition, sex, calving rates, nursing duration and mortality rates. Additionally, high-use habitats will be documented and described in relation to oceanographic and biological parameters.

NMFS scientists have completed a report on using photographic identification techniques on right whales. The report describes the procedures used to identify individuals, and a discussion of the advantages and disadvantages of using the technique. It concludes that photographic identification of right whales is a valuable research tool for experienced right whale investigators. It was recommended that key researchers be given photographs of known individuals and that originals and negatives be kept in a central facility.

The SEFC funded a study to examine the feasibility of developing a computer based image archival and analysis system for photographs which can be used to identify individual right whales. The study indicated the development of such a system is both feasible and beneficial. The SEFC is now funding the acquisition of an image archival and analysis system for use with right whales, and later, humpback whales. The system should be operational in FY 1988.

Work continued on a research study funded by the SEFC, NEFC, and NMML to estimate historical catch levels, early abundance, and distribution of right whales in the northwest Atlantic. The final report for this study is due this year.

Gray Whale

For the past two years, NMFS had counted gray whales during their southbound migration along the California coast. During the 1984/85 census near Monterey, California, 5,344 whales were counted. The estimated population size based on this census is 18,500. During the 1985/86 census, covering 59 days, 5,341 whales were observed. The number of whales estimated to have passed the Granite Canyon site, after correction for pod size, hours not watched, and whales passing by after the end of the census was 14,658. However, this estimate did not include an offshore distance correction factor since there has been an apparent change in the offshore distribution of this species since the last census in 1979/80. In January 1986, in addition to the standard census, experiments were conducted to test differences in observers' abilities to detect and accurately count whales. The results of these preliminary investigations suggested that current population estimates may be underestimating the size of this population. NMFS has submitted reports of these studies to the International Whaling Commission.

Because population estimates have been based on daytime migration rates, a study was made to determine if night migration rates of gray whales were similar to day rates. These tagging studies were coordinated with the shore-based census research conducted by NMFS. In January 1985, two whales were tagged and followed. In January 1986, 9 additional whales were successfully tagged and followed for periods up to 18 hours. The data obtained from these 11 whales indicate that gray whales maintain constant rates of travel through a 24-hour period.

Atlantic Ocean - Research Programs for Marine Species

Since 1980, Manomet Bird Observatory has used NMFS research vessels as a platform of opportunity to gather sea bird, marine mammal, and sea turtle sightings between Nova Scotia and Cape Hatteras, North Carolina. The data base is compatible with the Northeast Fisheries Center's trawl survey data which will allow researchers to correlate sightings with fisheries, plankton, and oceanographic data.

Researchers at the College of the Atlantic (COA) added a sixth year of data to an analysis of respiration rates of baleen whales. These data were collected by observers stationed on Mount Desert Rock in the Gulf of Maine. Although data are available for humpback, fin, and right whales, fin whales are the main focus of the study. This information will be used to help assess the impact of vessel traffic, particularly whale watching activity, on large whales. The final report will be available from the NMFS Northeast Fisheries Center, Woods Hole, Mass. 02543.

Bottlenose Dolphin

Atlantic and Gulf Coast. NMFS regulates the taking of the Atlantic bottlenose dolphin (Tursiops truncatus) for public display and scientific research under a permit system. All takes must be coordinated with the Southeast Regional Director. Taking is authorized only from areas where populations have been assessed and when there are sufficient numbers to allow a quota. Permit holders may collect from the following areas when authorization has been granted.

Current Annual Quotas:

Mississippi Sound	35
Indian/Banana River Complex (Florida)	6
Texas Coast-Corpus Christi/ Matagorda Bay	17
West Coast of Florida (between Crystal River and Charlotte Harbor, including Tampa Bay)	23
Florida Panhandle (between Crystal River west to Mobile Bay, Alabama)	10
	<hr/>
TOTAL	91

The number of bottlenose dolphins removed during any calendar year cannot exceed two percent of the minimum population in a specific location. Also, the Southeast Region arranges for the transfer of pre-Act marine mammals from one public display facility to another through Letters of Agreement.

The Southeast Fisheries Center has completed the data collection phase of the first of its long-term studies of bottlenose dolphins in the northwest Atlantic and the Gulf of Mexico. Data from the Gulf of Mexico, totaling about 200,000 records is now being analyzed.

The Center received the final reports for two studies that were made to determine the discreteness of bottlenose dolphins. These studies indicate that while genetically and spatially identifiable along-shore stocks do exist, they are not genetically isolated. Both studies will be available as technical reports from the NMFS Southeast Fisheries Center, 75 Virginia Beach Drive, Miami, Fla. 33149.

A report prepared on bottlenose dolphin sightings in Florida waters during 1969-71, was based on information collected by the Florida Department of Natural Resources during aerial surveys for Portuguese man-of-war. The nature of this information precluded making estimates of abundance of bottlenose dolphins in the areas surveyed, but it does demonstrate that observer fatigue may be

the reason that fewer sightings are made during lengthy surveys. The report also indicates that there may be some seasonal patterns in the distribution of dolphins in Florida waters.

The Center's estimates of bottlenose dolphins in the Gulf Mexico and the northwest Atlantic (14,000 to 23,000) remain the same.

Harbor Porpoise (*Phocoena phocoena*)

Harbor porpoise (*Phocoena phocoena*) mortality resulting from interactions with gillnet fisheries has been reported in central California since 1983. NMFS initiated two aerial surveys and four vessel surveys beginning in the fall of 1984 and continuing through the fall of 1986 to estimate the population of harbor porpoise (*Phocoena phocoena*). The results of these surveys have been published by the Southwest Fisheries Center. The estimate of harbor porpoise abundance between Pt. Conception (California) and Cape Flattery (Washington) in 1984 and 1985 was 49,969 animals with a range of 31,532 to 79,538 animals. The population estimate for all of California is about 10,000 animals and for central California 1,858 animals. These estimates were made in response to the incidental mortality of harbor porpoise in set-net fisheries in California.

A panel reviewing a report on all of the available information on the current status of harbor porpoise in California, concluded that the status determination for harbor porpoise in California depended on the degree to which population centers of harbor porpoise were pooled. At present, there are insufficient data to define, without ambiguity, stocks of harbor porpoise in California. In addition, more information is needed on the maximum net-recruitment rate.

Gulf of California Harbor Porpoise (*vaquita* or *cochito*).

The Gulf of California harbor porpoise (*Phocoena sinus*) is listed as endangered under the Endangered Species Act. In 1986, Congress requested that the Service review information regarding this species and factors that may influence its recovery. The SWC has published a document that summarizes recent sightings and what is known about the life history of this species. No population estimate has been made, but as few as 50 to 100 individuals may occur in the wild. Incidental mortality in commercial fishery operations and pollution seem to be the main factors in preventing this species from recovering.

SEALS AND SEA LIONS

Harbor Seal

Oregon and Washington Coasts. Since harbor seals are the principal species involved in fisheries interactions in the Northwest and the only pinniped that breeds in Washington State waters, NMFS has provided funding to Washington and Oregon to assess harbor seal populations. These biological assessments indicate harbor seal populations have increased more than 10 percent annually in Washington since 1976 and about 7 percent annually in Oregon since 1977. The harbor seal population in the Northwest is estimated at 15,000 to 18,000 seals. Research indicates that the seals on the outer coast and estuaries are a regional population interchanging between coastal areas in southern Washington and northern Oregon seasonally. It is unknown if there is an interchange or movement of seals from coastal areas into the inland waters of Washington (Puget Sound), but it seems unlikely since the Puget Sound population, which is estimated at 6,000 to 7,000 animals, has different pupping and breeding seasons from the outer coast populations.

California sea lion

Northwest Coast. The number of California sea lions appearing in Northwest waters has been increasing each year coincident with the increased breeding population in southern California and northward range expansion of this species. Most, if not all, of the California sea lions in the Northwest are male (primarily sub-adult males) sea lions which migrate north each year after the breeding season. The numbers of California sea lions in Oregon peaks in early September as the animals move north. Noticeable numbers of California sea lions begin appearing in Washington in October and many remain in inland waters (Puget Sound) until May when they migrate south again. Others migrate further north into British Columbia where over 4,000 animals have been counted in recent years. California sea lions are second to the harbor seal in conflicts with salmon gillnet fisheries.

It is difficult to count the sea lions in Puget Sound because the animals spend most of their time in the water. However, in one area near the city of Everett where counts have been made, over 900 California sea lions in a single aggregation were observed. The sea lions observed in this area have increased from negligible numbers in 1978 to about 100 in 1979 to the recent peak count of over 900 animals in April 1986. Such an increase is likely indicative of the overall increase in California sea lions migrating north. It is likely that 1,500 to

2,000 sea lions pass through or remain in Washington State inland waters each winter/spring. The occurrence of California sea lions in the State of Washington is a relatively recent development as sightings of this species prior to 1970 were rare and the first documented sighting was in 1950 on the outer coast.

