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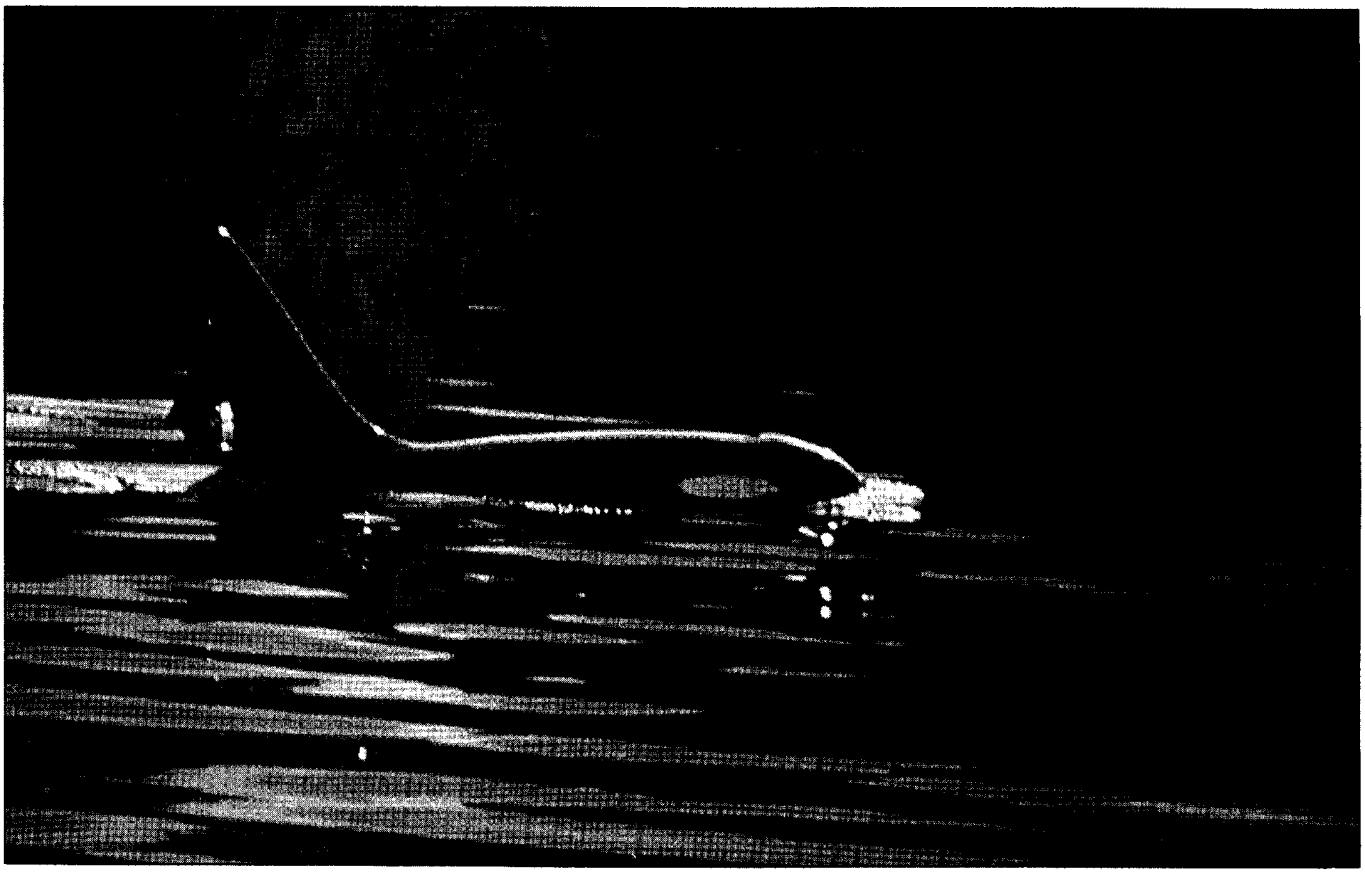
Marine Mammal Protection Act of 1972

Annual Report

January 1, 1994 to December 31, 1994



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Executive Summary

This Annual Report to Congress regarding the administration of the Marine Mammal Protection Act (MMPA or Act) has been prepared pursuant to sections 103(f), 104(h)(3)(C), 110(d) and 115(b)(3) of the MMPA.

The MMPA is the principal Federal legislation that guides marine mammal species protection and conservation policy. The MMPA vests responsibility for most marine mammals in the Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), National Marine Fisheries Service (NMFS). Under the MMPA, NMFS is responsible for the management and conservation of species of the order Cetacea (whales and dolphins) and species, other than walrus, of the order Carnivora, suborder Pinnipedia (seals and sea lions). The Department of the Interior, U.S. Fish and Wildlife Service (USFWS) is responsible for the dugong, manatee, polar bear, sea otter, and walrus.

Species management is administered through NMFS' Regional Offices and Fisheries Science Centers in cooperation with States, conservation groups, the public, other Federal agencies, the Marine Mammal Commission (MMC), and constituents, including scientific researchers, the fishing industry, and the public display community. NMFS' Office of Protected Resources oversees the administration of these activities.

On April 30, 1994, the Act was reauthorized by the MMPA Amendments of 1994 (Public Law 103-238). These amendments introduce substantial changes to the provisions of the Act., incorporating recommendations from commercial fishers, conservation groups, public display institutions, scientific researchers, NMFS, USFWS, MMC, animal protection groups and the Alaska Native com-munity.

One of the most notable amendments, and a primary focus of the 1994 MMPA Annual Report, involve the establishment of a new regime to govern the taking of marine mammals incidental to commercial fishing, replacing the Interim Exemption that has been in place since 1988. Three new sections have also been added to the Act to address commercial fishing and marine mammal incidental take, requiring : (1) the preparation of stock assessments for all marine mammal stocks in U.S. waters; (2) development and implementation of take reduction plans for stocks that may be reduced or are being maintained below their optimum sustainable population levels due to interactions with commercial fisheries; and (3) directed studies of pinniped-fishery interactions.

Other significant changes to the MMPA include the revision to the permit provisions for public display and scientific research; establishment of permits for purposes of educational and commercial photography; establishment of procedures for authorizing the intentional lethal taking of individually identifiable pinnipeds having a significant negative effect on salmonid fishery stocks; elimination of NMFS jurisdiction over the care and maintenance of captive marine mammals held for purposes of public display at registered or licensed facilities; and the authority to provide grants to Alaska Native organizations for the purpose of developing co-management structures for marine mammal stock taken for subsistence.

The 1994 report focuses on each of these amendments and their significance to the MMPA's goals re: resource management and marine mammal protection, in addition to providing an annual update on the programs not revised by the 1994 Amendments. Copies of the MMPA 1994 Annual Report are available from the Office of Protected Resources, National Marine Fisheries Service, 1335 East-West Highway, Silver Spring, Maryland 20910.

Chapter I. Overview: Implementation and Effects of 1994 MMPA Amendments

On April 30, 1994, the 1994 Amendments to the Marine Mammal Protection Act (MMPA or the Act) were signed into law (Public Law 103-238). These amendments make substantial changes to numerous provisions of the Act, including:

- significantly altering the current regime governing incidental takes of marine mammals in fisheries;
- establishing scientific review groups (SRGs) and task forces to advise NMFS on the research and management of marine mammals;
- highlighting existing authority in the MMPA to address impacts on the ecosystems associated with marine mammal stocks;
- significantly reducing NMFS jurisdiction over marine mammal captive care and maintenance, particularly for public display purposes;
- providing a General Authorization for non-intrusive scientific research on marine mammals;
- establishing a new permit category for photographic purposes; and,
- emphasizing and creating a mechanism for the creation of cooperative agreements with Alaska Native organizations to conserve marine mammals and provide co-management of subsistence use.

Marine Mammal/Fishery Interactions

The 1994 amendments replace the Interim Exemption for Commercial Fisheries (section 114) with a long-term regime for governing interactions between marine mammals and commercial fisheries (sections 117 and 118). The following is a summary of the amendments and their application under the new regime.

Stock Assessments; Status of Stock Reports

The new law requires NMFS and the U.S. Fish and Wildlife Service (USFWS) to develop stock assessment reports for all marine mammal stocks in waters under U.S. jurisdiction. Notice of availability of the 1994 draft stock assessment reports and the methodology used to determine each stock's potential biological removal (PBR) level was announced on August 9, 1994; the public comment period ended on December 1, 1994.

The draft assessments include a wide variety of information about each stock, including its range, an estimate of minimum size and net productivity (population growth rate) of the population, estimates of human-caused mortalities within the stock, a description of the commercial fisheries that are likely to have contact with a particular stock, and an estimate of the PBR level for the stock. Ultimately, the assessment reports define "strategic stocks" as those stocks that have a level of human-caused mortality likely to reduce or maintain the stock below its optimum sustainable population. “Strategic stocks” are defined in the Act to also include those stocks that are listed as endangered or threatened under the Endangered Species Act (ESA) or depleted under the MMPA, and those stocks that are declining and likely to be listed as threatened within the foreseeable future.

Final stock assessments must be published 90 days after the close of the public comment period for the draft stock assessment reports. Prior to publication of the final stock assessment report, Alaska Natives may request hearings before an Administrative Law Judge regarding the draft stock assessments. Stock assessments for strategic stocks must be reviewed at least annually; other

stocks must be reviewed at least once every three years.

Scientific Review Groups

Pursuant to the 1994 amendments and within 60 days of their enactment (June 29, 1994), NMFS established three regional SRGs, representing Alaska, the Pacific Coast (including Hawaii) and the Atlantic Coast (including the Gulf of Mexico). The responsibilities of the SRGs include reviewing draft stock assessments and advising with regard to marine mammal population status, trends, stock identity, and dynamics; assessing research needs regarding the marine mammal stocks and the reduction of incidental mortality and injury; evaluating the impact of habitat degradation; and identifying the appropriate measures to reduce impacts. The review groups must consist of individuals with expertise in marine mammal biology and ecology, population dynamics and modeling, commercial fishing technology/practices, or subsistence practices, and must represent, to the extent feasible, a balance of viewpoints.

Prohibition of Intentional Lethal Takes

All intentional lethal killing or serious injury of marine mammals in the course of commercial fishing is now prohibited pursuant to section 102 and 118(a)(5). However, section 101(a)(4) of the MMPA has now been expanded to authorize U.S. fishers and other citizens to non-lethally deter marine mammals from: damaging fishing gear and catch; damaging private property; endangering public safety; or damaging public property. The MMPA requires NMFS to publish a list of guidelines for use in safely deterring marine mammals and to prohibit deterrence measures that have a significant adverse impact on marine mammals. Additionally, section 101(c) specifically authorizes intentional lethal taking if imminently necessary in self-defense or to save the life of a person in immediate danger.

Registration and Reporting

Pursuant to the 1994 amendments and within 90 days of enactment of the amendments (July 29, 1994), NMFS published proposed revisions to the list of fisheries that interact with marine mammals, describing the marine mammal stocks involved and the number of vessels in each fishery. The amendments state that each fishery is to be categorized by whether its level of incidental mortality or serious injury to marine mammals is frequent, occasional, or has only a remote likelihood of occurring (corresponding to a Category I, Category II or Category III fishery, respectively). Vessels engaged in commercial fisheries included in Categories I or II are required to register with NMFS, which will authorize the take of non-listed marine mammals in the course of fishing. Each registered vessel will receive a decal that must be displayed while the registration is current. All owners or operators of commercial vessels in all fisheries must report the incidental death or injury of any marine mammals to NMFS on a postage-paid form within 48 hours after each fishing trip.

Pursuant to the amendments, NMFS may also permit the taking of endangered and threatened marine mammals incidental to commercial fishing for three-year periods provided that, in addition to other restrictions, the taking will have a negligible impact on the stock, and that a recovery plan has been or is being developed for the species.

Monitoring of Incidental Takes

NMFS must establish a program to monitor marine mammal mortalities and serious injuries incidental to commercial fishing operations. The program will combine information from on-board

observers and voluntary reporting by vessel owners of incidental takes, as well as information collected on alternative platforms. The objectives of the monitoring program are to (1) obtain statistically reliable estimates of incidental mortality and serious injury; (2) determine the reliability of reports of incidental mortality and serious injury submitted by fishing vessel owners and operators; and, (3) identify changes in fishing methods or technology that may increase or decrease incidental mortality and serious injury.

Zero Mortality Rate Goal

Since it was first passed in 1972, one of the underlying goals of the MMPA has been that the incidental kill or incidental serious injury of marine mammals permitted in the course of commercial fishing operations be reduced to insignificant levels approaching a zero mortality and serious injury rate (section 101(a)(2)). The 1994 amendments reaffirm this Zero Mortality Rate Goal (ZMRG), requiring NMFS to begin review of each fishery's progress toward the ZMRG within three years of enactment (April 30, 1997), and to report the results of the study to Congress within four years of enactment (April 30, 1998). The amendments also specify that all fisheries must attain this goal within seven years (April 30, 2001).

Take Reduction Teams/Plans

Also pursuant to the amendments, NMFS must establish take reduction teams to develop take reduction plans that will assist in the recovery or prevent the depletion of strategic stocks that interact with a Category I or Category II commercial fishery. Take reduction plans may also be developed for certain other marine mammal stocks that interact with commercial fisheries. The first take reduction teams must be convened within 30 days of the issuance of final stock assessment reports. The take reduction teams must submit their plans within 6 months of their convening for strategic stocks and within 11 months for non-strategic stocks.

Marine Ecosystem Protection

The 1994 amendments called for the initiation of several ecosystem-oriented studies, as authorized in sections 110 and 120. To follow is a summary of these new programs.

Bering Sea Ecosystem Study

By October 1994, NMFS was required to develop a scientific research program to monitor the health and stability of the Bering Sea Ecosystem. Consultation with the Secretary of the Interior, the Marine Mammal Commission, the State of Alaska and Alaska Native groups took place as part of the plan's development.

Gulf of Maine Ecosystem Workshop

No later than one year after enactment (April 30, 1995), NMFS is required to convene a regional workshop for the Gulf of Maine to assess human-caused factors affecting the health of the ecosystem of which they are a part. A report of this workshop must be submitted to Congress by December 31, 1995.

Regionwide Pinniped-Fishery Interactions Study

NMFS may conduct a study on the interaction between pinnipeds and anadromous fish in at least three areas within the Northwest Region (Washington and Oregon) to evaluate 1) fish behavior in the presence of predators; 2) holding times and passage rates of anadromous fish in the presence and absence of predation; and 3) whether additional facilities exist, or can be modified to improve escapement.

Interaction of California Sea Lions and Pacific Harbor Seals with Salmonid Stocks

NMFS must determine whether California sea lions and Pacific harbor seals are having: 1) a significant negative impact on the recovery of salmonid fishery stocks listed as threatened or endangered under the ESA or are approaching endangered or threatened status, and 2) broader impacts on coastal ecosystems of Washington, Oregon and California and where predation is occurring, 3) standardized measurements of scarring and predated fish species and, 4) tracking fish and pinnipeds as needed. The investigation must be concluded and the report must be prepared by October 1, 1995 for submission to Congress.

Scientific Research, Public Display and Enhancement Permits

The amendments make significant changes to sections 102 and 104 of the MMPA which govern permits for public display, scientific research, and enhancement of species and stocks. Among other things, the amendments add new provisions for scientific research; substantially reduce NMFS's jurisdiction over marine mammals held in captivity for public display; establish a new prohibition on exports; and create a new permit category for photographing marine mammals. These amendments are summarized below.

General Authorization for Scientific Research involving only Level B Harassment

Section 5 of the MMPA amendments eliminates the requirement that research not be duplicative and provides for a general authorization and im-plements regulations allowing Level B harassment of marine mammals for scientific research purposes. Level B harassment is defined as "any act of pursuit, torment, or annoyance which has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering." The amendments define Level A harassment as "any act of pursuit, torment, or annoyance which has the potential to injure a marine mammal or marine mammal stock in the wild." Research conducted under the general authorization are subject to notification requirements. As of September 30, 1994, interim final regulations were filed with the Office of Federal Register for publication on October 3, 1994. The possibility of a joint Final Rule with the USFWS is under consideration.

Exports

The amendments add a new prohibition on the export of marine mammals and marine mammal parts. The amendments also provide specifically for the export of marine mammals for purposes of public display without further permit or authorization. Although no such specific provision was included for scientific research or enhancement activities, a general provision was included allowing exports that meet comparable standards.

Public Display: Captive Care and Maintenance

Under the amendments, the former requirement that NMFS specify methods of supervision, care, and transport has been limited for public display permits to marine mammals being captured from the wild or imported for the first time without benefit of a previously issued permit. The Animal and Plant Health Inspection Service, (APHIS), which previously had concurrent jurisdiction, now has sole responsibility over the

care and maintenance of marine mammals held in public display facilities.

Marine Mammals Held for Public Display

Under these amendments, recipients of captive marine mammals transported to them for public display are no longer required to have a permit. However, the recipient must: 1) offer a program for education or conservation based on professionally recognized standards of the public display community; 2) be registered or hold a license issued by APHIS under the Animal Welfare Act; and 3) maintain facilities for the public display of marine mammals that are open to the public on a regularly scheduled basis with access not limited or restricted other than by charging an admission fee. Public display permits are still required for collection from the wild or for imports.

In general, the amendments allow persons holding marine mammals for public display, without any additional permit or authorization, the right to take, sell, export, or otherwise transfer possession of marine mammals, for public display, if the recipient meets the above public display criteria. A letter of notification is required 15 days in advance of any transportation, sale, purchase, or export of marine mammals for public display, scientific research, or enhancement purposes.

Inventory of Marine Mammals in Captivity

The amendments require NMFS and the USFWS to maintain a basic inventory of marine mammals held in captivity, including the animal's name, sex, date of birth, source, acquisition, disposition, name of recipient and (if appropriate) its date of death and cause of death when determined.

Photography Permits

The amendments add a new category of permits to allow marine mammals in the wild to be photographed for educational and commercial purposes. These permits are limited to Level B harassment and require that the photographic products be made available to the public. Provisions for this new category of permit will be included with implementing regulations to be published in 1995.

Other Aspects of the Amendments

Deterrence Guidelines

The amendments allow persons to prevent marine mammals from damaging private or public property, or from endangering personal safety, as long as the animal is not killed or injured. NMFS must, after consultation with experts and after notice and opportunity for comment, develop guidelines for use in deterring marine mammals, and may prohibit certain forms of deterrence that may significantly harm marine mammals.

Small Incidental Take

The amendments allow NMFS to authorize annually, through a permit-like system, the harassment of small numbers of marine mammals incidental to activities other than commercial fishing. Other forms of small, incidental take (other than fishing) remain subject to the act's previous requirement for rulemaking.

Pinniped Removal Authority

The amendments allow states to apply for permission to kill individually identified pinnipeds that are causing a decline or having a significant negative impact on the recovery of certain salmonid fishery stocks, and give NMFS the authority to allow such killing. Once a state's application is received, NMFS must determine

whether to establish a Pinniped-Fishery Interaction Task Force to re-commend to the agency whether to approve or deny the application and to suggest non-lethal alternatives.

Gulf of Maine Task Force

NMFS must establish a Pinniped-Fishery Interaction Task Force to advise NMFS on issues arising from pinnipeds acting in dangerous or damaging ways with aquaculture operators in the Gulf of Maine. NMFS must submit to Congress a report on interactions between pinnipeds and aquaculture activities by April, 1996.

Marine Mammal Cooperative Agreements in Alaska

The amendments provide for cooperative agreements between NMFS and Alaska Native organizations to conserve marine mammals and provide co-management of subsistence use by Alaska Natives. The amendments specifically provide NMFS with the authority to provide grants to Alaska Native organizations to: 1) collect and analyze data on marine mammal populations; 2) monitor the harvest of marine mammals for subsistence use; 3) participate in marine mammal research; 4) develop co-management structures with Federal and state agencies.

Indian Treaty Rights

The amendments clarify that the MMPA does not alter or is not intended to alter any treaty between the United States and one or more Indian tribes. Based on this clarifying language, several Northwest treaty Indian tribes have advised NMFS that they intend to exercise their treaty rights to harvest local populations of marine mammals. NMFS is working with the Indian tribes as they develop tribal plans and regulations that will likely affect marine mammals.