Northern Sea Lion

Alaska Coast. NMFS analyzed 1984-85 survey data on northern sea lions from the Gulf of Alaska to the western Aleutian Islands. The data collected by NMML and Alaska Department of Fish and Game scientists confirmed that the population has declined 52 percent since the late 1960s from 140,000 to 68,000 animals. These surveys have shown that the decline is apparently occurring throughout most of Alaska, and no shift or movement of the population east or west has occurred. A decline is also reported by Soviet scientists on the Kurile Islands and coastal waters of the U.S.S.R. The greatest decline has been in the eastern Aleutian Islands (79 percent decline) and the least in the central Aleutian Islands (8 percent). There has been a 20 percent decline in numbers between 1985 and 1986 at Unimak Island (Unimak Pass), and pup counts decreased by 25 to 50 percent at several important breeding locations in the Gulf of Alaska.

Decreased survival of pre-recruit juveniles has been hypothesized for both northern sea lions and fur seals as the most important factor in the decline. The cause(s) of this mortality, which presumably occurs at sea, have not yet been fully identified. Research has been conducted since 1984 on possible causes such as disease, entanglement and food availability. Land, aerial and ship surveys have been conducted to verify the on-land population size, and apparent rate of pup production. The Service held a workshop during December 1986 to review all research results, possible causes for the decline, and to evaluate the next course of action for research.

Seals and Sea Lions

California Coast. NMFS continues to promote cooperative studies of coastal populations of pinnipeds with the California Department of Fish and Game (CDFG), Channel Islands National Park, Channel Islands and Gulf of the Farallons National Marine Sanctuaries, and several independent research institutes. This research included monitoring trends in population levels and assessing the impact of the incidental kill of marine mammals in commercial fisheries. By September 1987, NMFS will have population monitoring data for California sea lions, northern

elephant seals, and harbor seals in California for 9, 11, and 5 years, respectively. In 1986, pup production of sea lions and elephant seals was determined at all of the major rookeries. Results indicate that both populations are increasing. Under a contract from NMFS, the CDFG censused all of the known harbor seal hauling sites in California. The 1986 count, 15,174, was about the same as previous years. In addition, food habit studies on sea lions and elephant seals have been made to determine the impact of increasing numbers of pinnipeds on the availability of commercially and recreationally important food resources. The collaborative research of numerous researchers and agencies has been essential to the successful coordination of this research.

NMFS is collecting photographs of northern elephant seals on their rookeries which will be used to count seals, estimate pup mortality, and identify the youngest age classes that are producing pups. Similar photos will be collected for California sea lions.

Hawaiian Monk Seal

Under the Endangered Species Act, NMFS is implementing a Recovery Plan for the monk seal. In April 1986, NMFS issued a final rule designating all beach areas, lagoon waters, and ocean waters out to a depth of 10 fathoms around Kure Atoll, Midway Islands (except Sand Island), Pearl and Hermes Reef, Lisianski Island, Laysan Island, French Frigate Shoals, Gardner Pinnacles, Necker Island, and Nihoa Island as critical habitat for the Hawaiian monk seal. The Sierra Club Legal Defense Fund and Greenpeace brought suit against NMFS for not adopting critical habitat out to 20 fathoms. (See Legal Actions for further information).

Beach censuses were made at all five of the major breeding populations of the Hawaiian monk seal in 1986. These data are used to obtain precise estimates of population size and composition. At least 184 monk seal pups were born in the Northwestern Hawaiian Islands in 1986, compared with 161 to 165 pups each of the previous 3 years. Flipper tags coded to island, year of birth, and individual identification were placed on 171 of these pups. Births at all main breeding islands, except Kure Atoll, were higher than the last few years in which comparable data are available.

A single male pup was born at Kure Atoll in 1986; just two adult females are believed present in the population. Annual pup production at Kure Atoll is down from about 30 per year in the mid-1960's. The female pup Head Start project, initiated by NMFS in 1981, has increased immature female survival to over 90

percent, and is responsible for a total of 11 immature and newly recruited females in the populations. In March 1987, one of the first females in the headstart program gave birth. At age six, she is the youngest known monk seal to give birth.

Another project, designed to assist recovery of the Kure Atoll population, involves relocating a few female pups each year from French Frigate Shoals to Kure Atoll. These are collected as underdeveloped pups, rehabilitated in Honolulu between field seasons, and then released to the wild at Kure Atoll as yearlings. Five female pups were collected for this purpose in 1986; one died from a probable congenital kidney problem. The pups are screened for disease and genetic problems before reintroduction, and no deaths have yet occurred in the seals relocated through 1986, although one migrated to Midway Islands. These two projects have increased both the number and survival rates for female monk seals at Kure Atoll. Based on these numbers, the prognosis for recovery of this population is better. However, human disturbance on the beaches continues to be a problem and will probably affect the fidelity of the newly recruited females to the atoll.

Research continued on the adult male "mobbing" problem at Laysan Island. Subadult and adult male seals were tagged, and attacks on females were monitored to identify individuals involved. These observations and extensive data collected from 1985 research were partially analyzed for a workshop held in Honolulu, February 1987, to develop a plan to reduce female mortality caused by adult males. The workshop was attended by Some Hawaiian Monk Seal Recovery Team members and other scientists with expertise in animal behavior, genetics, endocrinology, and general physiology. The plan which was developed will require collection of more observational data and increased tagging to maintain identities of seals. At the same time, research on several captive adult males will be initiated to determine if the aggressive behavior can be reduced by controlling hormone levels. Field trials will probably not occur until 1989.

Biologists working at the breeding islands continue to collect from the beaches samples of debris which may entangle monk seals and other wildlife. Material not collected is destroyed. These activities have reduced the observed incidence of entanglement.



Yearling elephant seals at San Clemente Island. Photo by Chuck Oliver, NMFS.

TABLE 1. 1986 GENERAL PERMIT AND SMALL TAKES-COMMERCIAL FISHING INCIDENTAL TAKES-REQUESTS AND AUTHORIZATIONS

FCZ/Applicant/Category	Oarfishes			Porbeagles			Elephant seal			Cetaceans			Total	
	(Requested)	(Authorized)	(Retained)	(Requested)	(Authorized)	(Retained)	(Requested)	(Authorized)	(Retained)	(Requested)	(Authorized)	(Retained)		
ATLANTIC OCEAN (Inside U.S. FCZ)														
Domestic--New England Groundfish Gillnetters--ST	0	0	0	0	0	0	100	60	0	0	0	0	230	290
Domestic--Maine Purse Seiners ST	0	0	0	0	0	0	0	0	0	0	0	0	50	35
Japan Inoop Sea	0	0	0	0	0	0	0	0	0	0	0	0	150	25
German Democratic Republic	0	0	0	0	0	0	0	0	0	0	0	0	10	18
Italy	0	0	0	0	0	0	20	0	0	0	0	0	60	80
Spain	0	0	0	0	0	0	20	5	0	0	0	0	5	40
PACIFIC OCEAN (Inside U.S. FCZ)														
Domestic (NPFV01)														
I 1,000	1,000	10	10	0	0	0	10	10	0	0	0	0	10	1,030
III 500	500	5	5	0	0	0	200	200	0	0	0	0	10	715
IV 20	20	5	5	0	0	0	5	5	0	0	0	0	0	30
V 1,000	750	10	10	0	0	0	1,800	1,200	0	0	0	0	200	3,010
Domestic (PFIFA)														
I 10	10	5	5	20	20	20	10	10	10	10	0	0	0	55
III 0	0	0	0	100	100	100	25	25	0	0	0	0	60	185
IV 0	0	0	0	15	15	15	5	5	0	0	0	0	0	20
V 50	50	10	10	1,700	1,700	1,700	100	100	50	50	45	50	50	2,555
Domestic (Heard)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Domestic (SMC)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Republic of Korea	0	0	0	0	0	0	100	5	0	0	0	0	50	250
Poland	0	0	0	0	0	0	0	0	0	0	0	0	60	220
Peoples Republic of China	0	0	0	0	0	0	0	0	0	0	0	0	24	94
Totals	2,950	2,980	510	1,875	1,875	1,875	3,020	2,185	60	60	6,095	6,095	5,733	12,768
	Pacific	Pacific	Pacific	Pacific	Pacific	Pacific	Pacific	Pacific	Pacific	Pacific	Pacific	Pacific	Pacific	Pacific
	510	510	510	1,875	1,875	1,875	1,533	1,185	60	60	5,733	5,733	5,733	12,768
	0	0	0	0	0	0	0	0	0	0	410	410	363	431
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0	0	0	0	0

NOTES:

a/ Dall's porpoise, harbor porpoise, and beluga whale.

b/ Pilot whales (30), harbor porpoise (0), Dall's porpoise (5), common (5), whitesided (5) and bottlenosed dolphins (5).

c/ Pilot whales (10), harbor porpoise (0), Dall's porpoise (10) and whitesided dolphins (10).

d/ Dall's porpoise.

e/ 1/cent harbor porpoise.

f/ Harbor porpoise.

g/ Total cetacean take by all permit holder fishing in the north Atlantic Ocean may not exceed 627 common dolphins, 211 Atlantic whitesided dolphins, 365 harbor porpoise, 538 Stenella spp., 248 pilot whales, 234 grampus, 172 bottlenosed dolphins, and 4 beaked whales.

h/ Pilot whales (5), harbor porpoise (5), and Atlantic whitesided dolphins (5).

i/ Harbor porpoise (180), white-sided (10), common (10), white-beaked (10), pilot whale (10)

j/ Includes 10 gray seals.

k/ Atlantic bottlenosed (10), harbor porpoise (5), Kagle (14), minke whale (4).

l/ Includes some take of harbor seals.

m/ Included under northern sea lions.

n- Harvestment Only.

ST- Small Take Exemption.

TABLE 2

COMMON AND SCIENTIFIC NAMES OF MARINE MAMMALS INVOLVED IN
SCIENTIFIC RESEARCH/PUBLIC DISPLAY PERMIT APPLICATIONS

CETACEANS

COMMON NAME	SCIENTIFIC NAME
ATLANTIC BOTTLENOSE DOLPHIN	TURSIOPS TRUNCATUS
ATLANTIC SPOTTED DOLPHIN	STENELLA PLAGIODON
ATLANTIC WHITE-SIDED DOLPHIN	LAGENORHYNCHUS ACUTUS
BAIRD'S BEAKED WHALE	BERARDIUS BAIRDII
BLACK RIGHT WHALE, NORTHERN RIGHT	BALAENA GLACIALIS
BLAINVILLE'S BEAKED WHALE	MESOPLODON DENSIROSTRIS
BLUE WHALE	BALAENOPTERA MUSCULUS
BOTTLENOSE DOLPHINS	TURSIOPS SP.
BOTTLENOSE WHALES	HYPEROODON SP.
BOWHEAD WHALE	BALAENA MYSTICETUS
BRYDE'S WHALE	BALAENOPTERA EDENI
COMMERSON'S DOLPHIN	CEPHALORHYNCHUS COMMERSONII
COMMON DOLPHIN	DELPHINUS DELPHIS
CUVIER'S BEAKED WHALE	ZIPHIUS CAVIROSTRIS
DALL'S PORPOISE	PHOCOENOIDES DALLI
DUSKY DOLPHIN	LAGENORHYNCHUS OBSCURUS
DWARF SPERM WHALE	KOGIA SIMUS
FALSE KILLER WHALE	PSEUDORCA CRASSIDENS
FIN WHALE, FINBACK	BALAENOPTERA PHYSALUS
FINLESS PORPOISE	NEOPHOCAENA PHOCAENOIDES
FRANCISCANA	PONTOPORIA BLAINVILLEI
FRASER'S (SARAWAK) DOLPHIN	LAGENODELPHIS HOSEI
GINKGO-TOOTHED BEAKED WHALE	MESOPLODON GINKGODENS
GRAY WHALE	ESCHRICHTIUS ROBUSTUS
GRAY'S BEAKED WHALE	MESOPLODON GRAYI
HARBOR PORPOISE	PHOCOENA PHOCOENA
HEAVISIDE'S DOLPHIN	CEPHALORHYNCHUS HEAVISIDII
HUBBS' BEAKED WHALE	MESOPLODON CARLHUBBSI
HUMPBACK WHALE	MEGAPTERA NOVAEANGLIAE
KILLER WHALE	ORCINUS ORCA
LAGENORHYNCHINE DOLPHINS	LAGENORHYNCHUS SP.
LONG-FINNED PILOT WHALE	GLOBICEPHALA MELAENA
MELON-HEADED WHALE, ELECTRA	PEPONOCEPHALA ELECTRA
MINKE WHALE	BALAENOPTERA ACUTOROSTRATA
NARWHAL	MONODON MONOCEROS
NORTHERN BOTTLENOSE WHALE	HYPEROODON AMPULLATUS
NORTHERN RIGHT WHALE DOLPHIN	LISSODELPHIS BOREALIS
PACIFIC WHITE-SIDED DOLPHIN	LAGENORHYNCHUS OBLIQUIDENS
PILOT WHALES UNSPECIFIED	GLOBICEPHALA SP.
PYGMY KILLER WHALE	FERESA ATTENUATA
PYGMY RIGHT WHALE	CAPEREA MARGINATA
PYGMY SPERM WHALE	KOGIA BREVICEPS
RIGHT WHALES UNSPECIFIED	BALAENA SP.
RISSO'S DOLPHIN, GRAMPUS	GRAMPUS GRISEUS
ROUGH-TOOTHED DOLPHIN	STENO BREDANENSIS

TABLE 2 (continued)

COMMON NAME	SCIENTIFIC NAME
SEI WHALE	BALAENOPTERA BOREALIS
SHEPHERD'S BEAKED WHALE	TASMACETUS SHEPHERDI
SHORT-FINNED PILOT WHALE	GLOBICEPHALA MACRORHYNCHUS
SOUTHERN RIGHT WHALE	BALAENA AUSTRALIS
SPERM WHALE	PHYSETER CATODON
SPINNER DOLPHIN	STENELLA LONGIROSTRIS
SPOTTED DOLPHIN	STENELLA FRONTALIS
SPOTTED DOLPHIN	STENELLA ATTENUATA
STENELLINE DOLPHINS	STENELLA SP.
STRAP-TOOTHED WHALE	MESOPLODON LAYARDII
STRIPED DOLPHIN, STREAKER	STENELLA COERULEALBA
TRUE'S BEAKED WHALE	MESOPLODON MIRUS
TUCUXI	SOTALIA FLUVIATILIS
UNSPECIFIED BALEEN WHALES	MYSTICETI
UNSPECIFIED CETACEANS	CETACEA
UNSPECIFIED TOOTHED WHALES	ODONTOCETI
VAQUITA, COCHITO	PHOCOENA SINUS
WHITE WHALE, BELUKHA	DELPHINAPTERUS LEUCAS
WHITE-BEAKED DOLPHIN	LAGENORHYNCHUS ALBIROSTRIS
PINNIPEDS/SIRENIANS	
AMSTERDAM ISLAND FUR SEAL	ARCTOCEPHALUS TROPICALIS
ARCTOCEPHALINE FUR SEALS	ARCTOCEPHALUS SP
ATLANTIC HARBOR SEAL	PHOCA VITULINA VITULINA
BAIKAL SEAL	PHOCA SIBIRICA
BEARDED SEAL	ERIGNATHUS BARBATUS
CALIFORNIA SEA LION	ZALOPHUS CALIFORNIANUS
CASPIAN SEAL	PHOCA CASPICA
CRABEATER SEAL	LOBODON CARCINOPHAGUS
DUGONG	DUGONG DUGON
GRAY SEAL	HALICHOERUS GRYPUS
GUADALUPE FUR SEAL	ARCTOCEPHALUS TOWNSENDI
HARBOR SEALS	PHOCA VITULINA
HARP SEAL, GREENLAND SEAL	PHOCA GROENLANDICA
HAWAIIAN MONK SEAL	MONACHUS SCHAUINSLANDI
HOODED SEAL, BLADDERNOSE SEAL	CYSTOPHORA CRISTATA
KERGUELEN FUR SEAL	ARCTOCEPHALUS GAZELLA
LARGHA SEAL, SPOTTED SEAL	PHOCA LARGHA
LEOPARD SEAL	HYDRURGA LEPTONYX
NORTHERN ELEPHANT SEAL	MIROUNGA ANGUSTIROSTRIS
NORTHERN FUR SEAL	CALLORHINUS URSINUS
NORTHERN SEA LION, STELLER SEA LION	EUMETOPIAS JUBATUS
PACIFIC HARBOR SEAL	PHOCA VITULINA RICHARDI
RIBBON SEAL	PHOCA FASCIATA
RINGED SEAL	PHOCA HISPIDA
ROSS SEAL	OMMATOPHOCA ROSSII
SOUTH AFRICAN FUR SEAL	ARCTOCEPHALUS PUSILLUS
SOUTH AMERICAN SEA LION	OTARIA FLAVESCENS
SOUTHERN ELEPHANT SEAL	MIROUNGA LEONINA
UNSPECIFIED MARINE MAMMALS	UNSPECIFIED MARINE MAMMALS
UNSPECIFIED PINNIPEDS	PINNIPEDIA
WALRUS	ODDBENUS ROSMAREUS
WEDDELL SEAL	LEPTONYCHOTES WEDDELLI
WEST INDIAN MANATEE	TRICHECHUS MANATUS
WESTERN ATLANTIC HARBOR SEAL	PHOCA VITULINA CONCOLOR