In 1994, two Pacific Northwest tribes, the Makah and Quileute, implemented regulations for ceremonial and subsistence harvests of marine mammals. The Makah adopted a plan to harvest up to 15 harbor seals annually. In addition to harbor seals, the Quileutes adopted a plan that included 10 California sea lions. Both plans specified harvesting to occur within the tribes' Usual and Accustomed Areas (U&A). A third Pacific Northwest tribe, the Nooksack, amended their tribal fishing regulations to authorize lethal takes of harbor seals and California sea lions interfering with commercial fishing activities. Fishers were encouraged to retain any takes for purposes of biological sampling and subsistence. To NMFS' knowledge, only the Makah tribe engaged in marine mammal harvesting activities in 1994, harvesting a total of 4 harbor seals.

Chapter II. Interactions With Commercial Fishing Operations

Interim Exemption Program

The objectives of the Interim Exemption for Commercial Fisheries were to collect much-needed information on the status of marine mammal stocks and to understand the magnitude of marine mammal interactions with commercial fishers. The Interim Exemption program consisted of four major elements: stock assessments, categorization of fisheries, registration and reporting, and the observer program.

Research and Monitoring

Stock Assessment Program. The Interim Exemption stock assessment program provided NMFS with a means to monitor the status and trends of affected marine mammal populations. The stock assessment program has focused on collecting minimum abundance estimates for those stocks that lacked information on abundance and trends and had the potential for significant incidental take in commercial fisheries. Information on stock delineations and population trends has also been collected. Furthermore, NMFS conducted research to refine estimates of stock structure and to reduce mortality of marine mammals incidental to fishing operations.

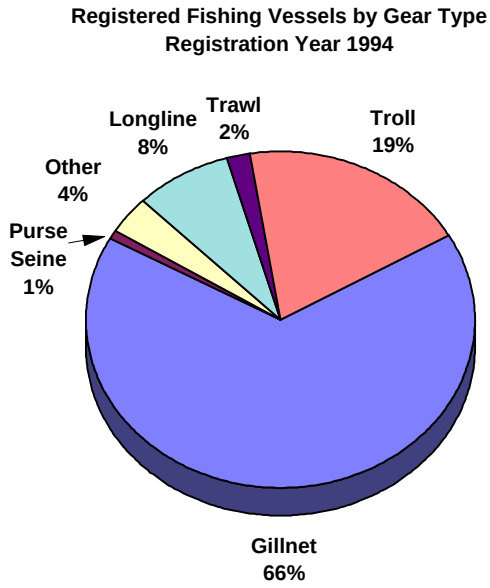
In 1994, stock assessments were conducted on a broad range of species in the Atlantic and Pacific Oceans. Abundances of marine mammal populations were estimated, and previous estimates were updated. NMFS developed a preliminary model to be used to statistically evaluate genetic information as relates to stock structure. NMFS convened a workshop consisting of population geneticists to examine the preliminary model and suggest refinements and revisions.

Bycatch Reduction Studies. NMFS also supported four studies to reduce marine mammal mortality incidental to commercial fishing operations. Efforts were initiated to determine the behavior of cetaceans near fishing nets so that the chain of events leading to the entanglement of marine mammals could be determined; subsequently, this line of research could allow NMFS to exploit the weakest link in that chain to reduce marine mammal mortality and injury incidental to fishing operations. Finally, a study testing the use of acoustic deterrence devices to reduce marine mammal predation on steelhead trout at the Ballard Locks in Seattle, Washington was conducted in 1993/94. However, the results were not quantified and need to be examined further to assess effectiveness in this situation.

All fishers who participate in Category I or II fisheries are required to register their vessels with NMFS and carry a valid exemption certificate. *Photo credit: R.Angliss, F/PR.*

Registration and Reporting. Under the Interim Exemption, vessel owners lawfully participating in a Category I or II fishery have been required to register their vessels with NMFS and carry a valid Exemption Certificate (mailed to the fisher upon filing the registration with NMFS). Fishers participating in Category I and II fisheries

Figure 1

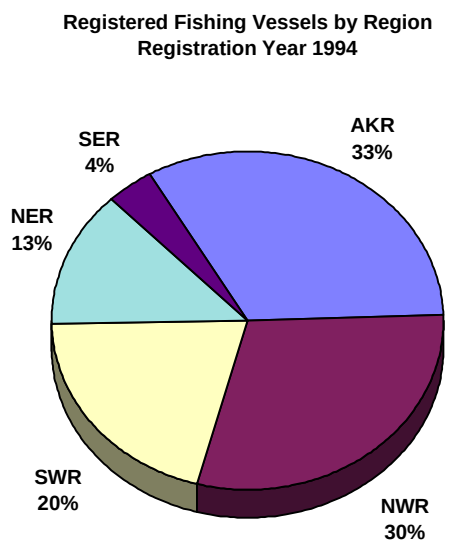


were also required to maintain daily logs of fishing effort and incidental takes of marine mammals. Although fishers participating in Category III fisheries need not register, reporting of all incidental lethal takings of marine mammals has been required within 10 days of the taking. For each day of fishing, category I and II fishers provided: the fishery currently being fished, fishing effort, gear type, fish species involved, marine mammal species or a description of the marine mammal if the species is unknown, number, date, and location of incidental takes, type of interaction and any injury to the marine mammal, a description of intentional takes, and loss of fish or gear caused by marine mammals. A copy of the fisher's logbook has been required for submission to NMFS by December 31 of every year.

Information submitted during the registration process has been catalogued into NMFS's Marine Mammal Exemption Program data base and is used to examine the number and size of fishing vessels and types of gear used; it has also been an effective tool for communicating with fishers. However, the number of registrants has declined over the last 4 years with 15,756 in 1990, 12,156 in 1991, 11,310 in 1992, and 10,432 vessel owners in 1993. A comparison of logbook data and observer data entered through 1992 indicates that self-reporting (logbooks) is a relatively unreliable source of information with which to assess fishery effort and incidental mortality and injury of marine mammals. Therefore, the recording of information from log-books received became a secondary method for monitoring fishery effort and bycatch in 1994. Neverthe less, graphic summaries of the distribution of registered vessels by gear type in 1994 is provided in Figure 1. Figure 2 represents a sum-mary of the distribution of 1994 registered vessels by region.

Observer Program. Under the Interim

Figure 2



Exemption program, NMFS was required to place observers on Category I vessels to monitor between 20 and 35 percent of the fishing operations. The purpose of the observer coverage is to obtain statistically reliable information on the species and number of marine mammals incidentally taken in the fishery, to verify the adequacy of self-reporting by fishers, to identify possible means for reducing take, and to collect other biological information on marine mammals and the marine ecosystem.

Eleven fisheries were observed in 1994: the Gulf of Alaska and Bering Sea multispecies trawl fishery, the Puget Sound salmon net fisheries, the California thresher shark and swordfish drift gillnet fishery, the California halibut set gill net fishery, the California angel shark set gill net fishery, the California soupfin shark, yellowtail, and white sea bass set gill net fishery, the mid-Atlantic coastal gillnet fishery, the New England multispecies sink gillnet and small pelagic surface gillnet fishery, the Atlantic swordfish, tuna, and shark pair trawl fishery, the Atlantic swordfish drift gill net fishery, and the Atlantic and Gulf of Mexico longline fishery. However, compilation and analysis of the 1994 data is still in progress. Appendix B lists the fisheries observed in 1989-1993, their associated levels of observer coverage, incidental takes by species, and estimated annual removal levels.

Categorization of Fisheries

Under the Interim Exemption, commercial fisheries were assigned to one of three categories based on whether the level of incidental interaction with marine mammals was frequent, occasional, or remote. Interpretation of Congressional intent resulted in a definition of frequent, occasional, and remote likelihood based on a per-vessel rate of incidental take. Based on these interpretations, internal discussions, and public comments, NMFS established the following criteria for classifying fisheries:

Category I. There is documented information indicating a "frequent" incidental taking of marine mammals in the fishery. "Frequent" means that it is highly likely that more than one marine mammal will be incidentally taken by a randomly selected vessel in the fishery during a 20-day period.

Category II. (1) There is documented information indicating an "occasional" incidental taking of marine mammals in the fishery, or (2) in the absence of information indicating the frequency of incidental taking of marine mammals, other factors such as fishing techniques, gear used, methods used to deter marine mammals, target species, seasons and areas fished, and species and distribution of marine mammals in the area suggest there is a likelihood of at least an "occasional" incidental taking in the fishery. "Occasional" means that there is some likelihood that any marine mammal will be incidentally taken by a randomly selected vessel in the fishery during a 20-day period, but that there is little likelihood that more than one marine mammal will be incidentally taken.

Category III. (1) There is information indicating no more than a "remote likelihood" of an incidental taking of a marine mammal in the fishery, or (2) in the absence of information indicating the frequency of incidental taking of marine mammals, other factors such as fishing techniques, gear used, methods used to deter marine mammals, target species, seasons and areas fished, and species and distribution of marine mammals in the area suggest there is no more than a remote likelihood of an incidental take in the fishery. "Remote likelihood" means that it is

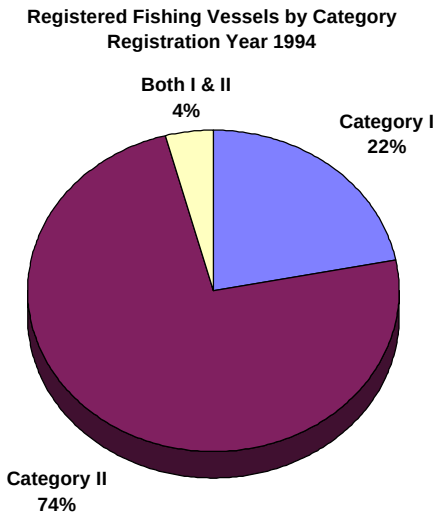
highly unlikely that a marine mammal will be taken in the course of fishing operations.

The final List of Fisheries for 1994, as published on August 25, 1994, pursuant to the Interim Exemption categorization method, listed 7 Category I fisheries, 39 Category II fisheries, and 142 Category III fisheries. Specific changes to the 1993 list are as follows:

- The Alaska Copper River and Bering River (adjacent to Prince William Sound) salmon drift gill net fishery was recategorized from Category I to Category II.
- The Washington and Oregon Lower Columbia River salmon drift gill net fishery was recategorized from Category I to Category III.
- The Washington Willapa Bay salmon drift gill net fishery was recategorized from Category I to Category III.
- The Washington Grays Harbor salmon set and drift gill net fishery was recategorized from Category I to Category III.
- All California gill net fisheries, based on mesh size of net, were recategorized by redefining California set and drift gill net fisheries that use a stretched mesh size of greater than 3.5 inches as Category I fisheries, and redefining set and drift gill net fisheries that use a stretched mesh size of 3.5 inches or less as Category III. This action made obsolete the following fishery designations for all California set and drift gill net fisheries, including: the California thresher shark and swordfish drift gill net fishery, the California halibut set gill net fishery, the California angel shark set gill net fishery, the California soupfin shark, yellowtail, white sea bass set gill net fishery, the California Klamath River gill net fishery, and the California white croaker, bonito, and flying fish gill net fishery. This action also redefined the Washington, Oregon, and California herring, smelt, shad, sturgeon, bottom fish, mullet, perch, rockfish gill net fishery to include only Washington and Oregon.
- The Gulf of Maine salmon aquaculture (net pen) fishery was recategorized from Category III to Category II.

Table A-1 in Appendix A presents the entire 1994 list of Category I and Category II Fisheries. In addition, Figure 3 illustrates the percentage of 1994 Category I and Category II fisheries.

Figure 3



New Regime to Govern Incidental Takes of Marine Mammals in Commercial Fisheries

The 1994 amendments to the MMPA were enacted on April 30, 1994 (Public Law 103-238), after considerable input from all affected parties. The amendments replace the Interim Exemption for Commercial Fisheries (section 114) with a long-term regime for governing interactions between marine mammals and commercial fisheries (sections 117 and 118). The overall goal of section 118 is to reduce the incidental mortality and serious injury occurring in the course of commercial fishing operations to insignificant levels approaching a zero mortality and serious injury rate.

To implement the 1994 Amendments to the MMPA, the Secretary of Commerce must develop regulations governing the interactions between marine mammals and commercial fisheries. These new regulations will replace the current regulations authorizing commercial fisheries under the Interim Exemption at 50 CFR 229. The proposed regulations will implement new sections 101(a)(5)(E) and 118 of the MMPA (16 U.S.C. 1371 (a)(5)(E) and 1387, Public Law 103-238), which provide exceptions from the Act's moratorium on the taking of marine mammals incidental to certain commercial fishing operations. These regulations will apply to all commercial fisheries operating in waters under the jurisdiction of the United States, except for vessels engaged in the purse seine fishery for tuna in the eastern tropical Pacific. Upon implementation, the provisions of section 118 of the MMPA, and not sections 103, 104 or 114, will govern interactions between marine mammals and commercial fishing operations. The development of the proposed regulations has been characterized by public involvement throughout the process via public meetings, working sessions, and distribution of the *MMPA Bulletin* (a bi-monthly news publication of the NMFS, Office of Protected Resources).

Regulations to implement section 118 must be issued by September 1, 1995. The first draft of the proposed regulations was informally presented to the NMFS MMPA Task Force in October 1994. The MMPA Task Force is composed of representatives from NMFS' regions and science centers that are either involved in the research and management of marine mammals or fisheries, or responsible for interpretation or enforcement of the Act's provisions. A series of conference calls with the Task Force resulted in general agreement with the revised structure of the regulations. There was also general agreement to conduct informal, regional working sessions to which representatives of the fishing industry, the environmental community, Congress, and other interested parties would be welcome.

The second draft of the proposed regulations was distributed to and discussed with interested

parties at two MMPA working sessions held in November and December 1994 in Silver Spring, Maryland and in Seattle, Washington. The main topics of discussion were the definitions of the categories for commercial fisheries and the categorization of fisheries when incidental take data are scant. In addition, the work sessions addressed the registration and reporting requirements, the establishment of Take Reduction Teams and associated Take Reduction Plans and the definitions of “serious injury” and “zero mortality rate goal”.

Proposed regulations are being prepared for publication and final regulations to implement section 118 are to be effective on or before September 1, 1995.

Marine Mammal Stock Assessments Under the New Regime

Scientific Review Groups

The 1994 MMPA amendments required NMFS to establish three independent, regional Scientific Review Groups. The review groups were intended by Congress to advise NMFS and USFWS on stock assessment research and monitoring, habitat conservation (including specific measures to reduce adverse impact to marine mammal habitat), and changes to fishing gear and practices that will reduce incidental mortality and serious injury of marine mammals. The groups, one each for the Atlantic (including Gulf of Mexico), Pacific (including Hawaii), and Alaska geographic areas, are composed of individuals with expertise in marine mammal population dynamics and modeling and in fishing technology and practices. They also reflect the theme of the amendments, requiring NMFS and USFWS to get the public involved in shaping management policies regarding marine mammals and human activity in the marine environment.

NMFS established the review groups in June 1994 after consulting with a variety of agencies and interest groups. NMFS has since met with the groups once in a combined session, and a second round of meetings (individual group sessions) was convened in mid-December 1994 and early January 1995, to discuss and provide comments on the Stock Assessment Reports that NMFS and USFWS are required to prepare on the status of all marine mammal population stocks occurring in waters under U.S. jurisdiction.

Stock Assessment Reports

As mentioned above, NMFS and USFWS, in consultation with the Regional Scientific Review Groups, are required to prepare stock assessment reports that describe the status of each marine mammal stock which occurs in waters under the jurisdiction of the United States. These reports include, among other things, a description of the marine mammal stock and its geographic range; several basic biological parameters of population dynamics; estimates of human-induced mortality, by source; a determination of the status of the stock (stocks which have a level of human-caused mortality that is likely to cause the stock to be reduced or kept below its optimum sustainable population would be classified as "strategic stocks"); and an estimate of a potential biological removal (PBR) level for the affected stock that, if not exceeded, would allow the stock to reach or maintain its optimum sustainable population. The reports are to be made available for public review and comment and will serve as the basis for Take Reduction Plans for strategic stocks that interact with category I and II fisheries.

Potential Biological Removal

NMFS convened a workshop of NMFS and USFWS scientists (primarily individuals charged with preparing stock assessment reports) and representatives from the Alaskan Native

community, held in La Jolla, California on June 27-29, 1994, and referred to as the PBR workshop, to develop a set of preliminary guidelines for use in stock assessment report preparation. Specifically, NMFS and USFWS needed quantitative guidelines on which to base stock identification and determine the parameters used to calculate PBR levels, e.g., the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock while allowing that stock to reach or maintain its optimum sustainable population.) The report of the workshop was then used as guidance for preparing the draft stock assessments and was distributed to NMFS and USFWS staff for their use.

The 131 NMFS draft stock assessment reports and the guidelines (the PBR workshop report) used for preparing them were completed on August 1, 1994, and made available in the Federal Register for public review and comment (59 FR 40527). NMFS and USFWS both extended their comment periods through December 1, 1994. The final stock assessment reports will be completed and available to the public in early June 1995.

Take Reduction Plans

Take Reduction Teams consisting of representatives from all interested constituencies will be established to develop plans to reduce the incidental mortality and serious injury of marine mammals that interact with category I or II fisheries. The short-term goal of the plans is to reduce mortality and serious injury of s marine mammals incidental to commercial fishing operations to levels below the affected stock's PBR. The long-term goal of the plans is to reduce the rates of incidental mortality and serious injury of marine mammals to insignificant levels approaching a zero rate.

Chapter III. Tuna Interactions with Commercial Fisheries in the Eastern Tropical Pacific Ocean

Overview

The most widely known interaction between marine mammals and commercial fisheries is the incidental take of dolphins by yellowfin tuna purse seiners in the eastern tropical Pacific Ocean (ETP). For reasons not fully understood, schools of large yellowfin tuna (25 kg or larger) tend to associate with ETP dolphins. In the late 1950s, fishermen began exploiting this association by deploying large purse seine nets around the more readily observed dolphin schools to catch the tuna swimming below. Despite the fishermen's attempts to release the dolphins, many became trapped in the nets and drowned.

Efforts to reduce dolphin mortality in the ETP have been a central focus of the MMPA since it was enacted in 1972. The 1994 efforts include continued implementation of the International Dolphin Conservation Act of 1992 (IDCA)(Public Law 102-523), and continued research on methods of harvesting yellowfin tuna without encircling marine mammals.

In 1992, efforts to reduce dolphin mortality in the ETP resulted in passage of the IDCA, which focuses on ways to eliminate rather than merely reduce dolphin mortality. The IDCA gave authority to the Department of State to enter into international agreements with other nations to institute, effective March 1, 1994, a 5-year moratorium on harvesting tuna by setting purse seine nets on marine mammals. It also amended the general permit issued to the American Tunaboat Association (ATA), reducing the dolphin mortality allowed under the permit from an annual quota of 20,500 dolphins to 1,000 for 1992 and to 800 for the 14-month period from January 1993 to March 1994. The ATA general permit was scheduled to expire at that point. However, no major tuna fishing nation committed to the 5-year moratorium. Thus, the general permit continues in effect until December 31, 1999, with the additional requirement that annual incidental dolphin mortality not exceed the number of mortalities which occurred under the permit during the preceding year. Dolphin mortality under the ATA permit was 115 for the 1993 calendar year. Under IDCA requirements, authorized mortality for 1994 could not exceed 114 animals. In early 1994, NMFS determined that mortality under the ATA permit was approaching 114. As a result, on February 8, 1994, setting on dolphins under the ATA permit was prohibited for the remainder of the calendar year. Also in February, as a result of a court order, NMFS prohibited the taking of any of the northeastern stock of offshore spotted dolphin under the ATA permit. This prohibition was included as a new element in the U.S. marine mammal program, and, therefore, was also required of foreign programs in order for those programs to be comparable to the U.S. program.

Tuna-Dolphin Legislation--

During 1994, a number of significant events occurred concerning changes to yellowfin purse seine fishing. The fishery was affected by Federal Court decisions, an early closure of the fishery, and international talks and agreements. In 1994, U.S. purse seine vessels made 79 sets in the ETP with 100 percent observer coverage by NMFS observers for each set. Mortality for the U.S. fleet was 115 in 1993, and 109 in 1994. In a fishery with only three vessels setting on dolphins and an allowable take of just over 100 mammals, this was a significant reduction from the previous year. However, the low quota was reached early. On February 8, 1994, setting on dolphins was prohibited for the remainder of 1994. The low quota contributed to an increase in overall kill-per-set (1.124) for the fishing year 1994, as there was no opportunity to

average sets with moderate kill with zero mortality sets over a longer fishing season.

The MMPA was amended by the IDCA on October 26, 1992. The IDCA, among other things, established guidelines for a program that eliminated the practice of setting nets on marine mammals. Under the IDCA, the United States was to seek an agreement with one or more tuna fishing countries to establish a 5-year moratorium on intentionally deploying purse seine nets to encircle dolphins. However, no other harvesting country would agree to a moratorium. In the absence of a moratorium, the IDCA extended the general permit held by the American Tunaboat Association (ATA), allowing U.S. fishermen operating under the permit to take marine mammals incidental to their purse seine operations until 1999. The annual quota, according to the IDCA, can not exceed the number of dolphin mortalities which occurred under the permit during the preceding year, and must continue to be reduced by a statistically significant amount each year to levels approaching zero by December 31, 1999.

Under the MMPA, an "intermediary nation" is defined as a nation that exports yellowfin tuna or yellowfin tuna products to the United States and imports yellowfin tuna or yellowfin tuna products that are subject to a direct ban on importation into the United States. All yellowfin tuna exported from an intermediary nation is prohibited. At the end of 1994, only three nations, Italy, Japan, and Costa Rica, were listed as intermediary nations.

A primary nation embargo is implemented when a nation whose purse seine vessels of larger than 400 short tons carrying capacity operate in the ETP without an "affirmative finding" from the United States. An affirmative finding is granted to a nation that demonstrates a marine mammal regulatory program and mortality rates that are comparable to the U.S. program. At the end of 1994, five nations, Columbia, Mexico, Panama, Vanuata, and Venezuela, were embargoed as primary nations. All yellowfin tuna and yellowfin tuna products harvested in the ETP by purse seine is prohibited from these nations.

In 1994 Spain and Ecuador received affirmative findings as nations that do not set on dolphins. The island nation of Vanuatu received an affirmative finding as a nation that intentionally set on dolphin. The Republic of Colombia, which began the year in an embargo status, demonstrated a regulatory program comparable to the U.S.and received an affirmative finding in March of 1994 joining Vanuatu. However, both of these nations were embargoed in September 1994 for not incorporating the January 1994 Federal Court decision which prohibited intentional sets on the depleted stock of northeastern offshore spotted dolphin (*Stenella attenuata*).

The United States, as a member of the Inter-American Tropical Tuna Commission (IATTC), participates in the Commission's Intergovernmental Meetings, and meetings related to its International Dolphin Conservation Program (IDCP). The IDCP was adopted by international agreement at the Annual Meeting of the IATTC held in La Jolla, California, on June 16-18, 1992, to reduce progressively dolphin mortality in the ETP tuna fisheries to levels approaching zero through the setting of annual dolphin mortality limits (DMLs), with the goal of eliminating dolphin mortality in this fishery and seeking ecologically sound means of capturing large yellowfin tuna not in association with dolphins. The IDCP provided a DML for the international fleet in the ETP of 19,500 for 1993, which would be lowered over a 7-year period to less than 5,000 in 1999. An International Review Panel, on which the United States participates, was established to review and report on the compliance of the international fleet with these dolphin mortality limits.

The IDCP has enjoyed unexpected success to date. Total dolphin mortalities in the ETP tuna fishery in 1993 and 1994 were 3,609 and 4,095, respectively--well below the 1999 level. As mentioned earlier, U.S. purse seiners were prohibited from setting on dolphins after February 8, 1994, for having attained the maximum dolphin mortality allowed under the IDCA. No U.S. tuna purse seine vessels applied for an ETP DML for the first half of 1995.

Regulatory Actions--

In 1993, NMFS determined that the northeastern stocks of offshore spotted dolphins (*Stenella attenuata*) were depleted to levels less than their optimum sustainable population. On January 27, 1994, the Federal District Court for the Northern District of California prohibited sets on schools of dolphins where any northeastern offshore spotted dolphins were seen prior to release of the net skiff. On October 20, 1994 NMFS published a final rule that prohibited sets on schools of dolphins in an area where any offshore spotted dolphins have been observed: between 5° N and 40° N, and east of 120° W.

In June 1994, NMFS published regulations implementing the dolphin safe requirements of the IDCA. These regulations prohibit tuna that is <u>not</u> dolphin safe from being sold, purchased, offered for sale, transported, or shipped in the United States after June 1, 1994. The purpose for these regulations is to deter the use of the U.S. market as an incentive for catching tuna in association with dolphins.

In July 1994, NMFS published a final rule to define "import" as it pertains to tuna products affected by the MMPA. This is required to make consistent the treatment of tuna products that are entered into a country's Customs territory, rather than merely entering the country's territory for purposes of storage or trans-shipment.

After February 28, 1994, in accordance with the MMPA, it became illegal for any person or vessel that is subject to the jurisdiction of the United States, to intentionally set a purse seine net on or encircle any marine mammal unless under the general permit issued to the ATA, or as necessary for approved scientific research. NMFS published a proposed rule in October 1994 explaining the geographical scope of this provision.

Dolphin-Safe Research--

Following the second Dolphin-Safe Research Planning Workshop held in March 1994, the Dolphin-Safe Research Program in NMFS' Office of Protected Resources, Marine Mammal Division began implementing the research program outlined by workshop participants. Contracts have been awarded to various researchers, primarily from the military sector, to characterize the physical environment of the eastern tropical Pacific Ocean (ETP) and the target signatures of large yellowfin tuna under three detection modes: acoustic, optical and radar. In addition to these contracts, the Dolphin-Safe Program cooperated with the SWC Coastal Division in a multi-dimensional field survey testing various types of optical detection devices, including both the LIDAR device tested last year by the Dolphin-Safe Program aboard a commercial purse-seiner's helicopter, and a passive imaging device being developed by a commercial organization under a Small Business Innovative Research grant awarded in response to the Dolphin-Safe Program's bid solicitation the previous year. Results from experiments with both the LIDAR and the passive imaging devices were promising enough that additional research is planned for the coming year.

In addition to these activities, Dolphin-Safe program personnel completed the workshop report from last year's research planning workshop and a report summarizing FADS research at SWC during 1989-1994. Personnel from the InterAmerican Tropical Tuna Commission (IATTC) and the Dolphin-Safe Program personnel completed a cooperative project funded by the Dolphin-Safe Program in 1992, correlating environmental characteristics in the ETP with capture of medium and large yellowfin tuna not associated with dolphins. Captures were found to correlate strongly with a relatively narrow range of surface water temperatures, a result that will help tuna fishermen to target greater quantities of dolphin-safe (unassociated) tuna in the ETP. In 1995, work will continue on a second IATTC project funded by the Dolphin-Safe Program, to investigate trophic preferences of top predators in the ETP. Completion of this second project is expected in August 1995.

Chapter IV. Marine Mammal Interactions with Other Human Activities

Small Take Authorizations

The MMPA provides a mechanism for authorizing, upon request, the incidental, but not intentional, taking of marine mammals by U.S. citizens who engage in a specified activity (other than commercial fishing) for periods not to exceed five years per authorization. Before issuing regulations that allow the takes, NMFS must determine that the takes will not have more than a negligible impact on the species requested to be taken and will not have an unmitigable adverse impact on the availability of the species for subsistence hunting. The regulations require the applicant to monitor the taking of marine mammals during the activity and to report the results to NMFS.

In 1994, four specific activities had authorization to incidentally take marine mammals under this provision of the Act. The authorized activities included (1) the taking of ringed seals incidental to seismic activities on the ice in the Beaufort Sea; (2) the taking of six species of marine mammals incidental to energy exploration in the Beaufort and Chukchi Seas; (3) the taking of seals and sea lions incidental to the launching of Titan IV space rockets from Vandenberg Air Force Base, California and (4) the taking of a number of species of marine mammals during Navy ship shock trials off southern California.

On May 13, 1993, NMFS received an application for a small take authorization from the U.S. Navy. The Navy sought authorization to incidentally take marine mammals while conducting military activities involving the underwater detonation of conventional explosives in the Navy's Outer Sea Test Range (OSTR), an area seaward of the Channel Islands in California. One such activity involved shock testing the U.S.S. John Paul Jones, an AEGIS-class destroyer.

The Navy requested a take of four species of pinnipeds and 17 species of cetaceans by harassment, injury and death, mostly harassment. The Navy described in detail the efforts that will be made to minimize project-related impacts to marine mammals. It strongly believed that impacts could be held to an acceptably low level by mandating a conservative two nautical-mile safety zone for marine mammal exclusion and by incorporating an active aerial survey monitoring effort in the program both prior to, and after detonation of explosives. Aerial surveys were conducted by the SWC during 1993 and 1994 in cooperation with the Navy to determine the density and distribution of marine mammals in the vicinity of the San Nicholas Island, California. The goal was to determine seasons and areas with lowest abundance of marine mammals so that ship shock trials could be conducted with minimal impact. A total of 13,734 km was surveyed within a 2,966 km^2 study area during a 17-month period resulting in 462 on-effort sightings of18 marine mammal species. The Navy stated that tests would not be conducted if marine mammals, sea turtles, seabird flocks or fish schools are detected during aerial overflights within the safety zone, or if weather and sea conditions preclude adequate aerial surveillance. Also, if post-test surveys determined that an observed injurious or lethal take of a marine mammal has occurred, the test procedure and the monitoring methods would be reviewed and appropriate changes made.

On February 3, 1994, NMFS promulgated final regulations to govern this incidental take. Included in those regulations were, among other things, the mitigation and monitoring requirements described above. On April 12, 1994, NMFS issued a Letter of Authorization for shock testing the U.S.S. John Paul Jones and on that same day, the Natural Resources Defense Council filed a complaint against NMFS and the Navy in U.S. District Court in Los Angeles. After settlement

(see Chapter XII - Litigation), the shock trial was allowed to proceed.

The shock trial was conducted on the Navy's OSTR and included detonating two 10,000 lb. charges on June 9 and June 27, 1994. The shock trial resulted in no observed injurious or lethal takes of marine mammals.

Small Take Amendment

Section 101(a)(5) of the MMPA was amended by the 1994 MMPA amendments (Public Law 103-238) to establish an expedited process by which citizens of the United States can apply for an authorization to incidentally take small numbers of marine mammals by harassment. It established specific time limits for public notice and comment on any requests for authorization which would be granted under this paragraph. However, in circumstances where a request is identical to one considered in the previous year, Congress expects NMFS to act expeditiously in complying with the notice and comment requirements; no need exists, in such a case, for NMFS to use the full 120 days allowed. NMFS is using the general rulemaking authority available under section 112 of the MMPA to establish a process for granting authorization in the case of small takes by harassment in the Arctic Ocean.

Under the new small take provisions, NMFS accepted an application on August 18, 1994, from the State of Washington Department of Corrections for the take of small numbers of harbor seals by harassment incidental to the demolition of an existing dock facility and the driving of approximately 152 new piles at the Still Harbor Dock Facility on McNeil Island in southern Puget Sound, WA. The demolition and pile driving activities are anticipated to be completed in two seasons' specified work window from November 1 to February 15, 1994/95 for demolition and November 15 to February 15, 1995/96 for pile driving. At the end of 1994, the authorization process was ongoing.

California Sea Lion Conflict with Steelhead at the Ballard Locks

NMFS and the Washington Department of Fish and Wildlife (WDFW) continued a cooperative interagency program to minimize predation by California sea lion on Lake Washington wild winter-run steelhead at the Ballard Locks, Seattle, WA. during the 1993/1994 steelhead run (December 1993 through May 1994). The sea lion/steelhead conflict, commonly referred to as the "Herschel Problem": (because of the nickname, "Herschel," given to a large sea lion present in earlier years), was first noted in 1985 when serious declines in the wild winter-run steelhead were documented concurrent with research that documented that California sea lions were removing significant numbers of adult fish that were returning to spawn. A complete description of the sea lion/steelhead conflict can be found in the 1994 Environmental Assessment prepared by NMFS and WDFW.

The 1994 program was a continuation of interagency efforts that commenced in 1985 by NMFS, WDFW, the Army Corps of Engineers and the Muckleshoot and Suquamish Indian tribes to protect and enhance this depressed run of wild steelhead that migrate through the Ballard Locks. Congress provided NMFS with sufficient funding to implement a predation control program using a phased approach with an acoustic deterrence device placed to create an "acoustic barrier" downstream of the fishway as the first phase, and a capture/relocation effort as the second phase applied only to sea lions that penetrated the acoustic barrier. Four sea lions were captured and translocated; one was transported to the outer coast of Washington and released, and three were relocated to southern California in April. In

addition, one harbor seal was captured at the Locks and transported to Hood Canal. Total estimated predation amounted to 8 percent of the steelhead run. Although several sea lions penetrated the acoustic barrier, they exhibited different behavior when exposed to the acoustic noise and no predation was observed in the ensonified area. However, because the total run consisted of only 76 wild steelhead, it is not possible to conclude that the reduced predation was attributable to the acoustic devices or if it was an artifact of the low run. The 1994 total spawning escapement was 70 steelhead, the lowest ever, and cause for the State to request lethal removal authority under the 1994 amendments to the MMPA.

Pacific Coast Task Force/Pinniped Removal Authority

The MMPA Amendments of April 1994 added a new section to the MMPA which, in addition to requiring NMFS to conduct two studies and report on interactions between Pacific Coast harbor seals and California sea lions and salmonid fish stocks, sets forth a process for authorization of intentional lethal taking of individually identifiable pinnipeds that are having a significant negative impact on salmonids that are either listed, approaching listing under the ESA or migrating through the Ballard Locks in Seattle, Washington.

On July 12, 1994, NMFS received an application from the State of Washington to consider the lethal removal of California sea lions that are depredating a wild run of winter steelhead during their migration through the Ballard Locks. NMFS subsequently determined that the State's application provided sufficient evidence to warrant establishment of a Task Force. The Task Force was composed of 21 members consisting of scientists knowledgeable about the sea lion/steelhead conflict, representatives of conservation and fishing community organizations, the State, Indian tribes, NOAA and other Federal agencies involved in the conflict at the Locks. On September 30, 1994, the Task Force convened in Seattle, Washington and subsequently held three more meetings to consider pertinent data on California sea lions, winter-run steelhead, the nature and extent of the interaction at the Locks, the design and operation of the Locks/fishway facility, and past measures and considerations for reducing or eliminating the sea lion/steelhead interaction.

The Task Force submitted its recommendations on November 25, 1994, with minority views being added to the report on December 5, 1994. By a 13 to 8 vote, the Task Force agreed to recommend approval of lethal removal of individually identifiable California sea lions provided that: (1) all practicable attempts are made to capture and place identified predatory sea lions in captivity during the duration of the run (lethal removal is to occur only if adequate holding facilities are unavailable); (2) the sea lion predation rate exceeds 10 percent of the steelhead run in any consecutive 7-day period after January 1, 1995; (3) acoustic deterrence devices are in place and feasibility of expanded efforts in conjunction with other methods of deterrence are investigated; (4) the Corps of Engineers provides a report to NMFS on their efforts to address fish passage issues; (5) lethal removal consists of capturing identifiable sea lions and implementing euthanasia under guidance of Animal Care Committee; (6) removals (lethal and non-lethal) are limited to 40 sea lions with the provision that lethal removal cease at 12 animals at which time the Task Force will reconvene. Further, the Task Force wishes to reconvene if 20 removals (lethal and non-lethal) occur. At the end of 1994, NMFS was still considering the Task Force recommendations.

Other Interactions

The majority of northern elephant seals in the United States use the offshore Channel Islands in southern California for resting, breeding, molting and pupping. However, in 1994, a new mainland northern elephant seal colony (a few hundred animals) was established on a beach in San Luis Obispo County, central California. This site is close to a busy highway that is traveled by thousands of motorists each year. Since these seals are easily visible, motorists stop and observe the seals. More than a hundred people at one time have been observed on the beach, with over 60 cars parked on the nearby roadside. This has created a traffic safety hazard and is exposing those people who walk through the colony to the possibility of serious injury. Parents and very young children walk within a few feet of the seals. People have been observed petting seals and riding a seal, kicking sand at the seals, and a report of a seal biting someone in the leg has been received.

In May 1994, an enforcement officer with the Office of Enforcement, Southwest Division, NMFS, patrolled the beach area to inform tourists about the laws protecting seals and of the dangers of approaching seals too closely. In June 1994, staff from the Southwest Region, NMFS, and the Office of Enforcement, Southwest Division, met with the California Department of Transportation (Caltrans), California Highway Patrol, County Sheriffs Office, California Department of Parks and Recreation, and U.S. National Biological Survey to discuss possible solutions to the problems at this new haul-out site. Caltrans agreed to post additional "no parking" signs. As an interim measure, the NMFS, SWC is developing educational signs to inform the public about the laws protecting seals, the potential biological impacts on the animals from disturbance or intentional feeding, and the safety hazards from approaching the animals too closely. As a long term measure, the State of California is exploring the possibility of developing an interpretive center at the site to allow motorists to park safely and observe the seals from a safe distance.

The major non-fishery human-induced impact on several species of large whales is ship strikes. This issue is particularly significant for the extremely low population (300-350 animals) of North Atlantic right whales. Although the number of mortalities or debilitating injuries from ship strikes is small, these are still believed to be the principal factors retarding the growth and recovery of the right whale population. Areas of primary concern are the coastal waters of the southeastern U.S. where calving and wintering habitats co-occur with areas of high-use vessel traffic. A research and monitoring program has been initiated to eliminate/minimize potential impacts in these waters, i.e., the Early Warning Network, where aerial overflights advise local mariners of the presence of right whales to avoid collisions.

Chapter V. Conservation and Recovery Programs

Harbor Seal in Gulf of Alaska

Recent studies have shown statistically significant declines in the number of harbor seals in the central and western Gulf of Alaska and Prince William Sound. Counts on Tugidak Island, once a major haulout and breeding site, and other areas of the Kodiak Archipelago declined by 90 percent from the late-1970s to 1992. Although survey numbers in 1993 and 1994 increased slightly over 1992, surveys conducted in Prince William Sound also indicated a 60 percent decline at trend sites between 1984 and 1994.

Data from the eastern Bering Sea also indicate declines, but the trends are less clear than those in the Gulf of Alaska. In Bristol Bay, abundance along the north side of the Alaska Peninsula peaked in 1976 after fluctuating from 1966 to 1976, then declined 50 percent from 1976 to 1991. However, 1991 numbers were slightly higher than those from 1966. Counts at Nanvak Bay in northern Bristol Bay declined by 90 percent from 1975 to 1991.

NMFS surveyed the Aleutian Islands in August 1994, where a comprehensive population assess-ment had never before been completed. Detection of any trends in this area will not be possible until additional surveys are conducted.

Harbor seal populations in southeastern Alaska are believed to be stable. The 1993 Ketchikan trend route survey numbers were down by 54 percent of that counted in 1988; however these numbers may not be comparable as the 1993 survey was conducted later in the year than the 1988 survey. Data from the 1994 survey of Ketchikan trend sites are being analyzed and results are not yet available.

Because of these observed trends toward declining numbers, NMFS, on April 11, 1994, initiated a formal status review of the harbor seal in Alaska to determine whether listing as a depleted species was warranted. NMFS acknowledged that a complete status review including a determination of optimum sustainable population will depend, at least in part, on defining the stock structure for harbor seals in Alaska.

Concurrent with this status review, the 1994 Amendments to the MMPA required NMFS to prepare a series of draft stock assessment reports for marine mammal stocks potentially affected by commercial fisheries throughout the United States, including Alaska. In order to provide a comprehensive review of these stock assessment reports, including the report on harbor seal in Alaska, the MMPA further directed NMFS to appoint a series of regional SRGs to comment on the draft stock assessments provided by NMFS.

On August 1, 1994, the Alaska SRG met for the first time. It was recognized that a review of Alaska marine mammal stocks by the SRG would require more than one day of discussion. The SRG was not able to discuss the draft assessment report for harbor seals at this meeting, and it was decided that this species would be taken up at a second meeting of the SRG, which was to occur in January 1995.

NMFS decided that the draft stock assessment reports for harbor seals in Alaska, and the stock structures as presented in those reports, were necessary to complete the status review initiated in April 1994. As a result, a status determination was delayed until a review by the Alaska SRG could be completed.

Independent of the status review and the review by the SRG, NMFS, the Alaska Department of Fish & Game and the National Park Service pursued research and monitoring efforts in 1994 to resolve the status issue. These efforts included population monitoring of trend sites, continuation

of the state-wide survey, the development of survey correction factors for abundance monitoring, satellite tagging, hematological studies, demo-graphic studies, the establishment of observer programs for fisheries that may take harbor seals, the continued subsistence harvest monitoring and tissue sample collection, and by seeking cooperative management agreements with Alaska Natives through Section 119 of the 1994 Amendments to the MMPA.