TABLE 3
SYNOPSIS OF PERMIT APPLICATIONS

	AS OF March 31, 1986		April 1, 1986 TO		March 31, 1987		AS OF March 31, 19
	SCIENTIFIC RESEARCH	PUBLIC DISPLAY	SCIENTIFIC AND PUBLIC DISPLAY	SCIENTIFIC RESEARCH	PUBLIC DISPLAY	SCIENTIFIC AND PUBLIC DISPLAY	
NO. OF APPLICATIONS SUBMITTED	344	359	14	28	20	1	766
NO. OF ANIMALS REQUESTED(TOTAL)	926,922	2,113	6,434	40,746	271	2	976,488
OF THESE:							
TAKEN BY KILLING	27,262	0	0	1,230	0	0	28,492
TAKEN AND KEPT ALIVE	420	1,448	122	1	52	0	2,043
KILLED IN CAPTIVITY	101	0	0	0	0	0	101
TAKEN AND RELEASED	720,869	44	451	34,141	2	0	755,507
FOUND DEAD	5,159	1	0	0	0	0	5,160
STRANDED/EXCHANGED	143	307	3	0	23	0	476
IMPORTS	3,112	1	0	103	0	2	3,218
HARASS	169,856	300	5,858	5,271	194	0	181,479
ACTION TAKEN							
NO. OF APPLICATIONS FORWARDED TO MARINE MAMMAL COMMISSION	297	263	7	24	13	1	605
NO. OF APPLICATIONS REVIEWED BY MARINE MAMMAL COMMISSION	295	260	7	20	7	1	590
NO. OF APPLICATIONS WITHDRAWN	6	20	1	1	0	0	28
NO. OF APPLICATIONS REFERRED TO FISH AND WILDLIFE	1	0	0	0	0	0	1
NO. OF APPLICATIONS REFERRED TO STATES	14	1	0	0	0	0	15
NO. OF APPLICATIONS REFERRED TO REGIONS	5	14	2	0	0	0	21
NO. OF APPLICATIONS RESOLVED THROUGH AGREEMENT	1	2	0	0	0	0	3
NO. OF APPLICATIONS RETURNED DUE TO INSUFFICIENT OR INAPPROPRIATE SUBMITTAL	24	67	4	0	2	0	97
NO. OF APPLICATIONS DENIED	2	8	0	0	0	0	10
NO. OF APPLICATIONS APPROVED	291	246	7	14	6	1	565
NO. OF APPLICATIONS PENDING	0	1	0	13	12	0	26
NO. OF ANIMALS APPROVED(TOTAL)	903,464	1,125	5,913	20,650	26	2	931,180
OF THESE:							
TAKEN BY KILLING	25,745	0	0	0	0	0	25,745
TAKEN AND KEPT ALIVE	390	875	98	1	13	0	1,377
KILLED IN CAPTIVITY	101	0	0	0	0	0	101
TAKEN AND RELEASED	717,647	0	265	17,806	2	0	735,720
FOUND DEAD	4,422	0	0	0	0	0	4,422
STRANDED/EXCHANGED	128	237	0	0	11	0	376
IMPORTS	3,072	1	0	103	0	2	3,178
HARASS	151,959	0	5,550	2,740	0	0	160,249

NOTE: APPLICATIONS AND PERMITS INVOLVING HARASSMENT OF MARINE MAMMALS OR TAKING/IMPORTING OF MARINE MAMMALS FOUND DEAD USUALLY DO NOT SPECIFY NUMBERS, AND THEREFORE ARE NOT REFLECTED IN THE NUMBERS OF ANIMALS FOR THESE CATEGORIES.

TABLE 4
NUMBER OF CETACEANS REQUESTED IN SCIENTIFIC RESEARCH/PUBLIC DISPLAY PERMIT APPLICATIONS(1)

COMMON NAME	R E Q U E S T E D				R E Q U E S T E D				CUMULATIVE TOTAL REQUESTED		
	AS OF March 31, 1986		April 1, 1986		THRU		March 31, 1987				
	TAKEN AND KEPT ALIVE	TAKEN AND KEPT ALIVE	TAKEN AND KEPT ALIVE	TAKEN AND KEPT ALIVE	TAKEN AND KEPT ALIVE	TAKEN AND KEPT ALIVE	TAKEN AND KEPT ALIVE	TAKEN AND KEPT ALIVE			
ATLANTIC SPOTTED DOLPHIN	10	---	---	---	---	---	---	---	10		
ATLANTIC WHITE-SIDED DOLPHIN	6	---	15	250	---	---	---	---	271		
BAIRD'S BEAKED WHALE	---	---	25	6	---	---	---	---	31		
BLACK RIGHT WHALE, NORTHERN RIGHT	---	---	10	---	---	---	---	---	60		
BLUE WHALE	---	---	75	---	---	---	---	---	135		
BOTTLENOSE DOLPHINS	823	---	51,389	39	---	---	---	---	52,349		
BOWHEAD WHALE	---	---	285	250	---	---	---	---	52,565		
BRYDE'S WHALE	---	---	420	1	---	---	---	---	481		
COMMUNSON'S DOLPHIN	38	---	---	---	---	---	---	---	38		
COMMON DOLPHIN	155	---	75,742	259	---	---	---	---	76,182		
CUVIER'S BEAKED WHALE	2	---	---	---	---	---	---	---	2		
DALL'S PORPOISE	4	---	910	18	---	---	---	---	1,892		
DUSKY DOLPHIN	---	---	76	---	---	---	---	---	76		
DWARF SPERM WHALE	---	---	---	3	---	---	---	---	3		
FALSE KILLER WHALE	23	---	6	---	---	---	---	---	29		
FIN WHALE, FINBACK	---	---	415	---	---	---	---	---	475		
FINLESS PORPOISE	6	---	---	---	---	---	---	---	6		
FRASER'S (SARAWAK) DOLPHIN	70	---	1,050	---	---	---	---	---	1,120		
GINKGO-TOOTHED BEAKED WHALE	---	---	---	3	---	---	---	---	3		
GRAY WHALE	---	---	362	116	---	---	---	---	678		
HARBOR PORPOISE	12	---	203	1,389	---	---	---	---	1,604		
HUBBS' BEAKED WHALE	---	---	---	---	---	---	---	---	---		
HUMPBACK WHALE	---	---	---	6	---	---	---	---	6		
KILLER WHALE	54	---	1,009	---	---	---	---	---	1,219		
LONG-FINNED PILOT WHALE	2	---	362	23	---	---	---	---	440		
MELON-HEADED WHALE, ELECTRA	4	---	---	280	---	---	---	---	282		
MINKE WHALE	45	---	300	---	---	---	---	---	349		
NARWHAL	---	---	890	3	---	---	---	---	893		
NORTHERN RIGHT WHALE DOLPHIN	4	---	---	---	---	---	---	---	4		
NORTHERN RIGHT WHALE DOLPHIN	2	---	130	18	---	---	---	---	150		
PACIFIC WHITE-SIDED DOLPHIN	58	---	571	48	---	---	---	---	691		
PILOT WHALES UNSPECIFIED	12	---	15	---	---	---	---	---	27		
PYGMY KILLER WHALE	45	---	300	---	---	---	---	---	353		
PYGMY SPERM WHALE	---	---	---	6	---	---	---	---	21		
RISSO'S DOLPHIN, GRAMPUS	70	---	1,105	15	---	---	---	---	1,202		
ROUGH-TOOTHED DOLPHIN	70	---	5,050	---	---	---	---	---	5,129		
SEI WHALE	---	---	470	---	---	---	---	---	530		
SHORT-FINNED PILOT WHALE	70	---	135	33	---	---	---	---	279		
SOUTHERN RIGHT WHALE	---	---	10	---	---	---	---	---	10		
SPERM WHALE	---	---	1,055	---	---	---	---	---	1,115		
SPINNER DOLPHIN	2,929	---	103,967	---	---	---	---	---	106,936		
SPOTTED DOLPHIN	4,925	---	157,793	---	---	---	---	---	162,734		
STENELLINE DOLPHINS	---	---	---	3	---	---	---	---	3		
STRIPED DOLPHIN, STREAKER	100	---	50,065	---	---	---	---	---	50,165		
UNSPECIFIED CETACEANS	370	---	1,251	---	---	---	---	---	1,664		
VAQUITA, COCHITO	---	---	---	2	---	---	---	---	2		
WHITE WHALE, BELUKHA	90	---	870	110	---	---	---	---	1,125		
WHITE-BEAKED DOLPHIN	---	---	---	250	---	---	---	---	252		
TOTALS:(2)	9,969	1,300	0	456,446(3)	131	0	47	0	798	0	471,691

(1) SPECIMEN IMPORTS AND HARASSMENT REQUESTS NOT INCLUDED IN THIS TABLE.
(2) WHERE PERMIT APPLICANTS REQUESTED A TOTAL NUMBER OF ANIMALS TO BE TAKEN WITHOUT SPECIFYING THE NUMBER TO BE TAKEN FROM A PARTICULAR SPECIES, THE NUMBER REQUESTED WAS LISTED UNDER UNSPECIFIED CETACEA.
(3) A SINGLE APPLICATION REQUESTED 432,850 CETACEANS AND ACCOUNTS FOR NEARLY THE TOTAL NUMBER IN THIS CATEGORY.