California Gray Whale

On June 16, 1994, the California gray whale was officially removed from the U.S. List of Endangered and Threatened by the USFWS, following a final determination by NMFS that the eastern Pacific stock is no longer in danger of extinction. While NMFS has authority to list species under the ESA, only USFWS can remove a species from the list.

Under section 4(a) of the ESA, NMFS has the responsibility to monitor the status of the California gray whale for a period of at least 5 years following delisting. The purpose of monitoring populations following delisting is to evaluate the validity of the status determination used in the delisting process and to determine whether the status of the population has deteriorated within a 5-year period subsequent to delisting. If at any time during this period NMFS finds that the species' well-being is at risk, the ESA (section 4(b)(7)) requires NMFS to issue emergency protective regulations to ensure the conservation of the species.

On June 3, 1994, NMFS announced the availablility of its draft "5-Year Plan for Research and Monitoring of the Eastern North Pacific Population of Gray Whales." Two of the recommended research projects have been initiated by NMFS scientists. As a result of a survey during the winter of 1993/94 of the gray whales' southbound migration, NMFS estimates that the California gray whale population has increased to over 23,000 animals. Confirming earlier estimates of gray whale abundance, NMFS scientists presented this information at the International Whaling Commission annual meeting in Puerto Vallarta, Mexico. An estimation of gray whale calf production during the northbound migration was also initiated between March and June of this year by the SWFSC, however analysis of the data from this research has not been completed. A final 5-year monitoring plan is expected to be released in April 1995.

Northern Right Whale

Critical Habitat

Northern right whales, Eubalaena glacialis, are known to use five primary habitats during their annual migration, as described by Kenney, Winn and Macaulay (1994), including the following three areas off the eastern coast of the United States: (1) a winter calving ground in the coastal waters of the southeastern United States (SEUS), (2) a late winter/ spring feeding and nursery area for a small portion of the population in Cape Cod Bay (CCB) and (3) and a spring/early summer feeding and nursery area for a majority of the population in the Great South Channel (GSC). These high-use areas may comprise the minimal space required for normal calving and foraging behavior that will support a viable northern right whale population. On June 3, 1994, NMFS designated these three areas as critical habitat for the northern right whale (59 FR 28793).

Southeast United States (SEUS): Between 1989-1992, 31 calves were observed in the coastal waters off Georgia and northern Florida (the area described as the SEUS), representing 76 percent of the total number of calves (n = 41) reported from

the North Atlantic during that period (Kraus et al., 1993). Based on the number of calves, and females with calves in the SEUS since 1980, Kraus et al. (1993) consider the SEUS as the primary calving area for the population.

The area designated as critical habitat in these waters encompasses coastal waters between 31°15'N. (approximately located at the mouth of the Altamaha River, Georgia) and 30°15'N. (approx-imately Jacksonville, Florida) from the coast out to 15 nautical miles offshore; and the coastal waters between 30°15'N. and 28°00'N. (approximately Sebastian Inlet, Florida) from the coast out to five nautical miles.

Cape Cod Bay: Northern right whales were "rediscovered" in the CCB in the early 1950s. The CCB is a large embayment on the U.S. Atlantic Ocean off of the State of Massachusetts that is bounded on three sides by Cape Cod and the Massachusetts coastline from Plymouth, Massachusetts, south. To the north, CCB opens to Massachusetts Bay and the Gulf of Maine. Right whales have occurred in Massachusetts waters in most months; however, most sightings occur between February and May, with peak abundance in late March (Marx and Mayo, 1990). These authors suggested that after arrival in CCB when prey is at a maximum (or at least at a consistently acceptable level) the whales employ small-scale foraging movements to select the most dense patches of copepods.

In addition to a foraging area, northern right whales use CCB as a nursery area. Schevill, Watkins and Moore (1986) reported 21 sightings of small calves in 12 or the 26 years of their CCB study, including two calves that may have been born in CCB. Therefore, the CCB may occasionally serve as a calving area, but it more recognized for being an important nursery for calves that enter into the area after being born in, or near, the SEUS.

NMFS is soliciting public comment to assess the need for, as well as the types of conservation measures, that would be effective in mini-mizing human-induced disturbance of and potential interaction with northern right whales. *Photo credit: International Wildlife Coalition.*

Great South Channel: The GSC is a large funnel-shaped bathymetric feature at the southern extreme of the Gulf of Maine between Georges Bank and Cape Cod, Massachusetts, and is one of the most used cetacean habitats off the northeastern United States. It is likely that a significant proportion of the western North Atlantic right whale population uses the GSC as a feeding area each spring, aggregating to exploit exceptionally dense copepod patches. Given that not all of the 300-350 right whales in the northwest Atlantic population are seen each season, it is very likely that most, if not all, of the population in U.S. Atlantic shelf waters use the GSC within any given season, and that over the course of every 2-3 years the entire population in the northwest Atlantic may pass through the GSC.

North Atlantic Right Whale Advance Notice of Proposed Rulemaking

On December 27, 1994, NMFS published an Advance Notice of Proposed Rulemaking (ANPR) in response to a petition requesting the issuance of regulations that would establish specific portection zones around every north Atlantic right whale (and all other whales) (59FR66513). NMFS is

soliciting public comment (60-day comment period) to assist in determining what, if any, conservation measures would be effective in minimizing the human-induced disturbance of and potential interaction with northern right whales.

The ANPR comment period signifies a notable opportunity to introduce ANY ideas, recommendations, and commentary on potentially effective measures to reduce the effects of directed vessel interactions on right whales. NMFS will consider all suggestions and comments when determining what conservation measures, if any at this time, would provide feasible and effective protection to the northern right whale.

Regional Recovery Plan Implementation

Southeastern Implementation Team. In 1993, NMFS convened a meeting in Brunswick, Georgia, to discuss a monitoring program that needed to be in place prior to protect northern right whales from ship strikes leading to mortality and injury on their winter ground, prior to their arrival. During this meeting, the Southeastern U.S. Right Whale Recovery Plan Implementation Team was formed. Members of this team recommended that the following monitoring efforts be considered to protect whales from December through March at the SEUS.

(1) Daily aerial surveys during the right whale calving season;
(2) Monitoring right whale movements, and habitat-use by mothers and calves during the right whale calving season;
(3) Restriction of vessel speeds when right whales are known to be in an area and visibility is limited. The actual speed reduction necessary is defined as then minimum safe speed to insure the safety of the vessel;
(4) Dedicated right whale observers that would accompany pilots on vessels as they enter and leave ports;
(5) An education program of all Federal, state and local parties that might adversely affect the species.

The 1993-1994 season was the first in which both large scale aerial surveys, and the Early Warning System established in 1993 by the Implementation Team, were combined in an effort to reduce collisions between vessels and right whales within the species high-use area off the Georgia-northern Florida coastlines. A report discussed at the spring 1994 meeting of the Southeastern Implementation Team discussed the success of this effort. The report noted that at least six times during the 1993-1994 winter season, vessels were diverted from potential collisions with whales. In addition, the presence of survey aircraft routinely reporting right whale sightings to large vessels, harbor pilots, and Federal and military authorities has raised awareness considerably throughout the region. This increased awareness was complemented by increased educational efforts of the Georgia Department of Natural Resources, the Florida Department of Environmental Protection, and the port authorities of Savannah, Brunswick, Fernandina Beach , Jacksonville and Port Canaveral. Commercial shipping interests have participated in the Early Warning System with great interest to insure that the potential for ship / whale collisions is reduced. The result of these efforts is that no right whale mortalities due to collisions with large vessels were reported from the surveyed area during the 1994 survey period.

However, in February 1994, a right whale calf was injured off the Florida coastline south of the survey area. The calf was originally seen in the survey area, moved south and returned with cut flukes and head scars suggesting that the animal had been entangled in fishing gear and also struck

by a propeller. The animal was last seen in the survey area on February 23 east of Amelia Island, Georgia. Neither animal, mother or calf, was seen in northern waters during the summer 1994.

The results of the near-daily surveys, the once-a-week surveys by Florida Department of Environment Protection, and the opportunistic survey efforts by Georgia Department of Natural Resources indicate that calving takes place throughout the area designated as critical habitat in 1994, and not just in the high-use area in the central part of the survey. The movements of right whales during the survey period (as indicated by survey data) also suggested that some mother / calf pairs moved south of the surveyed habitat and returned north outside of the area surveyed, e.g., outside of the critical habitat.

During 1994, the Southeast Implementation Team developed a quarterly newsletter with the intent of increasing the efficiency and effectiveness of recovery efforts for the northern right whale. The newsletter is edited by members of the team and participation in the newsletter is open to anyone actively involved in right whale conservation efforts including, to this point in time, ship operators, harbor pilots, port authorities, fishermen, educators, scientists, managers, policy makers, non-governmental organizations and other concerned citizens. Relevant information from areas other than the southeastern calving grounds is also included in the newsletter. The first newsletter was published in August 1994.

On November 9, 1994, the Southeastern Implementation Team met in Brunswick, Georgia, to discuss the 1994-1995 season. Topics of discussion included the Early Warning System Surveys, training seminars, the development of recommended standard operating procedures for vessels in the vicinity of right whales, southeastern gillnet fisheries, and minimum approach distances (see the section on ANPR). A seven- man committee was designated to develop recommended standard operating procedures for vessels operating out of ports associated with the right whale calving area.

New England Implementation Team. On January 3, 1994, NMFS received a letter from the Committee on Merchant Marine and Fisheries, House of Representatives, requesting that a right whale recovery plan implementation team be developed in the northeast, comparable to that developed in the southeast. The letter cited the success of the southeast implementation team and requested that a priority of the northeastern team be the development of a monitoring program that monitors the cumulative effects of several dredge-disposal and seer-discharge activities in Massachusetts Bay and Cape Cod Bay.

Recovery Plan implementation for the northern right whale, as well as the humpback whale, has been ongoing at some level within the NMFS, Northeast Region (NER) since 1990, and has involved most of the key agency staff and scientific experts in the area. The most recent Massachusetts Water Resources Authority (MWRA) outfall Biological Opinion (issued September 8, 1993), and associated conservation recommendations, are a small part of the recommendations and programs that have been instituted in the NER that address Recovery Plan tasks from both plans, since 1990. NMFS coordinated a meeting of all interested individuals, and representatives from state and Federal agencies, to discuss agencies' responsi-bilities and the formation of a New England Implementation Team.

The meeting of this group was convened in Boston, Massachusetts on August 19, 1994. Representatives from each of the following agencies, organizations, were recommended as necessary components of a New England Implementation Team: the Massachusetts Water Resources Authority, the New England Fishery

Management Council, the Outfall Monitoring Task Force, the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency, NMFS/Northeast Fisheries Science Center (NEFSC) and Regional Office, Massachusetts Coastal Zone Management Office, the Massachusetts Office of Non-game and Endangered Species, the Center for Coastal Studies, the U.S. Coast Guard, NOAA/Sanctuaries and Reserves Division, Department of Fisheries And Oceans-Canada, the Marine Mammal Commission, MASSPORT, the New England Aquarium, and the University of Rhode Island.

The group determined that an implementation team should not only focus on the northern right whale, but also address issues relative to other protected species including the humpback whale. As a priority, this team will address the possible cumulative impacts to right and humpback whales from all ongoing dredge-disposal and sewer discharge activities in Massachusetts Bay, and the potential effects of commercial fishing on protected whales.

Subgroups were established with the following foci: research needs, reduction of mortality due to shipstrikes and fishing activities, and habitat needs and monitoring. The subgroups were tasked with developing a proposed plan that would address each of these issues prior to the next meeting, to be scheduled in early 1995.

Recovery Plan Research Program

On October 3-7, 1994, the NEFSC convened a workshop to review the right whale research program in the eastern United States. The report of the workshop, *An Independent Scientific Peer Review of North Atlantic Right Whale Research Supported by the Northeast Fisheries Science Center* (NEFSC Reference Document 95-01), reviews existing research, considers proposed research, and includes a prioritized listing of recommended research directions for the future.

The Scientific Panel noted that recent observations included: (1) a drop in calf counts; (2) a possible increase in the average calving interval; (3) longer calving intervals on average than for southern hemisphere right whales; and (4) an appreciable proportion of apparently non-reproducing mature females. Anthropogenic influences, particularly ship strikes, constitute a major problem of total mortality and have the potential to increase. The significance (if any) of a recent and dramatic shift in summer distribution is unclear. All these factors make the northern right whale one of the most endangered of all populations of large whales. The Panel recommended a continuation and intensification of existing research, including the following elements: estimates of abundance, determining population status, long-term monitoring of population trends, and effects to reduce ship strikes and net entanglement. For each of these topics, the Panel provided details and recommendations.

Gulf of Maine Harbor Porpoise

NMFS proposed to designate the GME population of harbor porpoise as threatened under the ESA on January 7, 1993. This proposed ESA listing was, largely, based on the level of bycatch in the demersal gillnet fishery, and the lack of a regulatory mechanism to reduce this mortality in the commercial fishery, and a "species" determination for the GME harbor porpoise under the ESA.

Due to numerous requests for public hearings, NMFS extended the comment period on this issue until August 7, 1994, to allow for a series of public hearings at several locations in Massachusetts, New Hampshire and Maine, and allow individuals to comment on the materials discussed at these hearings. Requests for public hearings were

received from the following organizations: the New Hampshire Commercial Fishermens Association, Rye, New Hampshire; the Maine Gillnetters Association, Stonington, Maine; the International Wildlife Coalition, North Falmouth, Massachusetts; and the New England Fishery Management Council (NEFMC), Saugus, Massachusetts.

On February 23-25, 1994, NMFS conducted a second workshop to review the status of harbor porpoise in the eastern U.S. and Canada. During this workshop a potential bias in the estimation of harbor porpoise bycatch was discussed. It was noted that porpoises tend to fall out of the nets when they are being hauled back to the vessel, and hence are not brought on board. It was also discussed that observers tend to alternate responsibilities between hauls, from examining the net solely for porpoise to collecting samples on the finfish species. This raised the possibility that observers might not be seeing all by-caught porpoises, especially during those hauls when they are collecting other data, such as length composition of fish. As a result, these porpoises may not have been considered in determining the estimate of total bycatch. Such hauls are referred to as "offwatches", and the term "offwatch effect" describes the negative bias that results in the estimates of total bycatch. In response to concerns raised at the 1994 workshop, bycatch data for the years 1990-92 were reanalyzed for the offwatch effect and the previously published bycatch estimates for 1990-92 were adjusted accordingly. The 1990-92 bycatch estimates (and 95 percent CI's), rounded to the nearest 100 animals after the 1990-92 data were re-estimated to take into account the offwatch effect, were 21 percent, 18 percent and 33 percent higher than the previously published estimates for the years 1990, 1991, and 1992, respectively (NMFS 1994). The 1993 bycatch estimate, estimated taking into account the fallout effect, was not statistically different from the comparable estimate for 1992.

The November 8, 1993, notice that extended the period of final determination on the proposed rule (58 FR 59230) also stated that, as data became available and following completion of the 1993 bycatch analyses, NMFS would reopen the comment period to allow for public comment of these data. A summary of the 1990-93 bycatch estimates was made available in a letter on June 15, 1994. Also as stated in the November 1993, Federal Register notice, and with the concurrence of the petitioners, NMFS reopened a comment period on the proposed rule on July 15, 1994 (at 59 FR 36158, July 15, 1994) to allow for public review and comment on the 1993 bycatch estimates, as well as on the 1990-92 estimates that were adjusted following comments received at a February 1994 workshop on the status of harbor porpoise in the GME.

Near the end of this comment period, NMFS received a request for additional time for comment on the revised bycatch estimates. The New England Harbor Porpoise Working Group (HPWG) met on July 21, 1994, along with staff from the NEFSC to discuss these data. The HPWG membership consists of gillnet fishermen throughout New England coastal states, NMFS and NEFMC representatives, environmental organizations, and several biologists from nongovernmental organizations who have studied the biology and fishery-interaction issues of harbor porpoise throughout the GME since 1990. During the meeting of the HPWG, they recommended that the revised bycatch estimates should be more fully explained so that public review and comment could provide more meaningful input to NMFS prior to the final determination.

In response to the HPWG's recommendation the NEFSC prepared a document (NMFS / NEFSC, 94-24) which addressed their concerns and which became available in early August 1994. The HPWG further stated that if the public process was

to be effective, more time would be needed for fishermen and other interested parties to consider the forthcoming information. Given that the comment period on the proposed rule was scheduled to close on August 11, 1994, and that this would not have allowed enough time to allow for public review of the document being prepared by the NEFSC, NMFS extended the comment period until September 11, 1994. NMFS further stated that this would be the final comment period on the proposed rule to list GME porpoise under the ESA.

Harbor Porpoise Bycatch Estimates

GME Bycatch Estimates for 1990-93 Revised to Account for Fallout. A potential bias in the 1990-92 estimates of total porpoise bycatch in the GME was suggested and discussed at a February 1994 workshop conducted by NMFS. In that workshop it was noted that porpoises tend to fall out of the nets when they are being hauled back to the vessel, and hence are not brought on board. It was also noted that observers tend to alternate responsibilities between hauls, from examining the net solely for porpoise to collecting samples on the finfish species. This raised the possibility that observers might not be seeing all by-caught porpoises, especially during those hauls when they are collecting other data, such as length composition of fish. As a result, these porpoises may not have been considered in determining the estimate of total bycatch. Such hauls are referred to as "offwatches", and the term "offwatch effect" describes the negative bias that results in the estimates of total bycatch. In response to concerns raised at the 1994 workshop, bycatch data for the years 1990-92 were reanalyzed for the offwatch effect and the previously published bycatch estimates for 1990-92 were adjusted accordingly.

The 1990-92 bycatch estimates (and 95 percent CI's), rounded to the nearest 100 animals after the 1990-92 data were re-estimated to take into account the offwatch effect, were 21 percent, 18 percent and 33 percent higher than the previously published estimates for the years 1990, 1991, and 1992, respectively (NMFS 1994). The new estimates of bycatch, consistent with earlier estimates, indicate a decrease in the total number of animals killed between 1991 and 1992 (Smith, Palka, and Bisack, 1993).

The 1993 bycatch estimate was also estimated taking into account the fallout effect. The 1993 bycatch estimate corrected for fallout of 1,400 (CV = 18 percent) is not statistically different from the comparable estimate for 1992 (with a CV of 21 percent).

Bycatch in U.S. Waters Outside the GME and not Accounted for in the GME Estimate. Evidence was presented in 57 FR 1900 (January 16, 1992) and in the proposed rule to list porpoise under the ESA, that porpoise have been taken incidental to coastal gillnet fisheries in southern New England/Mid-Atlantic waters (south of the GME), winter through spring. Further reports from strandings in the mid-Atlantic region (New Jersey south) have indicated that several of the carcasses incurred cuts and body damage indicative of net markings or other fishing mortality. Between 23 February and 15 May, 1993, another 50 porpoise strandings were reported from New York to North Carolina. Many of these strandings were reported from Virginia in April (Table 2 in Haley and Read, 1993). Due to the previous suggestions that fishing mortality may be a factor in the number of strandings, NMFS convened a workshop on porpoise mortalities and human interactions on May 19-20, 1993 (proceedings at Haley and Read, 1993). Five of the specimens examined at this workshop (n = 8 carcasses, and 15 heads) exhibited signs of human

interactions (net markings on skin and missing flipper or fluke). The condition of the remaining porpoises prevented making deter-minations as to the cause of death.

During May 1994, a second necropsy workshop on causes of porpoise mortalities was convened at the Smithsonian Institution. Of the 66 porpoises necropsied at the workshop, 35 were in sufficiently good condition to determine the cause of death. Twenty-one of the 35 had clear indications of human interaction, mostly marks from monofila-ment fishing nets.

The combined information suggests that the GME porpoise population experiences a known, but not yet quantified, fishery(s) related mortality in mid-Atlantic waters of the eastern United States. The fisheries of primary concern consist of a series of coastal gillnet fisheries that begin in early or mid-February, and continue through mid-April or mid-May, and extend from New Jersey to, at least, North Carolina.

Bycatch Outside U.S. Waters and Not Accounted for in the GME Estimate. From July 30 to September 10, 1993, Canada's Department of Fisheries and Oceans (DFO) conducted a volunteer observer program in the BOF to get data on the extent of the porpoise bycatch in their gillnet fisheries. The results of the 1993 observer program was presented at the February, 1994, workshop on the status of porpoise in eastern North America at NEFSC (Palka, 1994). However, at that time, the data had not undergone analytical review by DFO and were considered preliminary. The data have now been reviewed by DFO, and are available now.