TABLE 5
NUMBER OF PINNIPEDS REQUESTED IN SCIENTIFIC RESEARCH/PUBLIC DISPLAY PERMIT APPLICATIONS(1)

COMMON NAME	R E Q U E S T E D AS OF March 31, 1986					R E Q U E S T E D April 1, 1986 THRU March 31, 1987					CUMULAT IVE TOTAL REQUEST
	TAKEN BY KILLING	TAKEN AND KEPT ALIVE	KILLED IN CAPTIVITY	TAGGED OR TAKEN AND RELEASED	FOUND DEAD/ STRND	TAKEN BY KILLING	TAKEN AND KEPT ALIVE	KILLED IN CAPTIVITY	TAGGED OR TAKEN AND RELEASED	FOUND DEAD/ STRND	
ARCTOCEPHALINE FUR SEALS	2	-----	-----	80	-----	-----	-----	-----	-----	-----	80
BAIKAL SEAL	-----	8	-----	-----	-----	-----	-----	-----	-----	-----	8
BEARDED SEAL	1,180	8	-----	430	100	100	-----	-----	-----	-----	1,818
CALIFORNIA SEA LION	534	972	4	29,302	686	200	1	6,825	21	-----	38,541
CASPIAN SEAL	-----	2	-----	-----	-----	-----	-----	-----	-----	-----	2
CRABEATER SEAL	6,373	-----	-----	9,145	-----	-----	-----	-----	-----	-----	15,518
GRAY SEAL	-----	40	-----	-----	251	-----	-----	-----	-----	-----	291
HARBOR SEALS	7,789	139	50	99,537	746	300	-----	4,170	-----	-----	112,731
HARP SEAL, GREENLAND SEAL	-----	40	-----	-----	-----	-----	-----	-----	-----	-----	40
HAWAIIAN MONK SEAL	16	6	-----	4,864	-----	-----	-----	320	-----	-----	5,206
KERGUELEN FUR SEAL	151	-----	-----	4,070	-----	-----	-----	-----	-----	-----	4,221
LARGHA SEAL, SPOTTED SEAL	1,320	-----	-----	1,100	-----	100	-----	-----	-----	-----	2,520
LEOPARD SEAL	768	8	-----	4,220	-----	-----	-----	-----	-----	-----	4,996
NORTHERN ELEPHANT SEAL	154	18	-----	63,698	311	100	-----	16,170	-----	-----	80,451
NORTHERN FUR SEAL	-----	35	-----	14	8	2,100	-----	182,570	-----	-----	184,727
NORTHERN SEA LION, STELLER SEA LION	16,395	4	-----	28,189	191	230	-----	5,780	-----	-----	50,789
RIBBON SEAL	955	2	-----	400	-----	100	-----	-----	-----	-----	1,457
RINGED SEAL	1,780	12	2	767	225	100	-----	-----	-----	-----	2,886
ROSS SEAL	283	6	-----	1,705	-----	-----	-----	-----	-----	-----	1,994
SOUTH AFRICAN FUR SEAL	-----	6	-----	10	-----	-----	-----	-----	-----	-----	16
SOUTH AMERICAN SEA LION	-----	14	-----	-----	-----	-----	4	-----	-----	2	20
SOUTHERN ELEPHANT SEAL	153	-----	-----	2,080	-----	-----	-----	-----	-----	-----	2,233
UNSPECIFIED MARINE MAMMALS	-----	-----	-----	-----	50	-----	-----	-----	-----	-----	50
UNSPECIFIED PINNIPEDS	13,600	-----	12	100	-----	-----	-----	-----	-----	-----	13,712
WALRUS	600	-----	-----	-----	-----	-----	-----	-----	-----	-----	600
WEDDELL SEAL	654	25	37	15,360	-----	-----	-----	20	-----	-----	16,096
WEST INDIAN MANATEE	-----	1	-----	-----	-----	-----	-----	-----	-----	-----	1
TOTALS:(2)	52,707	1,346	105	265,071	2,568	3,330	5	0	215,855	23	541,010

(1) SPECIMEN IMPORTS AND HARASSMENT REQUESTS NOT INCLUDED IN THIS TABLE.

(2) WHERE PERMIT APPLICANTS REQUESTED A TOTAL NUMBER OF ANIMALS TO BE TAKEN WITHOUT SPECIFYING THE NUMBER TO BE TAKEN FROM A PARTICULAR SPECIES, THE NUMBER REQUESTED WAS LISTED UNDER UNSPECIFIED PINNIPEDS OR UNSPECIFIED MARINE MAMMALS, IF CETACEANS ALSO WERE INVOLVED.

TABLE 6
NUMBER OF CETACEANS AUTHORIZED IN SCIENTIFIC RESEARCH/PUBLIC DISPLAY PERMIT APPLICATIONS(1)

COMMON NAME	A U T H O R I Z E D AS OF March 31, 1986				A U T H O R I Z E D April 1, 1986 THRU March 31, 1987				CUMULAT- IVE TOTAL AUTHORIZE		
	TAKEN BY KILLING	TAKEN AND KEPT ALIVE	KILLED IN CAPTIVITY	TAGGED OR TAKEN AND RELEASED	FOUND DEAD/ STRND	TAKEN BY KILLING	TAKEN AND KEPT ALIVE	KILLED IN CAPTIVITY		TAGGED OR TAKEN AND RELEASED	FOUND DEAD/ STRND
ATLANTIC WHITE-SIDED DOLPHIN	-----	6	-----	5	250	-----	-----	-----	-----	-----	261
BLACK RIGHT WHALE, NORTHERN RIGHT	-----	-----	-----	12	-----	-----	-----	-----	-----	-----	12
BLUE WHALE	-----	-----	-----	42	-----	-----	-----	-----	-----	-----	42
BOTTLENOSE DOLPHINS	70	560	-----	51,379	25	-----	-----	2	-----	-----	52,036
BOWHEAD WHALE	-----	-----	-----	257	250	-----	-----	-----	-----	-----	507
BRYDE'S WHALE	-----	-----	-----	412	-----	-----	-----	-----	-----	-----	412
COMMERSON'S DOLPHIN	-----	12	-----	-----	-----	-----	-----	-----	-----	-----	12
COMMON DOLPHIN	155	18	-----	75,727	250	-----	-----	-----	-----	-----	76,150
DALL'S PORPOISE	960	-----	-----	910	-----	-----	-----	-----	-----	-----	1,870
DUSKY DOLPHIN	-----	-----	-----	76	-----	-----	-----	-----	-----	-----	76
FALSE KILLER WHALE	-----	20	-----	6	-----	-----	-----	-----	-----	-----	26
FIN WHALE, FINBACK	-----	-----	-----	372	-----	-----	-----	-----	-----	-----	372
FRASER'S (SARAWAK) DOLPHIN	70	-----	-----	1,050	-----	-----	-----	-----	-----	-----	1,120
GRAY WHALE	-----	-----	-----	364	115	-----	-----	-----	-----	-----	479
HARBOR PORPOISE	-----	6	-----	105	1,251	-----	-----	-----	-----	-----	1,362
HUMPBACK WHALE	-----	-----	-----	901	-----	-----	-----	-----	-----	-----	901
KILLER WHALE	-----	24	-----	220	-----	-----	1	-----	-----	-----	245
LONG-FINNED PILOT WHALE	-----	2	-----	-----	280	-----	-----	-----	-----	-----	282
MELON-HEADED WHALE, ELECTRA	45	4	-----	300	-----	-----	-----	-----	-----	-----	349
MINKE WHALE	-----	-----	-----	862	-----	-----	-----	-----	-----	-----	862
NORTHERN RIGHT WHALE DOLPHIN	-----	-----	-----	130	-----	-----	-----	-----	-----	-----	130
PACIFIC WHITE-SIDED DOLPHIN	-----	29	-----	571	-----	-----	8	6	-----	-----	614
PILOT WHALES UNSPECIFIED	-----	8	-----	-----	-----	-----	-----	-----	-----	-----	8
PYGMY KILLER WHALE	45	4	-----	300	-----	-----	-----	-----	-----	-----	349
PYGMY RIGHT WHALE	-----	-----	-----	2	-----	-----	-----	-----	-----	-----	2
RISSE'S DOLPHIN, GRAMPUS	70	8	-----	1,105	-----	-----	-----	-----	-----	-----	1,183
ROUGH-TOOTHED DOLPHIN	70	9	-----	5,050	-----	-----	-----	-----	-----	-----	5,129
SEI WHALE	-----	-----	-----	442	-----	-----	-----	-----	-----	-----	442
SHORT-FINNED PILOT WHALE	70	31	-----	135	-----	-----	-----	-----	-----	-----	236
SOUTHERN RIGHT WHALE	-----	-----	-----	2	-----	-----	-----	-----	-----	-----	2
SPERM WHALE	-----	-----	-----	860	-----	-----	-----	-----	-----	-----	860
SPINNER DOLPHIN	2,929	21	-----	103,967	-----	-----	-----	-----	-----	-----	106,917
SPOTTED DOLPHIN	4,925	10	-----	157,793	-----	-----	-----	-----	-----	-----	162,728
STENELLINE DOLPHINS	-----	-----	-----	100	-----	-----	-----	-----	-----	-----	100
STRIPED DOLPHIN, STREAKER	100	-----	-----	50,050	-----	-----	-----	-----	-----	-----	50,150
UNSPECIFIED CETACEANS	340	43	-----	924	-----	-----	-----	-----	-----	-----	1,307
VAQUITA, COCHITO	-----	-----	-----	-----	2	-----	-----	-----	-----	-----	2
WHITE WHALE, BELUKHA	25	32	-----	870	110	-----	-----	-----	-----	-----	1,037
WHITE-BEAKED DOLPHIN	-----	2	-----	-----	250	-----	-----	-----	-----	-----	252
TOTALS:(2)	9,874	849	0	455,301(3)	2,783	0	9	0	8	0	468,824

(1) SPECIMEN IMPORTS AND HARASSMENT ACTIVITIES NOT INCLUDED IN THIS TABLE.