Porpoise were captured throughout the duration of the study. All five vessels participating in the Swallow Tail Region captured porpoise. The bycatch rate was greatest in the Swallow Tail Region off northern Grand Manan Island (3.20 porpoise per trip). During the experiment there were 17 porpoise taken in the Grand Manan area. Porpoise were also captured between Campobello Island and the Wolves (0.39 porpoise per trip). In the Campobello and the Wolves Island Region, four of six vessels in the program captured porpoise. Also a high incidence of non-marketable fish (i.e., dogfish) were captured in nets with porpoise (as much as 90 percent of the total catch in Swallow Tail was non-marketable), while nets fishing in areas that had little or no porpoise bycatch, collected primarily marketable fish (less than 15 percent bycatch).

There were no porpoise captured at more offshore sites, i.e., in Grand Manan Basin and at the Northeast Bank. The estimated bycatch during the study period was 424 porpoise; most (381) in the northeastern side of Grand Manan Island (the Swallowtail Region).

The bycatch rate for Grand Manan during this study of 3.20 porpoise per trip per day was largely influenced by one day in which 10 porpoise were captured in one net. Excluding this large catch from the totals reduces the total bycatch estimate to 222 for the study period. A similar value for Campobello area was 0.39 porpoise per day.

During 1994, there were two observer programs going on in the BOF. Both of them were in operation from around July 15 through September 15, 1994. About one-half of the BOF gillnetters took part in an experiment conducted by Memorial University, St. Johns, Newfoundland. Gillnetters in this study have their gear equipped with acoustic deterrent devices ("pingers"). There were 500 pingers in total deployed throughout the experiment. Ten observers were placed on vessels whose nets were equipped with the pingers (approximately 50 percent effort coverage throughout this experiment). The remaining BOF fishermen (about 20) did not have gear that was equipped with pingers. The DFO placed five

observers on these vessels (about 25 percent coverage). Considering both studies, there was approximately 20-30 percent observer coverage in the BOF gillnet fishery during 1994. Results of these studies were not available at the end of 1994.

Estimates of Porpoise Abundance Relative to Bycatch in the GME. Preliminary estimates from the July and August 1991, NMFS sighting surveys in the offshore waters of the GME/lower BOF/southern Scotian Shelf (Palka, 1992) and GME inshore waters (Read and Kraus, 1992) were presented by Smith et al., (1991). A second porpoise sighting survey was conducted between July 29 and September 6, 1992 (Smith, Palka and Bisack, 1993). Field procedures were similar to those reported in Palka (1992) for the 1991 survey. The 1992 abundance estimate was not significantly different than the 1991 estimate, but was substantially greater (approximately 67,500, 95 percent CI 32,900 to 104,600).

Smith, Palka, and Bisack (1993) suggested that if estimates of abundance were not significantly different, the average of available estimates of summer abundance would provide an appropriate basis for management. Since the estimates of abundance for each of the 1992 and 1991 surveys were not significantly different from each other, the results of the two surveys were combined by averaging the best estimates, weighted inversely by their estimated variances (Smith, Palka, and Bisack, 1993). The weighted average of the 1991 and 1992 estimates of abundance was 47,200 (CV = 19 percent, 95 percent CI 39,500 to 70,600) (Smith, Palka, and Bisack, 1993). The equation for determining the bootstrapped 95 percent CI for the combined estimate is provided in Smith, Palka, and Bisack (1993).

Smith, Palka, and Bisack (1993) calculated the ratios of the annual bycatch estimates (K) to the 1991-92 weighted average population abundance estimate (N). As a result of the discussions at the 1994 workshop, NMFS believed that these estimated bycatch/ abundance ratios are likely downwardly biased due to "fallout effect" and needed to be recalculated to account for the known bias. These ratios were corrected, taking into account the increased bycatch due to the "fallout" effect, and presented in Table 1.

These ratios include only incidental bycatch from the GME gillnet fishery, and do not include known bycatch that occurs in U.S. waters below the GME (during the winter-spring) by other gillnet fisheries, and in the BOF. If we include the estimated bycatch from the BOF in 1993 (423 individuals) with the estimate of bycatch from the GME in 1992, then the estimated K/N ratio of bycatch to abundance increases from 2.5 to 3.4 percent. A similar value for 1993 (after combining a GME bycatch estimate of 1,400 with the best estimate from the BOF) resulted in a K/N ratio of approximately 3.9 percent. If in 1990 and 1991, bycatches in the BOF were equal to that estimated for 1993, then the K/N ratios for these years would be 7.0 (1990) and 5.1 (1991). Therefore, the minimum bycatch estimate of the GME population (combined United States and Canada, but excluding the mid-Atlantic states for which there is not a good estimate of bycatch at this time) likely ranges from 3.4 to 7.0 percent of the best, available estimate of population abundance.

Harbor Porpoise Bycatch Reduction Measures

New England Fishery Management Council Bycatch Reduction Plan for the Gulf of Maine. One of strongest recommendations from the May 1992 harbor porpoise assessment workshop was that the present level of bycatch of porpoise in the GME sink-gillnet fishery needs to be reduced. The workshop results determined that the bycatch levels may "have a significant adverse impact over a period of time longer than one year." Therefore, independent of

the ESA, NMFS, under section 114(g)(3) of the MMPA, proceeded to address the bycatch problem. Pursuant to the MMPA, NMFS requested, in a letter dated October 15, 1992, that the New England Fishery Management Council (NEFMC) introduce measures in Amendment 5 to the Northeast Multi-species Fishery Management Plan (FMP), or through development of an alternative bycatch reduction plan, that will reduce harbor porpoise mortality to acceptable levels. The NEFMC agreed to work on a management strategy to reduce porpoise mortality by integrating a plan with fishery management measures. The NEFMC adopted an amendment objective to reduce the annual take of porpoise in the GME sink gillnet fishery by the end of year four of plan implementation to a level not to exceed 2 percent of the population based on the best available estimates of abundance and bycatch. This simple 2 percent goal for the GME sink gillnet fishery, however, did not take into account the bycatch in the mid-Atlantic and the BOF.

The NEFMC developed a measure through Amendment 5 of the FMP to remove all gillnets out of GME water for specified 4-day blocks of time (59 FR 9872, March 1, 1994). During the first year of implementation, gear would have been removed for pre-specified four-day blocks of time each month.

During the second year, gear would be removed for two blocks each month (or one 8-day block). The third year was scheduled as a "pause" year with no additional blocks taken out. During both the fourth and fifth years, an additional block was to be taken out resulting in a total of 16 days taken out of each month (192 days per year, or 53 percent). Gillnet fishermen expressed their concern over this default protection measure.

Time-Area Closures. Because of the imprecise nature of the blocks of time, the NEFMC began developing a time/area closure management plan based on the location and analyses of the porpoise bycatch data (i.e. location of takes in the gillnet fishery from the SSP program, the distribution of porpoise by location and season, and the extent of the gillnet fishery by location and season (data from the NMFS weighout database)). Results of these analyses were first brought before the NEFMC on September 14, 1993. In determining these areas, the NEFMC also took into account information and comments received at six NEFMC, Marine Mammal Subcommittee meetings held between August 1993 and March 1994; NEFMC meetings held on February 17, 1994, March 17, 1994, and April 6, 1994, and two public hearings on March 9, 1994 (in Portsmouth, NH), and on March 10, 1994 (in Ellsworth, ME). Additionally, discussions among the NEFMC, the fishing industry and NMFS biologists led to the development of the time-area closures.

For purposes of the plan, the GME was divided into three areas: the Northeast (from Penobscot Bay to Eastport, ME); Mid-coast (from Cape Ann to Penobscot Bay); and Massachusetts Bay (from Cape Cod to Cape Ann)(Final Framework Adjustment 4 to the Northeast Multispecies Fishery Management Plan, hereafter referred to as NEFMC, 1994). The NEFMC recommended 30-day closures for each of the areas that corresponded to periods when porpoise bycatch was most likely to occur. The duration (30-days) took into account the variability of porpoise movements. The NEFMC recognized that the Mid-coast and Northeast Areas account for much more of the bycatch than Massachusetts Bay. However, a 30-day closure for all areas, distributed the porpoise bycatch reduction plan equally across regions where takes are known to occur.

The NEFMC approved the time/area closures for the Northeast and Mid-coast areas on March 17, 1994. On April 6, 1994, the NEFMC adopted boundaries and a 30-day closure period for the

Massachusetts Bay area. For more specific information on the closure dates and boundaries for each of these areas, (see NEFMC, 1994, approved by NMFS, May 20, 1994).

The NEFMC program calls for a 20-percent reduction in the porpoise bycatch within the GME in Year 1 of plan implementation. To ensure continued efforts to reduce the bycatch, a Porpoise Review Team will meet each year to evaluate the effectiveness of the mitigation measures and, if necessary, recommend changes annually based on the goals outlined in the Final Framework Adjustment 4 document (NEFMC, 1994). In addition to the 20 percent target in Year 1 of the Plan, further management measures would be implemented to achieve a 60 percent reduction in the bycatch from current levels over a 3-year period. The NEFMC recommended a target of an additional 20 percent for both Year 2 and Year 3 of the plan. For example, 20 percent of 1,875 (the average annual bycatch estimate in the GME during 1990-93) is 375 animals. If this level of reduction is achieved and the Year 1 target is met, not more than 1,500 animals will be caught. Year 2 would require an additional 20 percent reduction (i.e. the bycatch in Year 2 should not exceed 1,125 animals, in Year 3 the bycatch should not exceed 750 animals). If the 20 percent target is missed in any of the first three years, the program will shift that portion of the reduction not met to the target for the next year (NEFMC, 1994).

Table 1. Estimates of the ratio K/N (estimated bycatch to abundance for 1990, 1991 and 1992) using the annual estimates of harbor porpoise bycatch corrected for the fallout and the 1991/1992 weighted average abundance estimate. Also shown are the lower and upper 95 percent confidence limits (LCL and UCL).

YEAR	K/N	CV(%)	LCL	UCL
1990	6.1	37.2	3.0	12.4
1991	4.2	39.8	2.0	9.0
1992	2.5	28.3	1.5	4.4
1993	3.0	26.2	1.8	4.9

Mitigation Measures Taken by Canada to Reduce Harbor Porpoise Bycatch in the Bay of Fundy. The Amendment 5 restrictions do not address bycatch in the BOF. The following is a narrative of the efforts being made by NMFS and Canada's Department of Fisheries and Oceans to reduce porpoise bycatch in Canada fisheries.

On April 5, 1994, NMFS forwarded a letter to DFO proposing that they and DFO cooperatively develop a bycatch reduction program that considers the bycatch in the BOF, as well as in the GME, that

was comparable to that being developed by the NEFMC.

Similarly, on April 19, 1994, the NEFMC forwarded a letter to the Regional Director, DFO, voicing the concerns of many GME fishermen that unrestricted or high takes of porpoise by Canadian gillnetters might negate the efforts that the GME gillnetters are being required to take to protect porpoises in the GME. The NEFMC urged DFO to take appropriate actions to minimize gillnet mortality for these marine mammals.

On June 8, 1994, DFO replied to NMFS and suggested that the two agencies meet to review the work underway in Canada and the United States, and to coordinate plans on further measures to conserve porpoises in the GME/BOF. A meeting was convened in Boston, MA August 9, 1994, between NMFS, DFO, and the NEFMC to discuss a strategy whereby both countries would work toward the common objective of reducing the bycatch of porpoise in the GME/BOF gillnet fisheries.

It was agreed at the August 9 meeting that both United States and Canada need to work towards reducing bycatch by a comparable amount or percentage. It was also agreed that the United States should continue to work through NEFMC to reduce bycatch, and that DFO-Canada should take actions through their own management entities.

DFO suggested a number of management measures that could be taken in the BOF to reduce their incidental take of porpoises in gillnets. These include a reduction of fishery effort, closed times and areas, limiting the "soak" time, restricting fishing to night time when porpoises may be less active and restricting the depths at which nearshore gillnets may be set. All of these measures are dependent on scientific and research data being available to support any initiative to limit or restrict fishing effort that would mitigate the incidental take of porpoise. In an effort to establish a scientific database from which to develop management strategies, an observer program was initiated in 1993 and expanded in 1994 which is the basis for the development of management options for mitigating the incidental catching of porpoise in the lower BOF.

On October 7, 1994, NMFS received a Harbour Porpoise Conservation Plan (HPCP) for the BOF, drafted by DFO, for comment. The plan was developed to mitigate the incidental capture of this species and based on the discussions at the August 9 meeting. Goals identified in the plan included a biological goal whereby the population is at a level necessary to sustain the population, and a numerical goal which will determine the "safe" removal level, and which will not result in conflict with a biological goal. NMFS reviewed this Conservation Plan and returned comments to the DFO. There has been no further action as of the time of this determination. It is the objective of DFO and NMFS to have this plan implemented prior to the 1995 gillnet season in the BOF.

Harbor porpoises have also been trapped each summer in herring weirs in the western BOF and along the southwestern Nova Scotia (Smith, Read, and Gaskin, 1983). The DFO also stated at the August 9 meeting that they are testing a grate that is placed over the entrance to the weir in order to stop anything larger than herring (i.e., marine mammals, basking sharks, etc.) from entering through the entrance of the weir.

Protective Measures Being Taken to Reduce the Mortality of Harbor Porpoise in U.S. Commercial Fisheries outside the Gulf of Maine. Amendment 5 restrictions do not address bycatch in fisheries outside the jurisdiction of the NEFMC. The following is a summary of the discussion that has been taking place between NMFS and other agencies to reduce porpoise bycatch in fisheries that occur outside the GME.

The Atlantic States Marine Fisheries Commission (ASMFC) is developing standards and procedures to govern the preparation of coastal fishery management plans (FMP's) under the Atlantic States Fisheries Cooperative Management Act (ASFCMA). The standards to be used for the development of state FMP's were reviewed during the ASMFC's meeting in Washington, D.C., May 16-18, 1994. The standards will ensure that the plans are based on the best scientific information, promote the conservation of fish stocks, and provide adequate opportunity for public participation in the review process for each management plan.

The MMPA requires NMFS to develop take reduction plans for any "strategic" stock or species of marine mammal that interacts with a commercial fishery. The MMPA further authorizes NMFS to develop take reduction teams whose members include, among others, a representative from each coastal state which has fisheries which interact with the species or stock.

On September 18, 1994, NMFS met with the Management and Science Committee, ASMFC, to discuss the following recommendations for a state-Federal partnership, and further requested that the Committee take these recommendations to the ASMFC commissioners for their consideration: (1) State FMP's should include a standard that conservation programs and management measures should protect, to the maximum extent possible, those species protected under state and Federal legislation (all species, including harbor porpoise; (2) the ASFMC establish a committee that would review existing and future FMP's and make management recommendations relative to protected species issues; (3) NMFS would provide necessary funding to ASFMC for a staff position to work with the states on FMP's and protected species issues; and (4) since bycatch is known to exist at certain times and places, but the level is not yet determined, NMFS would also help the states develop pilot observer programs in several state fisheries to determine the extent of the perceived bycatch problem.

It is not known to what extent the percentage of the total harbor porpoise bycatch is represented by the stranding data. Therefore, it was recognized that better information on bycatch rates (similar to that being collected in the GME under the Sea Sampling Program) needs to be collected in the mid-Atlantic gillnet fisheries to identify more precisely when and where gillnet fisheries are operating, and to what extent porpoises are being incidentally taken in the mid-Atlantic area.

It was also recognized that not all state fisheries interact with GME porpoise. However, it is known that all of the coastal Atlantic states have either marine mammals, turtles, or shortnose sturgeon present, at least seasonally, and that these species interact with one or more fisheries in most of the states represented in the ASMFC. It was apparent to all the participants that protected species considerations (i.e., fisheries related mortality through bycatch, including GME porpoise) will become increasingly significant to fishery management decisions at the state level. Therefore, the committee recommended that a Protected Species Subcommittee be formed and that this sub-committee work with NMFS to convene a 2-day workshop on protected species conservation and management issues in state waters. On December 12, 1994, NMFS met with the Protected Species Subcommittee to discuss the

agenda and timing of a workshop on protected species interactions in state waters. The workshop agenda was established and the meeting will be convened in July 1995.

Acoustic Deterrent Devices. Several studies were conducted in 1992 and 1993 to test the effectiveness of acoustic devices (pingers) to reduce the rate of incidental take of porpoise in gillnet fisheries. Given the urgency of these studies, the New England HPWG requested that NMFS undertake an independent peer review of these experiments, and determine if there was sufficient evidence to warrant additional research on the use of acoustic alarms to reduce porpoise mortality in the sink gillnet fishery. As a result, NMFS convened a scientific review panel (Panel) on June 9-10, 1994, to review the results of these experiments, to assess whether or not there was an indication that the use of these acoustic devices reduced porpoise entanglement rate and to recommend, as appropriate, future research to address this issue.

The Panel was provided with copies of a draft report describing the results of acoustic alarm experiments in 1992 and 1993. The Panel concluded that testing the uses of acoustic alarms to reduce porpoise bycatch in this fishery has been of limited value due to low statistical power, largely due to problems with experimental design, design implementation, and the small numbers of porpoise entanglements in the experiments. The 1992 and 1993 experiments were limited by a number of problemsthat made it impossible to evaluate the effectiveness of the acoustic alarms tested to reduce harbor porpoise bycatch. The bycatch events during theexperiment were so rare that a substantially larger sampling of more events would be needed to undertake a statistically reliable analysis. Furthermore, the 1993 experiment mixed "alarmed" nets and "unalarmed" nets on the same strings. Because it cannot be assumed that the nets within a string are independent, it was not possible to determine the effect of the alarms. In this regard, the Panel generally favored the 1992 approach of placing alarms along an entire string, and comparing this with control strings with no alarms on any of their nets.

While the use of acoustic alarms by themselves may or may not be the single solution to the bycatch problem, the Panel believed that there may some potential for acoustic devices to contribute to bycatch reduction. The Panel recommended that the future studies of the effects of acoustic alarms to reduce porpoise bycatch should be undertaken in closed areas where high porpoise takes occur and confounding factors could be controlled. This would maximize the likelihood of encounters and thus provide a sufficient sample size to support a meaningful statistical analysis. To that end, the Panel thought that the use of existing closed fishing areas (where sink gillnets are prohibited for designated time periods) should be considered. Because these areas were delineated by NMFS as areas of highest observed porpoise bycatch rates, they should allow the greatest sampling opportunity with which to test the effectiveness of acoustic devices. They did state that these areas should be opened selectively and exclusively to vessels agreeing to adhere to a controlled and standardized experimental design, and to carry an observer-technician to document the fishing efforts and to report the catch.

As a result of Panel recommendations, NMFS approved a one-time, large-scale pinger experiment in the GME from mid-October through mid-December 1994 in the Mid-coast area. The experiment has been designed to determine the effectiveness of these "pingers" at reducing bycatch in the U.S. fishery. The survey design incorporated recommendations from the Panel and results of the

study will be available early 1995. The results of the summer 1994 studies in the BOF and this fall 1994 study in the GME should determine whether pingers are an effective alternative to time/area closures as a method of reducing porpoise mortality in gillnets.

Harbor Porpoise Bycatch Reduction and the Potential Biological Removal. Pursuant to section 117 of the MMPA, NMFS was required to complete a draft stock assessment report on the status of GME harbor porpoise. The stock assessment must include a calculation of PBR, and an assessment of the significance of incidental fishery takes.

Section 118(f) of the MMPA authorized NMFS to develop take reduction plans designed to assist in the recovery or prevent the depletion of each strategic stock which interacts with a commercial fishery. The immediate goal of a take reduction plan for a strategic stock is the reduction of incidental mortality or serious injury of marine mammals incidentally taken in the course of commercial fishing operations to levels less than the PBR level established for that stock under section 117.

A PBR workshop was convened by NMFS and the USFWS on June 27-29, 1994. The term PBR was defined as "the maximum number of animals, not including natural mortalities, that may be removed from a marine mammal stock as a result of fishing mortality or other human-caused mortality while allowing that stock to reach or maintain its optimum sustainable population." PBRs were calculated as the product of the minimum population estimate (N_{MIN}), half the maximum net productivity rate ($0.5\ R_{MAX}$) and a recovery factor (F_R). Based on an (N_{MIN}) of 39,670 (based on the lower 95 percent CI on the 1991 and 1992 average estimate) and a CV = 0.188, ($0.5\ R_{MAX}$) = (0.02), and a default recovery factor (F_R) = (0.50), the estimated PBR for the GME harbor porpoise is 397 animals.