(2) WHERE A PERMIT SPECIFIED THE TOTAL NUMBER OF ANIMALS TO BE TAKEN WITHOUT SPECIFYING THE NUMBER TO BE TAKEN FROM A PARTICULAR SPECIES, THE NUMBER AUTHORIZED WAS LISTED UNDER UNSPECIFIED CETACEA.

(3) A SINGLE PERMIT AUTHORIZED 432,850 CETACEANS AND ACCOUNTS FOR NEARLY THE TOTAL NUMBER IN THIS CATEGORY.

TABLE 7
NUMBER OF PINNIPEDS AUTHORIZED IN SCIENTIFIC RESEARCH/PUBLIC DISPLAY PERMIT APPLICATIONS(1)

COMMON NAME	A U T H O R I Z E D AS OF March 31, 1986					A U T H O R I Z E D April 1, 1986 THRU March 31, 1987					CUMULAT- IVE TOTAL AUTHORIZI
	TAKEN BY KILLING	TAKEN AND KEPT ALIVE	KILLED IN CAPTIVITY	TAGGED OR TAKEN AND RELEASED	FOUND DEAD/ STRND	TAKEN BY KILLING	TAKEN AND KEPT ALIVE	KILLED IN CAPTIVITY	TAGGED OR TAKEN AND RELEASED	FOUND DEAD/ STRND	
ARCTOCEPHALINE FUR SEALS	2	-----	-----	80	-----	-----	-----	-----	-----	-----	82
BAIKAL SEAL	-----	8	-----	-----	-----	-----	-----	-----	-----	-----	8
BEARDED SEAL	960	8	-----	430	100	-----	-----	-----	-----	-----	1,498
CALIFORNIA SEA LION	534	357	2	28,272	517	-----	-----	3,000	9	-----	32,691
CASPIAN SEAL	-----	2	-----	-----	-----	-----	-----	-----	-----	-----	2
CRABEATER SEAL	6,373	-----	-----	9,055	-----	-----	-----	-----	-----	-----	15,428
GRAY SEAL	-----	29	-----	5	250	-----	-----	-----	-----	-----	284
HARBOR SEALS	1,662	100	50	99,267	584	-----	-----	300	-----	-----	101,963
HARP SEAL, GREENLAND SEAL	-----	40	-----	-----	-----	-----	-----	-----	-----	-----	40
HAWAIIAN MONK SEAL	16	4	-----	4,451	-----	-----	-----	-----	-----	-----	4,471
KERGUELEN FUR SEAL	151	-----	-----	3,980	-----	-----	-----	-----	-----	-----	4,131
LARGHA SEAL, SPOTTED SEAL	1,120	-----	-----	1,100	-----	-----	-----	-----	-----	-----	2,220
LEOPARD SEAL	768	8	-----	4,130	-----	-----	-----	-----	-----	-----	4,906
NORTHERN ELEPHANT SEAL	154	11	-----	63,698	290	-----	-----	14,500	-----	-----	78,653
NORTHERN FUR SEAL	-----	20	-----	5	5	-----	-----	36,305	-----	-----	36,335
NORTHERN SEA LION, STELLER SEA LION	880	4	-----	28,189	83	-----	-----	-----	-----	-----	29,156
RIBBON SEAL	855	2	-----	400	-----	-----	-----	-----	-----	-----	1,257
RINGED SEAL	1,500	12	2	764	225	-----	-----	-----	-----	-----	2,503
ROSS SEAL	283	6	-----	1,615	-----	-----	-----	-----	-----	-----	1,904
SOUTH AFRICAN FUR SEAL	-----	-----	-----	10	-----	-----	-----	-----	-----	-----	10
SOUTH AMERICAN SEA LION	-----	12	-----	-----	-----	-----	4	-----	-----	2	18
SOUTHERN ELEPHANT SEAL	153	-----	-----	1,990	-----	-----	-----	-----	-----	-----	2,143
UNSPECIFIED MARINE MAMMALS	15	-----	-----	15	-----	-----	-----	-----	-----	-----	30
UNSPECIFIED PINNIPEDS	20	-----	12	100	25	-----	-----	-----	-----	-----	157
WALRUS	200	-----	-----	-----	-----	-----	-----	-----	-----	-----	200
WEDDELL SEAL	654	25	37	15,196	-----	-----	-----	-----	-----	-----	15,912
TOTALS:(2)	16,300	648	103	262,752	2,079	0	4	0	54,105	11	336,002

(1) SPECIMEN IMPORTS AND HARASSMENT ACTIVITIES NOT INCLUDED IN THIS TABLE.

(2) WHERE A PERMIT SPECIFIED THE TOTAL NUMBER OF ANIMALS TO BE TAKEN WITHOUT SPECIFYING THE NUMBER TO BE TAKEN FROM A PARTICULAR SPECIES, THE NUMBER AUTHORIZED WAS LISTED UNDER UNSPECIFIED PINNIPEDS OR UNSPECIFIED MARINE MAMMALS, IF CETACEANS WERE ALSO INVOLVED.

TABLE 8
SUMMARY OF PERMITS FOR PERMANENT REMOVAL FROM THE WILD - CETACEANS
AS OF March 31, 1987

SPECIES	***** PERMITS *****			***** NUMBER OF ANIMALS *****					
	ISSUED	EXPIRED	CURRENT	REQUESTED	AUTHORIZED	REPLACEMENTS	AUTHORIZATION EXPIRED	TAKEN (1)	TAKE REMAINING
ATLANTIC WHITE-SIDED DOLPHIN	1	1	0	6	6	0	6	0	0
BOTTLENOSE DOLPHINS	107	94	13	629	605	37	163	469	48
COMMERSON'S DOLPHIN	1	1	0	12	12	0	0	12	0
COMMON DOLPHIN	5	5	0	181	173	5	151	27	0
DALL'S PORPOISE	1	1	0	960	960	0	960	0	0
FALSE KILLER WHALE	6	6	0	20	20	0	13	7	0
FRASER'S (SARAWAK) DOLPHIN	2	2	0	70	70	0	70	0	0
HARBOR PORPOISE	1	1	0	6	6	0	6	0	0
KILLER WHALE	6	5	1	22	21	0	10	12	0
LONG-FINNED PILOT WHALE	1	1	0	2	2	0	2	0	0
MELON-HEADED WHALE, ELECTRA	3	3	0	49	49	0	47	2	0
PACIFIC WHITE-SIDED DOLPHIN	6	5	1	31	31	0	20	30	8
PYGMY KILLER WHALE	3	3	0	49	49	0	49	0	0
RISSO'S DOLPHIN, GRAMPUS	4	4	0	78	78	0	77	1	0
ROUGH-TOOTHED DOLPHIN	5	5	0	79	79	2	79	2	0
SHORT-FINNED PILOT WHALE	12	11	1	99	98	3	82	18	2
SPINNER DOLPHIN	4	4	0	2,956	2,950	3	2,779	179	0
SPOTTED DOLPHIN	3	3	0	4,935	4,935	0	4,676	271	0
STRIPED DOLPHIN, STREAKER	1	1	0	100	100	0	100	0	0
UNSPECIFIED CETACEANS	4	4	0	383	383	0	383	0	0
WHITE WHALE, BELUKHA	11	9	2	55	53	1	13	33	12
WHITE-BEAKED DOLPHIN	1	1	0	2	2	0	2	6	0
TOTAL NUMBER OF ANIMALS:				10,724	10,682	51	9,688	1,069	70

(1) ANIMALS TAKEN INCLUDE THOSE INADVERTENTLY KILLED DURING THE COURSE OF RESEARCH AUTHORIZING TYPES OF TAKE OTHER THAN PERMANENT REMOVAL.

TABLE 9
SUMMARY OF PERMITS FOR PERMANENT REMOVAL FROM THE WILD - PINNIPEDS
AS OF March 31, 1987

SPECIES	***** PERMITS *****			***** NUMBER OF ANIMALS *****					
	ISSUED	EXPIRED	CURRENT	REQUESTED	AUTHORIZED	REPLACEMENTS	AUTHORIZATION EXPIRED	TAKEN (1)	REM
ARCTOCEPHALINE FUR SEALS	1	1	0	2	2	0	2	0	
BAIKAL SEAL	2	2	0	8	8	0	4	4	
BEARDED SEAL	8	7	1	930	930	0	553	185	
CALIFORNIA SEA LION	73	73	0	869	855	13	592	337	
CASPIAN SEAL	1	1	0	2	2	0	2	0	
CRABEATER SEAL	8	4	4	6,373	6,373	0	460	381	5
GRAY SEAL	4	4	0	26	26	0	10	18	
HARBOR SEALS	34	31	3	1,656	1,626	0	626	941	
HARP SEAL, GREENLAND SEAL	1	1	0	40	40	0	20	20	
HAWAIIAN MONK SEAL	2	0	2	20	20	0	0	3	
KERQUELEN FUR SEAL	3	2	1	151	151	0	26	0	
LARGHA SEAL, SPOTTED SEAL	6	5	1	1,020	1,020	0	428	116	
LEOPARD SEAL	8	6	2	776	776	0	95	117	
NORTHERN ELEPHANT SEAL	3	3	0	160	160	0	133	34	
NORTHERN FUR SEAL	2	2	0	320	20	0	1	19	
NORTHERN SEA LION, STELLER SEA LION	8	7	1	860	860	0	283	543	
RIBBON SEAL	8	7	1	830	830	0	556	74	
RINGED SEAL	11	9	2	1,420	1,420	0	645	343	
ROSS SEAL	6	5	1	289	289	0	38	4	
SOUTH AMERICAN SEA LION	4	3	1	16	16	0	4	8	
SOUTHERN ELEPHANT SEAL	4	3	1	153	153	0	28	0	
UNSPECIFIED MARINE MAMMALS	1	1	0	0	15	0	11	4	
UNSPECIFIED PINNIPEDS	2	2	0	12	32	3	35	0	
WALRUS	1	1	0	200	200	0	20	180	
WEDDELL SEAL	10	7	3	716	716	0	109	75	
TOTAL NUMBER OF ANIMALS:				16,849	16,540	16	4,681	3,406	8,

(1) ANIMALS TAKEN INCLUDE THOSE INADVERTENTLY KILLED DURING THE COURSE OF RESEARCH AUTHORIZING TYPES OF TAKE OTHER THAN PERMANENT REMOVAL.