During 1994, measures were initiated in the Gulf of Maine gillnet fishery to reduce the incidental bycatch of harbor porpoise. *Photo credit: International Wildlife Coalition.*

Finally, section 120(j)(2) of the MMPA states that in developing a take reduction plan for Gulf of Maine harbor porpoise, the Secretary must consider all actions already taken to reduce incidental mortality and serious injury of such stock, and may, based on the recommendations of

the take reduction team for such stock, modify the time period required for compliance with section 118(f)(5)(A), but in no case may such modification extend the date of compliance beyond April 1, 1997. Therefore, based on the best calculable abundance estimate, the bycatch of porpoise in U.S. fisheries (GME and mid-Atlantic) has to be reduced to 397 animals, or approximately 22 percent of the estimated bycatch in 1993 (1,823 animals), by April 1, 1997.

Northern Fur Seals

Research Activities Conducted on Northern Fur Seals during the 1994 Summer-Fall Field Season

During the 1994 summer breeding season, counts of northern fur seal males and studies designed to estimate fur seal pup production were conducted to assess trends ---in population growth on the Pribilof Islands. Assessment of fur seal population growth on San Miguel Island was obtained from counts of adults and pups. Mortality studies of adults and pups were conducted on the Pribilof Islands to assess trends and causes of fur seal mortality. Summer studies of fur seals on the Pribilof Islands also included the collection of fecal samples for evaluation of prey selection, and assessment of pup condition through measurements of weight and length.

During the fall of 1994 fur seal researchers conducted an interdisciplinary study with other NOAA scientists to assess primary productivity in the region of frontal zones around the Pribilof Islands and its relationship to the distribution of juvenile walleye pollock and their predators. Fall studies also included the collection of fecal samples to evaluate prey selection and mortality studies of adults and pups.

Cooperative studies with other institutions during the 1994 field season

The subsistence harvest of juvenile males was monitored to assess the age structure and health of the fur seal population. Teeth were collected for determination of age, and serum and tissue samples were obtained for epidemiology and toxicology (NMML, Colorado State University and the Environmental Protection Agency).

Foraging studies of female northern fur seal females were conducted to assess movement patterns at sea and diving behavior with the use of satellite transmitters and time depth recorders (National Research Institute of Far Seas Fisheries, Japan and NMML).

Behavioral studies of northern fur seal communication were conducted to evaluate the importance of vocal cues between postpaturient females and their offspring (University of California at Davis and NMML).

Reproductive and paternity studies based on genetic analysis of DNA were conducted to evaluate the importance of peripheral males in the fur seal social structure (National Research Institute of Far Seas Fisheries, Japan and NMML). The number of peripheral males on the rookeries has increased dramatically since the cessation of the commercial harvest after 1984.

Studies of postparturient northern fur seal females were conducted to evaluate the relationship between variability in foraging behavior and the quality of milk provided to their offspring (University of California at Santa Cruz and NMML).

Steller Sea Lion

Status Review

On November 1, 1993, NMFS initiated a formal review of available information on the Steller sea lion population to determine if its ESA listing status as a "threatened" species should be changed. In the Federal Register notice, NMFS indicated that a status determination would not be made until the 1994 sea lion population surveys were complete. Survey data are now available and indicate a continuing population decline in much of Alaska.

To complete the status review, NMFS Alaska Fisheries Science Center summarized available information on the Steller sea lion population in a status review document, and prepared a revised population viability analysis that incorporated the 1994 data. NMFS intends to issue a proposed status determination for Steller sea lions in 1995. The proposed determination will summarize the sup-porting biological information, proposed decisions relative to research and management programs, and respond to public comments received during the comment period on the November 1, 1993 notice. NMFS also plans to seek an independent peer review of questions regarding stock definition, population models, and supporting biological and ecological information for the listing status determination.

Protective Regulations

No changes in Steller sea lion protective regulations have been made since 1992. Protective regulations include: (1) a prohibition on shooting at or near Steller sea lions; (2) a 3 nm no-entry buffer zones around rookeries west of the Kenai Peninsula and no on-land approach within 1.5 miles or in sight of these same rookeries; (3) a 10 nm year round no-groundfish-trawl zones around these same rookeries; (4) a 20 nm seasonal buffers around 6 of these rookeries during the Bering Sea and Aleutian Island winter pollock fishery; (5) spatial and temporal allocations of pollock harvest in the Gulf of Alaska; and (6) a reduction in the amount of incidental take allowable in commercial fisheries. NMFS research and management staff is reviewing Steller sea lion management regulations, with an aim of revising fishery and other protective regulations as needed. If necessary, formal reconsideration of the management program, in consultation with states and affected parties, will follow completion of the status review.

Steller Sea Lion Recovery Team Meeting

NMFS convened the Steller sea lion Recovery Team on November 29-30, 1994 to consider the sea lion population's listing status under the ESA, and to evaluate the direction and adequacy of research and management programs being conducted under the Steller Sea Lion Recovery Plan. Probably the most significant item discussed at the meeting was the current listing status of sea lions under provisions of the ESA. The Team discussed ESA listings of Steller sea lions after hearing results from the extensive population monitoring and biological studies that have been conducted by the NMFS and the Alaska Department of Fish and Game during 1989-1994. Recommendations for listing changes were made by comparing available data on population status with the criteria proposed by the Team in the recovery plan, as with criteria for listing categories used by the International Union for the Conservation of Nature (IUCN). A summary of the Recovery Team meeting and agenda items follows:

(A) Review of research and management actions under the Recovery Plan

1. **Identify habitat requirements and protect areas of special biological significance**

(i) Rookery/haulout mapping: Using GIS software, ADFG and NMFS have mapped known Steller sea lion rookery and major haulout sites in Alaska. Other relevant data, e.g., buffer zones, count data, will also be catalogued on this data management system, which will aid research and management analysis and presentation of Steller sea lion related data.

(ii) Seasonal habitat use patterns: In 1993, NMFS and ADFG flew aerial surveys of Alaska rookeries and haulouts in March to investigate winter on-land distribution of sea lions. The survey indicates that terrestrial habitat use during the non-breeding season differs from the breeding season. Forty-one percent fewer animals were observed on land in March 1993 than in June 1992. The number and percentage of observed animals on haulout sites were greater in March than June, whereas rookery numbers were lower in March. Not surprisingly, some rookeries were vacant in March. Larger proportions of all animals counted were observed in Southeast Alaska, the eastern/western Gulf of Alaska, and central Aleutian Islands in March than in June, whereas the proportions decreased in the central Gulf of Alaska and eastern/western Aleutian Islands. These results have implications for both future research investigations and management protective actions, but additional surveys are needed to obtain a more complete picture of seasonal terrestrial habitat, particularly annual variation. A statewide aerial survey was conducted in December 1994; results of that survey are currently being evaluated.

(iii) Evaluate feeding areas: A brief overview of NMFS fishery assessments was given. In the Gulf of Alaska, NMFS conducts triennial summer bottom trawl surveys and annual winter mid-water hydroacoustic surveys in the Shelikof Strait area. On the eastern Bering Sea shelf, NMFS conducts annual summer bottom trawl surveys and annual winter hydroacoustic mid-water surveys on a portion of the southeastern Bering Sea shelf. In the Aleutian Islands, NMFS conducts triennial summer bottom trawl surveys. NMFS, in conjunction with University of Alaska, have also conducted prey surveys, both mid-water hydroacoustic and bottom trawls, around Steller sea lion rookeries in the eastern Aleutian Islands, Shumagin Islands, and North Kodiak area, in conjunction with June/July pup counts.

2. **Identify management stocks**

Using the phylogeographic method, NMFS has been able to delineate two discrete populations of Steller sea lions within their geographic range. Mitochondrial DNA analyses conducted on samples taken from newborn pups on rookeries from Oregon, Alaska, and Russia defined 52 haplotypes, which could be further grouped into 8 maternal lineages. Cluster analysis indicates that these lineages can be divided into two genetically differentiated stocks, an eastern and western stock with a separation at about Prince William Sound. Other supporting evidence for discrete stocks includes different population trends, rookery site fidelity of tagged/branded animals, and possible phenotypic differences, e.g., pup size, skull size. These results were presented at the September 1994 Workshop on the Use of Genetics Data to Diagnose Management Units, and the conclusion of two stocks was endorsed by the workshop attendees.

NMFS plans to continue genetics studies and will focus on nuclear markers in the future. Skull measurements will be completed and analyzed, as well. NMFS would like to determine if there are more than two stocks, as well as discern relationships among rookeries.

3. **Monitor status and trends**

(i) Develop statistically valid survey procedures: NMFS has reviewed aerial survey procedures (via internal NMFS meetings, a

workshop of NMFS and outside experts, and by conducting replicate surveys in June 1992 (all Alaska), June 1994 (Aleutian Islands) and March 1993) and has concluded that no change in current methods is needed. Overall, the coefficient of variation (CV) for all sites during summer surveys was <3 percent. Variability observed at individual sites was somewhat higher. As expected, variability was higher at haulout sites than at rookeries, and site variability was higher in March than June.

As noted previously, NMFS/ADFG did not conduct aerial population surveys in 1993. The current thinking among researchers is that annual surveys are not necessary to discern population trends, and research dollars may be better spent on other investigations. The Recovery Team was asked to reconsider the monitoring program currently identified in the Recovery Plan. A subcommittee of three will reevaluate sampling protocol and report to the Team.

NMFS and ADFG have also reviewed pup counting procedures. Typically, three independent counters count each rookery site and the mean of the counts is used. On average, the count CV has been <1 percent. No change in pup counting methods is necessary. However, pup counts show similar trends to aerial surveys, are costly in terms of time and costs, and cause some disruption on the rookeries. It may be appropriate to consider alternative monitoring schedules for pup counts, as well as other potential indices for pup production.

(ii) Conduct surveys Alaska-wide every year: Alaska wide adult/juvenile aerial surveys were conducted in 1992 and 1994. Following the schedule in the Recovery Plan, pup counts have been conducted yearly at selected rookery sites, and in 1994, counts were made at most Alaska rookeries (a few sites were missed, including all of the western Aleutian Islands).

Adults/juveniles: Between 1992 and 1994, declines were observed in overall (haulout and rookery) trend site numbers in all Alaska areas and regions, except Southeast Alaska and the western Gulf of Alaska. In the Kenai to Kiska area, overall trend site sea lion numbers declined by 9.6 percent (from 20,679 to 18,702) during 1992-94 (-4.9 percent/year). This is a continuation of the decline rate observed during 1989-92. Declines were observed in rookery numbers in all Alaskan regions and areas except Southeast Alaska. Rookery numbers in the Kenai to Kiska area declined by 12.6 percent (from 16,589 to 14,500) during 1992-94 (-6.5 percent/year) This decline was greater than observed during the 1989-92 (-4 percent/year).

Pups: Pup numbers decreased in all regions from 1991/92 to 1993/94. Pup numbers from the central Gulf of Alaska to eastern Aleutian Islands decreased 19.5 percent from 1991/92 to 1993/94. These declines reverse apparent stability in pup numbers observed in 4 regions (SE AK, EGOA, WGOA, and EAI) from 1989/90 to 1991/92. Since the last range-wide survey (1989/90), there has been a 29.2 percent decline in Kenai to Kiska pup numbers.

(iii) Conduct surveys in California and Oregon: Parts of California and all Oregon sites have been surveyed annually since 1990. In Oregon and most of California, sea lion adult/juvenile and pup numbers appear stable.

(iv) Conduct a range-wide survey every 5 years: For the U.S., the estimated number of adult/juvenile Steller sea lions declined from 69,100 in 1989 to 52,200 in 1994. Complete surveys in Russia were not accomplished in 1994, and counts are not available. Discussions between U.S. and Russian researchers indicate that Kuril Islands' sea lion numbers may be unchanged since 1989, whereas Kamchatka and the Commander Islands appear down since 1990.

In British Columbia, 1994 Steller sea lion counts showed an increase over the 1992 survey (9,277 vs. 8,844). Overall, sea lion counts in British Columbia have shown an increasing trend since the 1970s. An aerial survey of Forrester Island was conducted on June 30 by Canadian researchers to investigate the feasibility/accuracy of aerial pup counts at this site. Aerial pup counts were compared with ADFG ground pup counts conducted on July 1, and the overall estimate from the air was about 25 percent lower than the ground count. Pup counts from the air may provide a reasonable pup production index at some sites with fewer costs in animal disturbance and research time and funds.

(v) Population viability analysis: Models of the Steller sea lion population within the decline area were developed to provide an estimate of the likelihood of extinction given the available population data. The basic model used was a stochastic model of exponential growth, which requires only count data and count variance to predict future trends. One model (an aggregate Kenai-Kiska model) was based on the trajectory of the sum of the rookery populations within the area; the second model was based on a simulation of the population trajectories of individual rookeries in the Kenai-Kiska area. Each model was run using both the 1985-94 and 1989-94 population trends. All models predicted that the Kenai-Kiska population would be reduced to low levels (<500 females) within 100 years from the present, if the 1985-94 and 1989-94 trends persist into the future. Modelling results indicated that, if either trend persists, the next 20 years would be crucial to the survival of the western Alaska population. During that time period, populations on individual rookeries are predicted to be reduced to low levels (mean size <100 adult females). After 20 years, the models predict that rookeries would rapidly begin to disappear as the population contracts to the core of the range in the western Gulf of Alaska and eastern Aleutian islands. At about that time, most rookeries would be vacated, and extinction probabilities would increase rapidly.

4. **Monitor health, condition & vital parameters**

(i) Examine and sample dead animals: The few dead animals encountered in association with research efforts are routinely necropsied. Two dead juveniles found during the non-breeding season have appeared to be starvelings; a similar conclusion was reached for some of the dead pups found on rookeries during pup counts. One aborted fetus found on Cape St. Elias tested positive for Chlamydia, but it is not known whether Chlamydia was a factor in the abortion.

The Alaska Region of NMFS coordinates a volunteer stranding network within Alaska, but the number of stranded sea lions found and sampled is typically low (< 5 animals/year). NMFS Alaska Region is working directly with Alaska Native subsistence hunters, and through a contract with ADFG, to obtain biological samples from Steller sea lions taken by subsistence hunters. The sampling protocol includes sampling for age/sex, genetics, tissue contaminant levels, reproductive status, stable carbon isotope studies, and stomach contents. A few samples have been obtained from hunters on St. Paul Island this year but organizational and communication difficulties, and a lack of dedicated funding impede progress. NMFS has obtained additional funding for this work in 1995, and it is expected that more biological samples will be available in the future. The expectation is that progress on this front will be slow. University of Alaska researchers have also been working directly with Alaska Native hunters to obtain samples. NMFS efforts will be coordinated with these and other interested parties.

(ii) Conduct rookery studies: Intensive rookery studies at Marmot and Forrester Islands have continued, and a new study site has been established at Sugarloaf Island. Marmot Island has been an active research site since 1979; study results for the time period are being summarized and should be available in the next year. Research at these rookeries includes daily / weekly counts of animal composition by age / sex class on rookery beaches, pup counts, physiology studies, and behavioral observations.

Eight hundred pups were branded and tagged at Marmot in 1987-88. Of these branded animals, about 90 animals should have been resighted as adult females returning to breed beginning in 1991. To date, only 23 animals have been resighted. These results indicate that juvenile recruitment at this site has been poorer than predicted. ADFG has begun a similar branding / tagging study at Forrester Island (400 pups branded in 1994, with another 400 planned for 1995).

At Marmot Island, major demographic changes since 1979 include an overall decline in animal abundance on rookery beaches, a disproportionate decline in juvenile abundance, and an increase in the proportion of adult females. Per capita pup production, measured as the ratio of pups to adult females, remained about the same from 1979 to 1994.

5. **Assess and minimize causes of mortality**

(i) Fisheries: Observed incidental takes in the federally-managed groundfish fishery have been low in recent years. In 1993, 6 lethal takes were observed, which extrapolated to 8 takes for the entire fishery. Incidental and intentional takes undoubtedly occur in other, unobserved fisheries but the magnitude is not known. Recently there have been reports of Steller sea lion shootings in the crab fishery operating in the Pribilofs Island area. These reports have been assigned to NMFS Enforcement for investigation.

(ii) Subsistence: A two-year study funded by NMFS has provided the first reliable estimate of the number of Steller sea lions taken by Alaska Native subsistence hunters. Annually, about 500 Steller sea lions are taken, with virtually all of the harvest occurring west of Cape Suckling. This study will continue for at least two more years, and will be expanded to include biological sampling. Last year, NMFS met with the Indigenous People's Council on Marine Mammals and recommended that a Steller Sea Lion Commission be formed to serve as a focal point for discussions regarding Steller sea lion subsistence harvest management. NMFS also requested approval of biological sampling of animals taken by subsistence hunters. This past fall, an Alaska Native Steller Sea Lion Commission, consisting of Pribilof / Aleutian Island communities, was formed. This Commission is being expanded to include all the major communities that harvest sea lions. NMFS's goal is to work with the Commission to encourage the development of hunting guidelines to reduce strike / loss rates and to develop self-monitoring / management of the harvest by local communities.

(iii) Natural predators: Fish and Wildlife Service biologists recorded the presence of killer whales near Steller sea lion rookeries during August scat collections in the Aleutian Islands. Many sightings of killer whales were made within the vicinity of rookeries. The significance of these data is not known; it was noted that killer whales are frequently seen in the vicinity of rookeries but observed attacks are rare.

6. **Investigate feeding ecology**

(i) Foods eaten: In the Gulf of Alaska, walleye pollock was the most common prey of juvenile and adult sea lions collected in virtually all seasons and

areas sampled during 1975-78 and 1985-86. Other fish prey were only consumed on a seasonal basis. Juvenile sea lions consumed significantly smaller pollock than adult sea lions. A continued reliance on juvenile pollock as a major prey of sea lions in 1985-86 occurred despite an apparent 48 percent decrease in abundance of age 2-3 juvenile pollock between 1975-78 and 1985-86. This may be explained by a disproportionate, simultaneous decrease in abundance of alternative small fish prey, such as capelin and sand lance. Researchers postulate that low abundance of juvenile pollock coupled with reduced alternative small prey may have contributed to the Steller sea lion population decline observed in the central Gulf of Alaska during the 1980s. Scat collections in the 1990s indicate that walleye pollock remains the most common prey in the Gulf; Atka mackerel has also appeared in the diet of Gulf sea lions for the first time since the 1970s.

In the Aleutian Islands, sea lion scats have been collected annually since 1990 in the area from Ugamak Island to Agattu Island. Atka mackerel has been the dominant prey species identified in sea lion scats from the Aleutians, with an increasing frequency of occurrence of Atka mackerel in scats as one moves westward along the chain. Other species commonly found included pollock and salmon; pollock frequency decreased in the opposite direction from Atka mackerel, i.e.,

In Southeast Alaska, animals collected in the 1980s and scats collected in the 1990s show walleye pollock as the predominate prey species. Other prey species identified included other gadids, herring, and salmon.

New methods for identifying prey species are also being investigated, including stable carbon isotope analysis of different body tissues, genetic analysis of scats, and fatty acid analysis of blood samples. This work is ongoing, and provides opportunities to assess prey consumption over various time frames.

(ii) <u>Determine food and energy requirements</u>: The North Pacific Universities Marine Mammal Research Consortium (NPUMMRC) currently has 5 juvenile Steller sea lions in captivity in Vancouver (collected in British Columbia in 1992). Ongoing studies include an assessment of digestive efficiency of various prey species, recoverability in scats of prey parts consumed, fatty acid analysis for prey determination, and development of a model of energy requirements of individual rookeries. A swim mill is planned so that metabolic studies can be conducted with animals that are physically stressed.

(iii) <u>Investigate feeding areas</u>: Satellite-linked time depth recorders have been used to study foraging areas, depths, and effort by season for adult female and young-of-the-year sea lions. Instruments were deployed during 1990-1994 at rookeries and haulouts in Southeast Alaska, Gulf of Alaska, and the eastern Aleutian Islands. Generally during summer, adult female Steller sea lions with pups forage close to land (within 20 km), make brief trips (<2 days), and dive to shallow depths (<30m) In winter, trips by adult females are longer in distance and duration. Steller sea lion pups (n=5) tagged were able to range broadly by six months of age, but most dives remained shallow and brief. From these observations it appears that juvenile sea lions are more restricted in their foraging abilities than adult animals.

(iv) <u>Assess significance of various prey</u>: The difficulty in obtaining research vessel time, etc., for conducting fish surveys, particularly in winter, was discussed, as well as the lack of focus on forage fish species in most fisheries surveys being conducted. More information on sea lion winter food habits is being obtained through scat

collections, and NMFS has conducted prey surveys in the vicinity of rookeries during summer.