TABLE 10. INTERNATIONAL WHALING COMMISSION CATCH LIMITS: 1973-1984¹

Year	SOUTHERN HEMISPHERE:			NORTH ATLANTIC:			NORTH ATLANTIC:			TOTAL OPERATIONAL QUOTAS	Other ⁷	TOTAL				
	Fin	Minkie	Spinn (M)	Spinn (F)	Fin	Minkie	Spinn (M)	Spinn (F)	Fin				Minkie	Spinn		
1973/74	1,460 ²	5,000 ²	4,500 ²	8,000	5,000	0	550	3,000	...	6,000	4,000	...	...	37,500	8,173	45,673
1974/75	1,000 ²	7,000 ²	4,000 ²	8,000	5,000	0	300	2,000	...	6,000	4,000	...	...	37,300	5,173	42,473
1975/76	220 ²	6,810	2,230	5,870	4,870	0	0	...	...	1,363	5,200	3,100	2,550	32,578	1,358	33,936
1976/77	0	8,900	1,863	3,894	887	0	0	541	...	1,000	4,320	2,880	455	28,050	685	28,690
1977/78	0	5,690	771	4,538	1,370	0	0	400	...	584	5,105	1,338	459	23,500	685	23,500
1978/79	0	6,221	0	3,620	1,055	0	0	400	...	454	3,800	0	455	19,526	685	19,526
1979/80	0	8,102	0	...	560...	264	0	1,361	...	479	1,350	0	604	15,656	273	15,656
1980/81	0	7,072	0	...	300...	866 ³	0	1,361	...	529	880	0	701	14,523	130	14,523
1981/82	0	8,102	0	...	0...	866 ³	0	1,361	...	526	0	0	561	14,070 ⁸	0	14,070 ⁸
1982/83	0	7,072	0	...	0...	165 ⁴	0	1,361	...	546	400 ⁵	0	293	12,371	0	12,371
1983/84	0	6,655	0	...	0...	165 ⁴	0	421 ⁹	...	536	-10	0	287	9,390	0	9,390
1984/85	4,224	...	...	0...	...	164 ⁴	...	320 ⁹	...	357	...	...	281	6,623	...	6,623
1985/86	0	0	0	...	0...	0	0	0	...	0	0	0	0	0	0	0
1986/87	0	0	0	...	0...	0	0	0	...	0	0	0	0	0	0	0

1/ Catch limits are for the Southern Hemisphere pelagic season (November of the year of the meeting through April of the following year) and all coastal seasons of the year following the meeting. The Commission applies quotas to coastal seasons in the year whaling begins. Therefore, e.g., the column labeled "1980/81" reports quotas for the 1980/81 Southern Hemisphere pelagic season and the 1981 coastal seasons, all of which were established at the 1980 IWC meeting.

2/ Catch limit covering Antarctic catch only (south of 40° latitude).

3/ Of this figure, 622 whales could not be taken legally by member countries due to the factory ship moratorium and/or the Indian Ocean Sanctuary.

4/ Available to be taken from the New Zealand stock in a six-month period starting in November but counted for the season of the following year.

5/ The Commission also agreed to a 1982 coastal season catch limit of 450. Both catch limits include an allowable bycatch of up to 11-3% females.

6/ Although the Commission agreed to catch limit for the Northeastern stock, Norway limited catches to 1,690 as though the IWC had established this limit. The number has therefore been reflected in the totals.

7/ Whales taken by IWC members but not included in the catch limits.

8/ The figure in parentheses takes into account the reduction discussed in footnote 3 as well as catch limits totalling 151 North Atlantic fin whales for 1982 that were for stocks that had not been exploited since 1971.

9/ The catch limits for the Sea of Japan-Korea Sea-Seto Sea stock is zero but included in the Schedule to read, "provided that the remainder from the previous block quota of 3,634 for the years 1980-1984, inclusive, may be taken in the years 1984 and 1985."

10/ The 1984 catch limit, if any, will be set at the 1984 Annual Meeting.

11/ Includes 300 whales from the West Greenland stock, some of which may be taken by aboriginal subsistence whaling operations in Greenland.

Table 11. POPULATION ESTIMATES: CETACEA

Name	Estimated World Total	Comparison of Population Data ¹	Arctic Circum- polar	PACIFIC				ATLANTIC			SOUTHERN OCEAN			
				(Asia America	(Alaska America	(North America	(South America	(North America	(Europe	(Africa	(South America	(New Zealand	(Aus- tralia	(Sub- arctic	( Ant- arctic
Gray whale (<i>Eschrichtius robustus</i>)	18,000/	best		18,000/										
Family: Balaenopteridae														
Mink whale (<i>Balaenoptera acutorostrata</i>)	315,800/ 331,800	Incomplete	13,500	+ ²	+		+	44,000/ 60,000					258,300	
Sei whale (<i>Balaenoptera borealis</i>)	33,800/ 53,400	Incomplete	<----22,000/37,000---->				+	2,000/ 2,600	+	+	+		9,800/ 11,800	
Bryde's whale (<i>Balaenoptera edeni</i>)	30,200/ 55,500	Incomplete	14,600/ 39,900		+	15,600	+		+	+	+	+		
Fin whale (<i>Balaenoptera physalus</i>)	105,200/ 121,900	Incomplete	<----14,600/18,600---->				3,600/ 6,300	2,000/ 12,000					<-----85,000----->	
Blue whale (<i>Balaenoptera musculus</i>)	11,700	Incomplete	<-----1,600----->				100	+	+	+			<-----10,000----->	
Humpback whale (<i>Megaptera novaeangliae</i>)	9,500/ 10,000	Incomplete	<-----1,200----->				5,800	"few hundred"		+			<-----2,500/3,000----->	
Family: Balaenidae														
Right whale (<i>Balaena glacialis</i>)	3,100/ 3,200	Incomplete	100/ 200					"few hundred"		+	+		<-----3,000----->	
Bowhead whale (<i>Balaena mysticetus</i>)	4,417	complete	+	4,417										

Table 11. POPULATION ESTIMATES: CETACEA

Name	Estimated World Total	Comparison of Population Data ¹	Arctic Circum- polar	PACIFIC				ATLANTIC			SOUTHERN OCEAN			
				(Asia America)	(Alaska America)	(North America)	(South America)	(North America)	(Europe Africa)	(South America)	(New Zealand)	(Aus- tralia)	(Sub- arctic)	(Ant- arctic)
Gray whale (<i>Eschrichtius robustus</i>)	18,000/	best		18,000/										
Family: Balaenopteridae														
Mink whale (<i>Balaenoptera acutorostrata</i>)	315,800/ 331,800	Incomplete	13,500	+ ²	+		+	44,000/ 60,000					258,300	
Sei whale (<i>Balaenoptera borealis</i>)	33,800/ 53,400	Incomplete	<---22,000/37,000---				+	2,000/ 2,600	+	+	+		9,800/ 11,800	
Bryde's whale (<i>Balaenoptera edeni</i>)	30,200/ 55,500	Incomplete	14,600/ 39,900	+	15,600	+		+	+	+	+			
Fin whale (<i>Balaenoptera physalus</i>)	105,200/ 121,900	Incomplete	<---14,600/18,600---				3,600/ 6,300	2,000/ 12,000					<-----85,000----->	
Blue whale (<i>Balaenoptera musculus</i>)	11,700	Incomplete	<-----1,600----->				100	+	+	+			<-----10,000----->	
Humpback whale (<i>Megaptera novaeangliae</i>)	9,500/ 10,000	Incomplete	<-----1,200----->				5,800	"few hundred"		+			<-----2,500/3,000----->	
Family: Balaenidae														
Right whale (<i>Balaena glacialis</i>)	3,100/ 3,200	Incomplete	100/ 200					"few hundred"		+	+		<-----3,000----->	
Bowhead whale (<i>Balaena mysticetus</i>)	4,417	complete	+	4,417										

Table 11 Continued. POPULATION ESTIMATES: CETACEA

Name	Estimated	Comparison	Arctic	(	PACIFIC	(	ATLANTIC	(	SOUTHERN OCEAN	)	Order:	Cetacea	)	Suborder:	Odontoceti	)	Family:	Delphinidae)
Atlantic white-sided dolphin (<i>Legionorhynchus acutus</i>)	no data	incomplete		+	24,000	+													
Pacific white-sided dolphin (<i>Legionorhynchus obliquidens</i>)	no data	incomplete		+	30,000/ 50,000														
Northern right whale dolphin (<i>Lissodelphis borealis</i>)	no data	incomplete		+		+													
Southern right whale dolphin (<i>Lissodelphis peronii</i>)	no data	incomplete						+	+	+									
Risso's dolphin (<i>Grampus griseus</i>)	no data	incomplete		+		+	+	+	10,000										
Melon-headed whale (<i>Papnocephala electra</i>)	no data	incomplete			+														
Pygmy killer whale (<i>Feresa attenuata</i>)	no data	incomplete		+		+	+	+											
False killer whale (<i>Pseudorca crassidens</i>)	no data	incomplete		+		+	+	+											
Long-finned pilot whale (<i>Globicephala melana</i>)	no data	incomplete						+											
Short-finned pilot whale (<i>Globicephala macrorhynchus</i>)	no data	incomplete		+		+	+	+											
Killer whale (<i>Orcinus orca</i>)	no data	incomplete		+	+	+	+	+	+	+									
Rough-toothed dolphin (<i>Steno bredanensis</i>)	no data	incomplete		+		+													
Bottlenose dolphin (<i>Tursiops truncatus</i>)	no data	incomplete		+		+	+	+	14,000/ 23,000										
Spinner dolphin (<i>Stenella longirostris</i>)	no data	incomplete		+		+													
Spotted dolphin (<i>Stenella attenuata</i>)	no data	incomplete		+		+			2.2 Mill										
Atlantic spotted dolphin (<i>Stenella plagiodon</i>)	no data	incomplete		+		+													
Striped dolphin (<i>Stenella coeruleoalba</i>)	no data	incomplete		+		+			2.3 Mill										
Common dolphin (<i>Delphinus delphis</i>)	no data	incomplete		+		+	+	+	31,000										
Fraser's dolphin (<i>Legionorhynchus hosei</i>)	no data	incomplete						+											

Table 11 Continued. POPULATION ESTIMATES: CETACEA

Name	Estimated	Comparison	Arctic	PACIFIC	ATLANTIC	SOUTHERN OCEAN
Order: Cetacea	World	of Population	Circum-	Arctic	Arctic	Arctic
Suborder: Odontoceti	Total	Data	polar	Asia	Alaska	North
				North	North	South
				South	Europe	Africa
				America	America	America
				America	South	Zealand
					New	Aus-
					Zealand	Sub Ant-
					Arctic	Arctic
Family: Phocoridae						
Harbor porpoise (Phocoena phocoena)	no data	Incomplete		+	+	18,000
Dall's porpoise (Phocoenoides dalli)	958,000	complete		<----- 958,000 ----->		
Family: Monodontidae						
Beluga, white whale (Delphinapterus leucas)	62,000/	complete	62,000/	+	+	+
Narwhal (Monodon monoceros)	30,000	Incomplete	30,000	+	+	+
Family: Physeteridae						
Sperm whale (Physeter macrocephalus)	982,200	complete	198,000	<-----274,000----->	<-----99,500----->	+
Pygmy sperm whale (Kogia breviceps)	no data	Incomplete	+	+	+	+
Dwarf sperm whale (Kogia simus)	no data	Incomplete	+	+	+	+
Family: Ziphiidae						
Baird's beaked whale (Berardius bairdii)	no data	Incomplete	+	+	+	+

¹Best = the most comprehensive estimates throughout the range of the species.
Complete = good population estimates throughout the range of the species.

²Incomplete = population estimates only in parts of the range of the species.

³Although a population occurs in this area, the numbers are either unknown or the data are not available.

Table 12. POPULATION ESTIMATES: PINNIPEDIA¹

Name Order: Suborder: Family:	Estimated World Total	Comparison of Population Data ²	Arctic Circumpolar	PACIFIC			ATLANTIC			SOUTHERN OCEAN			
				Alaska America	North America	South America	North America	Europe	Africa	South America	New Zealand	Aus- tralia	Sub Ant- arctic	Ant- arctic
California sea lion (<u>Zalophus californianus</u>)	177,000	complete		157,000	20,000								
Northern sea lion (<u>Eumetopias jubatus</u>)	95,000/ 122,000	complete		5,000/ 7,000	80,000/ 105,000	10,000							
South American sea lion (<u>Otaria flavescens</u>)	273,000	complete				228,000					45,000		
Australian sea lion (<u>Neophoca cinerea</u>)	2,000/ 3,000	complete										2,000/ 3,000	
Hooker's (New Zealand) sea lion (<u>Phocarcos hookeri</u>)	6,000											6,000	
Alaska or Northern fur seal (<u>Callorhinus ursinus</u>)	1,151,000	best		332,000	815,000	4,000							
Guadalupe fur seal (<u>Arctocephalus townsendi</u>)	1,600	complete				1,600							
Juan Fernandez fur seal (<u>Arctocephalus philippii</u>)	705/ 750	complete				705/ 750							
Galapagos fur seal (<u>Arctocephalus galapagoensis</u>)	1,000/ 5,000	Incomplete				1,000/ 5,000							
South American fur seal (<u>Arctocephalus australis</u>)	346,000	Incomplete				294,000					52,000		
Cape (South African) and Australian fur seals (<u>Arctocephalus pusillus</u>)	870,000	complete							850,000				20,000

Table 12 Continued. POPULATION ESTIMATES: PINNIPEDIA¹

Name	Estimated World Total	Comparison of Population Data ²	Arctic Circumpolar	PACIFIC			ATLANTIC			SOUTHERN OCEAN				
				Asia	Alaska	North America	South America	North America	Europe	Africa	South America	New Zealand	Australia	Subarctic	Antarctic
New Zealand fur seal (<i>Arctocephalus forsteri</i>)	58,000	complete										25,000		33,000
Antarctic (Kerguelen) fur seal (<i>Arctocephalus gazelle</i>)	350,000	complete												350,000
Subantarctic fur seal (<i>Arctocephalus tropicalis</i>)	122,000	Incomplete								113,000				9,900
Order: Carnivora Suborder: Pinnipedia Family: Phocidae														
Large seal (<i>Phoca largha</i>)	335,000/ 450,000	Incomplete		135,000/ 200,000	200,000/ 250,000									
Harbor (Common) seal (<i>Phoca vitulina</i>)	390,000/ 413,500	Incomplete		10,000/ 15,000	260,000 42,000		30,000/ 45,000	48,000/ 51,500						
Ringed seal (<i>Phoca [= pusa] hispida</i>)	6/7 Million	best		6/7 Million										
Baikal seal (<i>Phoca sibirica</i>)	40,000/ 50,000	complete		40,000/ 50,000										
Caspian seal (<i>Phoca caspica</i>)	500,000/ 600,000	complete		500,000/ 600,000										
Harp Seal (<i>Phoca groenlandica</i>)	1,650,000/ 3,250,000	complete					1,050,000/ 2.1 mil	600,000/ 1,150,000						
Ribbon seal (<i>Phoca [= histriophoca] fasciata</i>)	200,000/ 250,000	complete		200,000/ 250,000										
Gray seal (<i>Halichoerus grypus</i>)	101,000/ 133,000	complete					24,000/ 55,000	77,000/ 78,500						

Table 12 Continued. POPULATION ESTIMATES: PINNIPEDIA¹

Name Order: Suborder: Family:	Carnivora Pinnipedia Phocidae Continued	Estimated World Total	Comparison of Population Data ²	Arctic Circum- polar	PACIFIC			ATLANTIC			SOUTHERN OCEAN						
					Asia	Alaska	North America	South America	North America	Europe	Africa	South America	New Zealand	Aus- tralia	Sub Ant- arctic	Ant- arctic	
Bearded seal (<i>Erignathus barbatus</i>)		exceeds 500,000	Incomplete														
Hooded seal (<i>Cystophora cristata</i>)		500,000/ 600,000	complete							500,000/ 600,000							
Mediterranean monk seal (<i>Monachus monachus</i>)		500	best							500							
Caribbean monk seal (<i>Monachus tropicalis</i>)		extinct or near extinct	best														
Hawaiian monk seal (<i>Monachus schauinslandi</i>)		500/ 1,500	complete						500/ 1,500								
Southern elephant seal (<i>Mirounga leonina</i>)		600,000	complete												300,000		
Northern elephant seal (<i>Mirounga angustirostris</i>)		100,000	best						100,000								
Crabeater seal (<i>Lobodon carcinophaga</i>)		15,000,000	best														15,000,000
Ross seal (<i>Ommatophoca rossii</i>)		220,000	complete														220,000
Leopard seal (<i>Hydrurga leptonyx</i>)		500,000	complete														500,000
Weddell seal (<i>Leptonychotes weddellii</i>)		750,000	complete														750,000

¹All species of pinnipeds are included in the tables because of available data.
²Best = the most comprehensive estimates throughout the range of the species.
 Complete = good population estimates throughout the range of the species.
 Incomplete = population estimates only in parts of the range of the species.