(v) Nutritional value of prey: Calorimetry and elemental analysis for baseline values for pollock, myctophids, and other forage fish are being conducted. Fadely et al. (1994) studied assimilation efficiencies and maintenance intake requirements of California sea lions on herring and pollock diets. There was no significant difference in the assimilation efficiency of herring and pollock, and maintenance requirements on both diets were similar.

(vi) Investigate relationships between prey abundance and sea lion growth and productivity: Research programs are in place to assess changes in local population size, pup condition, prey availability (limited surveys), food habits, and seasonal distribution. Some data suggest a relationship between prey availability and sea lion population dynamics. For example, in the eastern Aleutian Islands from 1989-92, the sea lion population was stable, pups were large, and pup numbers increasing. Fish surveys indicate that juvenile pollock and Atka mackerel were abundant. In the central Gulf of Alaska, from 1989-92, the sea lion population was declining, pups were small, pup numbers were down, and there were reduced numbers of juveniles on Marmot Island. Fish surveys indicate that juvenile pollock was low in abundance in the Gulf of Alaska during this time period; data from shrimp and crab surveys indicate that other forage fish populations may have also been reduced.

(vii) Determine effects of fisheries on sea lion prey: NMFS has reviewed all in-house fisheries data and Steller sea lion population data in an effort to discern possible relationships between the two. Ferrero and Fritz (1994) compared fishery catches of pollock and sea lion abundance on rookeries and found no correlation between the two with the available data sets. In the ESA Section 7 consultation on the Bering Sea and Gulf of Alaska groundfish fisheries, NMFS concluded that the spatial and temporal concentration of the fishery that occurred during the 1980s could have caused localized depletion of Steller sea lion prey resources. This hypothesized local prey depletion could have contributed to or exacerbated the sea lion population decline. Based on these conclusions, NMFS instituted 10 and 20 nautical (nm) no-trawl zones around Steller sea lion rookeries west of 150ºW longitude, and established spatial and temporal pollock allocations in the Gulf of Alaska. Since 1992, NMFS has not implemented any additional Steller sea lion related fisheries regulations; however, NMFS and the North Pacific Fisheries Management Council have instituted organizational changes so that Steller sea lion (and other marine mammal) concerns are now routinely considered in the fishery management decision making and quota specification process.

General and projected trends in key fish stocks and fishery removals for the Bering Sea, Aleutian Islands, and Gulf of Alaska were reviewed. In the eastern Bering Sea, 3+ year old pollock biomass was about 14 million metric tons (mmt) in the 1980s and declined to about 7 mmt after 1991. Pollock removals within U.S. waters have remained fairly constant over the time period, but the exploitation rate has gone from about 10 to 20 percent of the available biomass. Pollock removals from areas designated as Steller sea lion critical habitat have increased from about 200,000 mt / year to >600,000 mt / year over this time period. In the Gulf of Alaska, pollock biomass is estimated at about 3 mmt in the early 1980s and declined to <1 mmt in 1994. Because of poor recruitment, the pollock stock in the Gulf continues to decline. Since the late 1980s, the pollock fishery exploitation rate has been about 10 percent of the estimated biomass (slightly higher in recent years). About 60 to 80 percent of the Gulf pollock harvest comes

from within Steller sea lion critical habitat, mostly from areas around haulouts near Kodiak.

Fishery stock assessments indicate that Atka mackerel stocks have shown a large increase in biomass from the 1980s to 1990s. Harvest allocations in the Aleutian Islands Atka mackerel fishery have been increasing, and are expected to continue to increase. Eighty to ninety percent of this fishery's harvest comes from within Steller sea lion critical habitat. Yearly Atka mackerel quotas are allocated spatially along the Aleutian Islands chain to avoid local stock depletions. Atka mackerel stocks are also apparently increasing in the Gulf.

During 1994, NMFS reevaluated the threatened listing of Steller Sea Lion pursuant to the Endangered Species Act.
Photo credit: NMFS/FPR.

7. **Steller Sea Lion Recovery Plan Implementation**

(i) Recovery Team: It was recommended that the Recovery Team meet yearly in fall to review research and management programs. NMFS will keep the Recovery Team informed of ongoing management actions, and will solicit Team advice as needed.

(ii) Information and Education: The information and education program continues; however, the dedicated funds from ADFG in 1992 have been exhausted. In 1994, a Steller sea lion newsletter and brochure were produced and distributed; a new waterproof poster aimed at the boating public was developed and distributed, and posters developed in previous years were again distributed. In addition, direct mailings to affected parties on regulations and regulatory changes have continued. Several national and local newspapers and magazines have produced or are in the process of producing articles concerning Steller sea lions. National Geographic is working on a video documentary, as is ADFG. Overall, public inquiries and information requests regarding Steller sea lions have been steadily increasing, and many favorable responses to the information materials produced to date have been received.

(iii) Enforcement: To date, enforcement of Steller sea lion regulations has been limited because of the lack of direct funding. NMFS Enforcement is currently dedicating staff to investigate reports of illegal shooting of Steller sea lions by individuals participating in the crab fisheries in the Bering Sea.

8. **Research Plans for 1995**

NMFS: In conjunction with ADFG, aerial surveys were flown in December 1994 as a continuation of the seasonal distribution study. In December 1994 and March 1995, NMFS will focus on captures of zero & 1 year old sea lions in the

Kodiak to eastern Aleutian Islands area for satellite telemetry and physiology studies. Scats will be collected for food habits as well. No aerial survey is planned for summer 1995, but the study at Marmot Island, prey assessment, and pup counts will be conducted. NMFS has arranged for Ian Boyd to work with NMFS scientists on a Steller sea lion research program review in the summer of 1995. NMFS is encouraging one NRC post-doctoral candidate to work on the Steller sea lion research project.

ADFG: As noted above, aerial surveys were conducted in December 1994. Demographic studies at Forrester Island will continue through February of 1995. Satellite telemetry and behavioral studies focusing on juvenile animals will take place at the Cape St. Elias haulout in January. Medetomidine experiments on California sea lions will be conducted at Sea World California in spring 1995. During May through August, Forrester and Sugarloaf Islands behavioral and demo-graphics studies will continue. The pup branding project begun in 1994 at Forrester will be completed in 1995. In the fall, ADFG plans to build and test a new underwater trap, and deploy satellite telemetry recorders on juveniles in Southeast Alaska. Winter haulout studies at Cape St. Elias, and possibly at another haulout in Southeast, will be continued and/or initiated in 1995/1996.

Department of Fisheries and Oceans (DFO), Canada: Steller sea lions are not a high priority for DFO, since the population in Canada is stable. Their schedule is to conduct a population census every 5 years; they are now in synchrony with the range wide survey schedule. DFO plans to continue work on developing aerial photographic methods for pup counts, in conjunction with ADFG.

NPUMMRC: Will continue summer/winter behavioral studies, scat collections, stable carbon isotope analyses, and SLTDR deployments with ADFG. A study on the effects of research disturbance was initiated at Forrester Island in 1994, and will continue next year. Concerns over research effects at Forrester in 1994were discussed at a meeting hosted by UBC and ADFG in early December. The captive animal research program will begin swim mill studies, and continue digestive efficiency, morphometrics, and fatty acid studies. Modeling work underway includes investigating the possible effects of killer whale predation, fishery removals, and ecosystem changes resulting from the depletion of large whales caused by commercial whaling. They are also investigating the feasibility of computerized counts of aerial survey slides.

(B) Recovery Team Evaluation and Recommendations

The following reports the major items discussed, and the consensus recommendations of the Team.

1. **Population Monitoring**: The current monitoring protocol defined in the Recovery Plan calls for annual summer aerial counts of adult/juveniles and ground counts of pups in all of Alaska. It was agreed that this level of effort may no longer be necessary, and that the limited research dollars available may be better spent on other projects. The Team agreed that a subgroup (Loughlin, Byrd, and Calkins) would review this subject and propose a revised monitoring regime for the Team's consideration.

2. **Genetics**: The Team agreed that the genetics and other biological information obtained in recent years was sufficient to recognize two separate Steller sea lion management stocks, a western and an eastern stock, tentatively split at 144º W longitude (Cape Suckling).

3. **Subsistence Harvest**: The Team recommended that the NMFS Steller Sea Lion Coordinator work

with the Alaska Steller Sea Lion Commission and other appropriate entities toward the goal of managing subsistence harvests, establishing biologically acceptable harvest levels, and reducing struck and lost rates. The Team also endorsed biological sampling of subsistence harvest, and recommended that this effort be coordinated with other agencies, e.g., USFWS.

4. **Studies of prey availability**: The Team believes that substantially more effort must be devoted to assessing sea lion prey abundance and availability, and that necessary funds to support such work should be sought or allocated by NMFS.

5. **Research Program Direction**: The Team noted that a tremendous amount of research has been accomplished in recent years. To be able to assess the need for changes in research direction, available data must first be synthesized to allow an in-depth evaluation of individual research components and their appropriate role in the Recovery Program. It was agreed that a Recovery Team review, including outside experts where needed, should be undertaken separately for each the following individual research components: 1.) Population Monitoring; 2.) Satellite-telemetry; studies; 3.) Physiology / health studies; 4.) Food habits / feeding ecology.

As noted previously, evaluation and recommendations for redirection of the population monitoring program will be undertaken by a Team subcommittee over the next year. Other research program components will be summarized in the next two years, and peer review workshops will be held. This peer review process is a necessary component of revising the Steller Sea Lion Recovery Plan (revised Plan due in 1997).

6. **Information, Education, and Enforcement Programs**: The Team believes that these are essential components of the Recovery Program that require increased emphasis. The lack of direct funding remains a serious concern for these programs.

7. **Fishery Management Regulations**: NMFS is reviewing existing regulations to protect Steller sea lions, and expressed the desire to review any proposed changes in management regimes at the earliest possible time. Since food availability appears to be the leading hypothesis for the sea lion decline, reduced juvenile recruitment appears to be the proximate cause of the decline, and juveniles appear to feed primarily in areas near rookeries and haulouts, the Team recommended that NMFS should evaluate the need to close or otherwise regulate any or all nearshore fisheries around rookeries and haulouts west of 144ºW longitude.

8. **Listing Status under the ESA**: (1) As noted above, the Team concluded that based on the best available data Steller sea lions should be managed as two distinct populations for purposes of the ESA. (2) The Team reviewed the data on population trends and the PVA analysis for the western stock in relation to the reclassification criteria in the Recovery Plan, the ESA definition of endangered, and the Internation Union for the Conservation of Nature's vulnerability criteria, and concluded that the western stock should be listed as endangered. (3) The Team agreed that there was continued concern for the eastern stock of Steller sea lions despite the fact that the stock currently appears to be stable. Thus, they recommended that the eastern population should be listed as a threatened species. Reasons for a continued threatened listing include: (a) the decline in abundance at the southern extent of the eastern stock's range, (b) evidence that the population decline in the Gulf of Alaska has been spreading eastward, and thus, may affect the eastern stock, (c) although the eastern stock has shown a long-term increase, the most recent counts were somewhat lower, and (d) movement of non-breeding animals from the western stock into the

eastern stock area has been documented; these animals cannot be visually differentiated and need to be protected under the ESA wherever they occur. The Team recommended that monitoring of the eastern stock should be continued, delisting criteria should be developed by NMFS in consultation with the Recovery Team, and a decision on delisting the eastern stock should be made within the next 5 years.

Coastal Stock(s) of Atlantic Bottlenose Dolphin

On April 6, 1993, the National Marine Fisheries Service (NMFS) listed the migratory stock of Atlantic coastal bottlenose dolphins (Tursiops truncatus) as depleted under the Marine Mammal Protection Act (MMPA). A listing of depleted is required by the MMPA when a species or stock is determined to have fallen below its maximum net productivity level (MNPL), a level at the lower end of an optimal sustainable population. NMFS determined that the coastal stock of Atlantic bottlenose dolphin had fallen below MNPL as a result of a 1987 / 1988 mortality event during which the stock may have declined by an estimated amount greater than 50 percent.

The MMPA requires that a conservation plan be developed for depleted stocks of marine mammals. A conservation plan discusses the natural history and current status of the species, the known and potential human impacts on the species, and is intended to act as a guide that describes actions and further research needed to restore the species or stock to a level greater than MNPL.

Status Review and Management Workshop

On September 13-14, 1993, NMFS convened a workshop in Beaufort, North Carolina, to discuss the status and the management of the migratory stock(s) of Atlantic coastal bottlenose dolphins. This meeting focused on what is known about this stock and upon deficiencies in our understanding of this stock that will require additional research. Management needs required to protect coastal bottlenose dolphins, independent of stock structure, were also discussed.

This workshop resulted in a cooperative discussion between NMFS, local researchers, and representatives from state and Federal agencies that manage marine resources and fisheries in their waters. Workshop participants from each state were asked to address private, state or Federal activities regarding coastal bottlenose dolphins.

The proceedings of the workshop provide a summary of the information contributed to the work- shop by these various participants and were published in October 1994 as the following: Wang, Katherine R., P. Michael Payne and Victoria G. Thayer (Compilers). 1994. Coastal stock(s) of Atlantic bottlenose dolphin: Status review and management. DOC, NOAA Tech Memo. NMFS-OPR-4, 121 pp.

Hawaiian Monk Seal

Preliminary Results of 1994 Field Studies of the Hawaiian Monk Seal

The Hawaiian monk seal is the most endangered pinniped in U.S. waters. Since the late 1950s, beach counts of this species have declined by 60 percent. From 1985 to 1993, counts declined by five percent per year. Much of the recent

decline is due to poor juvenile survival at French Frigate Shoals, the site of the largest population of seals. Populations at Laysan and Lisianski Islands are also declining slowly, but the cause at these islands appears to be related to mobbing behavior, where multiple males attempt to mount and mate with a single adult female or immature animal of either sex and that animal is fatally injured. The Midway population remains perilously low and, in fact, most of the animals at this site are immigrants or offspring of immigrants, suggesting that this population is dependent on recolonization and might otherwise not persist. Only the populations at Kure Atoll and Pearl and Hermes Reef appear to be growing. At Kurea Atoll, this growth is due to intensive management intervention, whereas the population at Pearl and Hermes Reef appears to be increasing without direct management intervention. Unfortunately, the increases at these two sites are small relative to the losses at French Frigate Shoals, Laysan Island, and Lisianski Island, and the overall trend for the species is a rapid decline.

In 1994, field studies of the Hawaiian monk seal were conducted at four of its six main reproductive sites, including French Frigate Shoals, Laysan Island, Kure Atoll, and Midway Atoll. Field effort on Lisianski Island were limited to a single day, and no studies were conducted at Pearl and Hermes Reef. The two principal indices of the status of this endangered species (the number of pups born and the total of the mean beach counts at the main reproductive sites) could not be evaluated due to the lack of effort at Pearl and Hermes and Lisianski Island. Nevertheless, information from French Frigate Shoals, in particular, indicates that severe problems persist. Survival of immature animals continues to be extremely poor; at French Frigate Shoals, less than 30 percent of the 1993 cohort survived their first year. The continued poor survival at this and other sites has severely distorted the age distribution and, in the near future, reproduction is expected to decline due to a drop in recruitment.

To salvage some female pups (and the reproductive potential they represent), eight undersized seals were removed from the French Frigate Shoals population and transported to Oahu for rehabilitation and eventual return to the wild. One of those pups died in captivity, but the remaining seven are healthy and gaining weight, and should be ready for release by next spring.

In addition to the rehabilitation program, a second major management effort was directed at the Laysan population. Twenty-two adult males were removed from this population to normalize the adult sex ratio and mitigate the occurrence and effect of mobbing. The males were released around the main Hawaiian Islands, and are being monitored by cooperating biologists on neighbor islands and by ARGOS satellites, five males were instrumented with satellite transmitters. The releases occurred in late July and August and, as of late November, the males generally have remained near the sites where they were released.

Finally, monitoring efforts by the Marine Mammal Research Program were significantly enhanced this year through contributions by L. Eberhardt and K. Eberhardt. In March, the Eberhardts visited Midway Atoll, where they photographed and filmed the resident population of seals. The resulting records provide our best documentation of this population in recent years. The effort at Midway and other locations are summarized below.

French Frigate Shoals Field studies were conducted from 6 to 17 February and from 29 March to 17 September. The first objective in February was to evaluate seals born in 1993 to determine if any were in need of rehabilitation. Of 78 weaned pups tagged in 1993, only 12 (4 female, 8 male) were sighted in February 1994; of those, all

were larger than the predetermined collection criterion, and none were taken into captivity. The second objective was to retrieve satellite transmitters from 3 subadult males instrumented in September 1993. All three satellite transmitters were retrieved successfully. Preliminary results from one seal indicate a foraging pattern not seen before in Hawaiian monk seals. The seal exhibited foraging cycles of 2-3 weeks at sea (ca. 50-100 km east northeast of French Frigate Shoals, interspersed with resting periods of 3-4 days at the toll). The diving record indicates that the seal dived to at least 500 m (the limit of the time-depth recorder the seal was carrying).

Field studies during the remainder of the season focussed on 1) atoll counts of seals, 2) sighting efforts for estimating survival rates, 3) determination of number of pups born, 4) evaluation of seal condition, 5) collection of undersized weaned pups for rehabilitation, 6) detection of evidence of fisheries interactions, and 7) assessment of injuries and deaths due to shark attacks adult male aggression, or entanglement in marine debris. The mean (+- SD) of 10 atoll counts (excluding pups) was 158.1 (+- 15.1), approximately the same as in 1993. Annual survival rates for the past year were ca. 50 percent or less for the youngest 4 age classes. Survival was particularly poor for the 1993 cohort; of 38 females tagged, 11 were removed for rehabilitation, and 9 of the remaining 27 were sighted one year after birth.

One hundred and nine pups were born at French Frigate Shoals; 87 were tagged (47 female, 49 male) 8 were still nursing at the end of the season (and therefore were not tagged), and 14 either disappeared or died (four of which were known to have large shark-inflicted wounds). There of the adult females giving birth had traveled from Laysan Island to pup at French Frigate Shoals.

A total of 17 seals were found with gaping wounds or amputations caused by sharks. One adult female had multiple punctures and abrasions on 50 percent of her back (indicating that she had been mobbed), and another adult female had old mobbing wound re-injured by mating attempts. Three pups were found with large dorsal abscesses that probably resulted from bites by adult males. One adult female had a large fishing hook embedded in her mouth, which was not removed because she appeared to be pregnant.

Laysan Island Field studies were conducted from 23 March to 2 August. The mean (+_ SD) of 18 beach counts (excluding pups) was 73.6 (+_8.9), which is similar to the past three years. The total number of animals in the population (excluding pups) was 220, fourteen more than counted in 1993, but the difference appeared to be due largely to Laysan animals that had not been identified in 1993. At the end of the field season, 22 adult males were captured for translocation from Laysan Island to the main Hawaiian Islands, reducing the sex ratio to approximately 0.9:1.0.

Forty-nine pups were born (29 female, 19 male, 1 unknown), the second highest recorded since 1977. The birth rate was 71 percent for adult-sized females. Forty-seven of the pups were tagged, and one was still nursing at the end of the season. Six seals were known to have died, and two others disappeared and are assumed dead. Two deaths and one disappearance (2 adult females and juvenile male) were attributed to mobbing, an adult of unknown sex disappeared after receiving a shark-inflicted injury, an adult male died during capture for the translocation, and three pups (a weaned male and two neonates - one male and one of unknown sex) died of undetermined causes. A non-fatal mobbing event was observed, and involved an adult female and six adult males. Three seals were entangled in marine debris and were released uninjured by observers. All marine debris capable of entangling

an animal was inventoried and destroyed. Of sixteen seals that had been oiled from a spill in 1993, fifteen were sighted in 1994.

Lisianski Island A one-day effort (20 July) occurred on Lisianksi Island to resight previously tagged seals and to tag weaned pups. Seven weaned pups were tagged with Temple Tags and Passive Integrated Transponders (PITS). Three additional pups were sighted but could not be tagged; minimum pup production for 1994 was, therefore, 10 animals. One weaned pup was entangled about the neck by a fragment of polypropylene net and was released uninjured. Approximately 50 percent of the debris capable of entangling wildlife was gathered and burned, but the remaining debris could not be destroyed because of the short duration of the visit.

Midway Atoll Field studies were conducted at Midway Atoll from 5 to 31 March. Due to difficultly with transportation around the atoll, whole atoll counts were not conducted according to the standard protocol. Instead, beach counts were conducted separately for each island, and the combined averages totaled 12.7 seals (excluding nursing pups). Based on a combination of bleach marks and tags, 29 different individuals were identified, four of which were pups. Probability calculations suggest that they found all, or nearly all, seals using the site in March, and the total population probably consisted of 30-35 seals. The majority of the population is either immigrants from other locations or offspring of those immigrants.

Kure Atoll Field studies of the Hawaiian monk seal at Kure Atoll were conducted from 11 February to 25 March. The primary purpose of the camp was to determine the composition of the population (excluding pups), thereby providing information necessary to evaluate the survival of seals released at Kure to enhance the recovery of this population. In addition, all marine debris capable of entangling seals was collected and destroyed.

Eight atoll counts were conducted, and the mean (+_ SD) count (excluding pups) was 57.8 (+_6.3) seals, indicating a substantial increase over previous years. However, these counts were conducted at a different time of the year and, because monk seal hauling patterns are known to vary by season, the 1994 counts are not reliably comparable to counts in previous years. A total of 112 seals was identified, including 43 adults, 28 subadults, 41 juveniles. Their numbers probably include all or nearly all non-pup seals at the atoll. Six pups had been born by the field studies, but additional births were expected. One pup was apparently washed offshore during a high tide and was not seen again. Eight yearling seals were transported to Kure on the NOAA research vessel Townsend Cromwell. These seals were from French Frigate Shoals, and had been rehabilitated on Oahu. Six were released on 11 February and two were released on 25 March. Of 14 yearlings that had been released at Kure in 1993, 11 were resighted in 1994 (nine at Kure Atoll and 2 at Midway Atoll). One adult seal was found dead. The death probably occurred in 1994, but the carcass was too deteriorated to determine cause of death.

Chapter VI. Ecosystem Activities

Several new ecosystem-related activities were authorized by the 1994 MMPA Amendments. This reflects a growing awareness that the health of marine mammal populations is linked integrally to their environment, and that protecting ecosystem health is an effective way to improve the status of living marine resource populations.

Gulf of Maine Ecosystem Workshop

The 1994 MMPA Amendments require that a workshop be held to assess anthropogenic factors affecting the health and stability of the Gulf of Maine ecosystem, of which marine mammals are a part. The workshop, currently scheduled for September 1995, will recommend a program of research and management to restore or maintain the ecosystem and its key components. It will also produce a report containing the results of the workshop, and proposed regulatory, research and legislative actions.

Bering Sea Ecosystem Study

The 1994 MMPA Amendments require that a scientific research program be undertaken to monitor the health and stability of the Bering Sea marine ecosystem and to resolve uncertainties regarding the declines of populations of marine mammals, sea birds and other living resources of the ecosystem. NMFS has developed an ecosystem research plan for the Bering Sea, and will hold a series of meetings in 1995 in conjunction with the Marine Mammal Commission, the State of Alaska, Alaska native groups, the National Biological Survey, USFWS and others to refine and further the research under the plan.

California Sea Lion/ Harbor Seal Impacts

NMFS is directed by the 1994 MMPA Amendments to engage in a scientific investigation to determine whether California sea lions and Pacific harbor seals are having:

1) a significant impact on the recovery of endangered or threatened salmonid species; or 2) broader impacts on the coastal ecosystems of Washington, Oregon and California. A working group with expertise in pinniped and fish biology has been established to collect relevant data, to review the literature, to identify research needs and to assist in the preparation of a report which will be produced by October 31, 1995. Due to the lack of appropriated funding, field studies will not be conducted as part of the investigation.

Pinniped-Fishery Interactions

NMFS has been given the authority to conduct a study of not less than three high predation areas in anadromous fish migration corridors within the NMFS Northwest Region, focusing on the interaction between fish and pinnipeds in these areas. However, this investigation will not be conducted until appropriations have been allocated.

Chapter VII. Alaska Native Take of Marine Mammals

Alaska Subsistence/Co-Management Issues

Under Section 119 of the 1994 MMPA Amendments, the Alaska Regional Office of NMFS' Protected Resources Management Division has been working with Alaska Native organizations and communities to set up co-management plans for marine mammal stocks used for subsistence and handicraft purposes. Subsistence use of various marine mammal species has been an important cultural element of the diverse Native Alaskan cultures for thousands of years. An integration of perspectives is needed, and the success of co-management plans already set up with Alaska Native organizations, such as the bowhead whale plan set up with Alaska Eskimo Whaling Commission, demonstrates the feasibility of such cooperation. It also serves as a model for the development of new cooperative management regimes for other species. Initial emphasis in implementing section 119 will be on the development of cooperative agreements for Steller sea lions, harbor seals, northern fur seals and beluga whales.

While each stock of marine mammals will require individual plans that address the differing cultural uses, the plans will have similar goals. These goals include establishing a flexible management process combining Federal resource management policies with traditional cultural perspectives, preserving and enhancing stocks through determining mutually acceptable harvest levels, fostering development of subsistence harvest self-regulation and monitoring, increasing local participation in scientific research and year round monitoring by user communities, and encouraging educational outreach programs both within the Natives communities and beyond.

Several Alaska Native organizations are already working toward these goals. During the past year representatives from the NMFS Alaska Regional Office have met with the Alaska Inuvialuit Beluga Whale Committee, the Aleut Fur Seal Commission, the Indigenous Peoples Council on Marine Mammals, the Native American Fish and Wildlife Society, and the Southeast Alaska Native Subsistence Commission. NMFS' Alaska Regional Office recently signed an agreement with the Alaska Area Office of the Bureau of Indian Affairs (BIA) to detail a senior natural resources specialist from the BIA to NMFS in order to facilitate a coordinated approach to the development of co-management plans. It is the intention of section 119 of the MMPA that the benefits derived from these cooperative agreements, once they are in place, will be felt by the Native users, NMFS, and the marine mammal stocks themselves.

Subsistence Take of Marine Mammals

Bowhead Whales

Table 2
The Take of Bowhead Whales in 1993 and 1994.

Year	Landed	Lost	Strikes
1993	41	11	52
1994	34	12	46

NMFS works cooperatively with the State of Alaska, the Alaska Eskimo Whaling Commission, the North Slope Borough, and the Minerals Management Service to manage bowhead issues. Catch limits for the subsistence take of bowhead whales are established by the International Whaling Commission (IWC). A 3-year quota of 54 strikes per year with no more than 41 animals landed was set by the IWC for the years 1992 - 1994. The actual take of bowhead whales in 1992, 1993 and 1994 is presented in Table 2. At the 1994 IWC Annual Meeting, a new 4-year was established. For the years 1995 - 1998, the number of bowhead whales landed shall not exceed 204, and the number of bowhead whales struck shall not exceed 68 in 1995, 67 in 1996, 66 in 1997, and 65 in 1998, with the exception being that any unused portion of the yearly strike quota may be carried over and added to the strike quota of any subsequent year, provided that no more than 10 strikes is added to the strike quota for any one year.

Northern Fur Seals

The NMFS published a final rule in the Federal Register (59 FR 35471, July 12, 1994) the estimating the subsistence needs for northern fur seals by the Aleut residents of the Pribilof Islands for the three year period 1994 through 1996. The final rule regarding the 3-year policy on estimated subsistence needs became effective on July 12, 1994, and was applied to the 1994 subsistence take. By regulation, the subsistence take of fur seals in the Pribilofs begins annually on June 23 and terminates on August 8.

The final rule also amended regulations, effective August 11, 1994, governing the subsistence take of fur seals in the Pribilofs to change the period of applicability for subsistence take estimates from one to three years. By April 1 of every third year, beginning April 1994, the Assistant Administrator will publish in the Federal Register a summary of the preceding 3 years of harvesting and a summary of discussions re: the number of seals expected to be taken annually over the next 3 years to satisfy the subsistence requirements of each island. These discussions will include an assessment of factors and conditions on St. Paul and St. George Islands that influence the need by the Aleut residents to take fur seals for subsistence purposes and an assessment of any changes to those conditions indicating that the number of seals that may be taken for subsistence each should be made higher or lower. Following a 30-day comment period, the

Table 3
Subsistence Harvest Levels for Northern Fur Seals on the Pribilof Islands, 1991-1994.

	YEARS			
	1991	**1992**	**1993**	**1994**
St. Paul	1,645	1,482	1,518	1,616
St. George	281	194	319	161

expected annual harvest levels for the next three years will be published in the Federal register.

The subsistence need estimates for the three year period 1994 through 1996 were determined to be approximately the same as those for 1992 and 1993. Therefore, the ranges of the number of seals to be taken for subsistence purposes during each of the years 1994, 1995 and 1996, were set at a lower bound of 1,645 for St. Paul Island and 281 for St. George Island. The upper bound of the range was set at 2,000 seals for St. Paul and 500 for St. George. During 1994, 1,616 animals were taken by the Aleut people of St. Paul for subsistence purposes between June 27 and August 6. On St. George Island, the Aleut residents took 161 animals between July 2 and August 5, 1994 to meet their subsistence needs (see Table 3).

Regulations at 50 CFR 215.33(b) governing the taking of fur seals for subsistence purposes in the Pribilofs, require that such taking is "Not accomplished in a wasteful manner." The primary method used for monitoring compliance to this and other regulations, is through direct observations by NMFS employees during each harvest event to ensure that specific parts of the animals are taken taken for subsistence use. Additional criteria for monitoring compliance with the wasteful take regulations requires NMFS to determine the extent of utilization of fur seals taken [50 CFR 215.34(b)]. The method employed in the past to determine utilization on St. Paul Island was to take a variety of weights from 10-20 percent of all animals taken daily and calculate a percentage-use number. This procedure was time-consuming, arduous, subject to considerable variability and caused a significant level of interference with the traditional and customary conduct of the harvest.

Through the 1994 co-management amendments to the MMPA, NMFS/AKR initiated discussions with the tribal government of St. Paul and, together, further modified the subsistence take of fur seals to more closely reflect the traditional significance and customs of the Aleut people of the Pribilof Islands. The tribal government resolved to eliminate the "butterfly cut" method of butchering seals taken for subsistence. In 1995 and thereafter, the Aleut people of St. Paul have agreed to take only "whole animals" from the field during the fur seal harvests. By so doing, the monitoring required by NMFS to meet regulatory requirements will be greatly simplified. Also, as a result, the weighing of sample animals during each harvest to determine percent-use of seals taken on St. Paul Island for subsistence purposes, will no longer be necessary (the butterfly cut was never employed by the Aleut people of St. George Island and therefore, percent-use determinations have never been applied to St. George).

Northern fur seal pup production is down on St. Paul, Pribilof Islands, Alaska. *Photo credit: NMFS/FPR*

NMFS/AKR has also been actively and extensively involved in working with other federal, state and local entities and the private sector, regarding the rapidly increasing rate and level of commercial development that has occurred in the Pribilof Islands during the past several years. NMFS/AKR has initiated, with the St.Paul residents, a cooperative approach to the problematic situation created by the increased commercial development of the local communities, related

human activity and subsequent impacts on the unique natural environment of the Pribilofs.

Steller Sea Lions and Harbor Seals

ADFG, Division of Subsistence, was contracted in 1992 to collect information on the Alaska Native subsistence take of harbor seals and Steller sea lions during 1992 and 1993. ADFG is expected to continue to collect information on the native subsistence take of harbor seals and Steller sea lions for at least two more years (1994-1996), with a plan to expand collection to include biological sampling.

A summary technical report, finalized in mid-1994, describes the subsistence takes of harbor seal and Steller sea lion by Alaska Natives in 1993, and documents the number, seasons, geographic distribution, and age and sex of the animals harvested (ADFG, 1993; ADFG, 1994). Harvest information was derived, at the state, region and community levels, from systematic interviews with hunters and users of marine mammals in 2,087 households in 60 coastal communities in 1993 within the geographic ranges of the two species.

During 1993, the estimated subsistence take of harbor seals by Alaska Natives was 2,729 seals with a 95 percent confidence range of between 2,513 and 3,464 seals. Of the take, 13.5 percent were struck and lost (369 seals) and 86.5 percent (2,360 seals) were harvested. In addition, there were 265 seals taken in North Bristol Bay that were classified as spotted seal based on ecological evidence. Subsistence takes of fresh water seals from Lake Iliamna were dropped from the 1993 study. Harbor seals were taken in 56 of 60 surveyed communities. The largest takes (59 percent) were by Tlingit and Haida hunters in the southeast region. Harbor seals were taken in all months of 1993, with two seasonal peaks during March-April and August-December. Hunters reported taking male harbor seals over females about 2.3 to 1, and reported taking primarily adult harbor seals.

During 1993, the estimated subsistence take of Steller sea lions by Alaska Natives was 487 sea lions, with a 95 percent confidence range of between 391 and 630 sea lions. Of the take 28.6 percent (139 sea lions) were struck and lost and 71.4 percent (348 sea lions) were harvested.

Sea lions were taken in 21 of 60 surveyed communities. An estimated 223 households hunted sea lion, 171 (77 percent) successfully. The largest takes were by Aleut hunters in the Aleutian and Pribilof Islands. Sea lions were taken in all months of 1993, with seasonal peaks during September-November. Hunters reported taking males over females about 4.5 to 1, and reported taking twice as many juvenile sea lions over adults or pups about 1.5 to 1. Data for 1994 takes will become available in 1995. This project is expected to continue through 1996.

Beluga Whales

The Alaska Beluga Whale Committee (ABWC) was formed in 1988. Since that date, the ABWC has met annually to provide harvest information on takes by Alaska Natives. Hunters from approximately 50 villages take beluga whales in Alaska. Animals are harvested from 5 stocks that are defined by summering areas.

In 1993, ADFG was contracted to determine numbers of whales being taken by Alaskan Natives in areas where significant interactions with commercial fishing may also be occurring (Bristol Bay and Cook Inlet). These 1993 data were made available in mid-1994 with 333 animals being taken in the beluga harvest by area as follows: Cook Inlet - 15; Bristol Bay - 14; Norton Sound - 136; Chukchi Sea - 83; Beaufort Sea - 85. The 1994 data will be available in mid-1995.

Chapter VIII. Permit Programs

The MMPA authorizes NMFS to issue permits for the taking or importing of marine mammals for public display, scientific research and enhancement of species or stocks. This chapter discusses NMFS permit programs, the effect of recent MMPA amendments upon these programs, and it describes notable permit and related authorization requests. The MMPA also allows NMFS to authorize incidental / unintentional takes related to activities other than commercial fishing (see Chapter IV).

Public Display, Scientific Research, and Enhancement Permits

NMFS administers provisions within the permit program, pursuant to the MMPA, the ESA, and the Fur Seal Act of 1966 (FSA), as they apply to species under the jurisdiction of the Secretary of Commerce. Under these statutes, permits may be issued for certain purposes (e.g., public display, scientific research, and enhancement), to take, import, export, or conduct an otherwise prohibited activity involving such protected species. The recent amendments to the MMPA also authorize the issuance of permits for a new category, photography. (For more details, see next subsection.)

Between January 1, 1994 and December 31, 1994, NMFS reviewed 43 permit applications. Of these, 24 permits were issued for scientific research and 4 were issued for public display. One application for a public display permit was denied, 14 applications were returned or withdrawn, and 6 applications were awaiting final action at the end of December 1994.

NMFS also processes permit amendments if the proposed modifications meet the appropriate regulatory standards, and other permit-related authorizations. A modification is usually subject to the same notice, review and comment procedures as a permit application. During the reporting period, 99 permit modifications / authorizations were processed. Tables D-1 through D-5 in Appendix D provide an overview of major permit-related activities during the reporting period.

Proposed Revisions to Permit Regulations

On October 14, 1993, NMFS published a proposed rule in the Federal Register to amend the regulations for permits under the MMPA, the ESA and the FSA. These proposed revisions were intended to update and consolidate existing permit regulations, to implement amendments to the MMPA that were enacted November 23, 1988, and to make administration of the permit program more efficient, consistent, and predictable. The public comment period on the proposed rule was extended twice and public hearings were held in Washington, D.C., Oakland, CA, and Chicago, IL. While the proposed rule was undergoing final modifications prior to publication as a final rule, the 1994 amendments to the MMPA were signed into law. The 1994 Amendments made substantial changes to sections 102 and 104 of the MMPA governing permits for public display, scientific research, and enhancement activities of marine mammal species and stocks. Consequently, revised proposed, or interim final, regulations incorporating public comments as well as provisions of the new amendments are expected to be published in early 1995.

1994 Amendments to the MMPA Permitting Process

When the MMPA was amended on April 30, 1994, substantial changes to the permit process were made, including:

1) NMFS' authority to condition public display permits by specifying methods of supervision, care

and transport is limited to the initial capture from the wild or initial import.

2) Permits for public display are only required for capture and import of marine mammals and may be issued to a recipient that meets the following three eligibility criteria:

(a) offers a program for education or conservation purposes that is based on professionally recognized standards of the public display community;
(b) is registered or holds a license issued under 7 U.S.C. 2131 et seq., i.e., from the Animal and Plant Health Inspection Service, U.S. Department of Agriculture (or, for foreign facilities, meets comparable standards); and
(c) maintains facilities for the public display of marine mammals that are open to the public on a regularly scheduled basis and to which access is not limited or restricted other than by charging of an admission fee.

3) Persons holding marine mammals have the right to take, sell, export, or otherwise transfer possession of marine mammals, for public display, to any person who meets the eligibility criteria (cited above) without any additional permit or authorization.

4) 15-days' advance notification required of any transportation, sale, purchase, or expor--t of a marine mammal for public display, scientific research, or enhancement purposes;

5) The requirement that scientific research not be duplicative was eliminated;

6) The 30-day comment period in certain "emergency" situations may be waived;

7) A General Authorization for non-injurious scientific research (Level B harassment) on marine mammals was provided; and

8) A new permit category for photographing marine mammals in the wild for educational and commercial purposes was established; and

9) NMFS and the USFWS are required to maintain a basic inventory of marine mammals held in captivity but limits information to specific categories.

Education Standards

When the MMPA was amended on April 30, 1994, one of the changes with regard to the public display of marine mammals eliminated the requirement for NMFS to determine whether education and conservation programs are acceptable. The MMPA now requires that persons holding marine mammals for purposes of public display, or requesting issuance of a permit to capture or import marine mammals for purposes of public display, must offer a program for education or conservation purposes that is based on professionally recognized standards of the public display community. In order for NMFS to determine that these programs are based on professionally recognized standards, NMFS contacted representatives of the public display community requesting that a copy of these standards be developed and submitted to NMFS for publication, thus enabling persons seeking marine mammals for public display purposes to reference these standards rather than having to submit a listing of such standards with each application.

The American Zoo and Aquarium Association (AZA) and the Alliance of Marine Mammal Parks and Aquariums (Alliance), together representing approximately 60 per cent of U.S. facilities that currently hold marine mammals, have submitted, for references purposes, the professionally accepted standards on which their members base their education and conservation programs. A Notice of Receipt of these standards was published on October 6, 1994. Since AZA and the Alliance do

not represent the entire public display community, NMFS will also consider and publish notice of any alternative standards that are submitted by other members or representative organizations of the public display community, or those that are provided as part of a permit application.

Beached and Stranded Marine Mammals

Beached or stranded marine mammals taken under the authority of section 109(h) of the MMPA may be held only for the purpose of rehabilitation until: (1) The animal is returned to its natural habitat; (2) NMFS concurs with a determination by the attending veterinarian that it is not feasible to return the animal to its natural habitat and permanent holding is authorized by NMFS; or, (3) although the attending veterinarian determines that the animal is releasable, NMFS authorizes the permanent retention of the animal as a substitute for the capture of one of the same species from the wild.

The permanent retention of a beached or stranded marine mammal previously taken for the purpose of rehabilitation under section 109(h) of the MMPA must be authorized by NMFS before the animal may be retained by the rehabilitating facility, or transported or exported to another facility for public display purposes, in accordance with applicable MMPA requirements. Additionally, the recipient or retaining facility must meet the three eligibility criteria specified in the 1994 Amendments (and cited above).

A permit is required to retain or obtain rehabilitated beached and stranded marine mammals for purposes of scientific research or enhancing the survival or recovery of marine mammal species or stocks. Proposed regulations implementing these provisions will be ready for publication in 1995.

Exports

Under the 1994 Amendments to the MMPA, a public display permit is no longer required for the receipt of captive marine mammals by foreign facilities or persons requesting marine mammals from the United States. However, NMFS must determine that the recipient meets the eligibility criteria (cited above) established by the amendments to receive marine mammals for public display. Therefore, in addition to the 15-day advance transport notification requirement, NMFS must also receive a letter from the U.S. Department of Agriculture's Animal and Plant Health Inspection Service stating that the foreign facility meets standards that are comparable to those applicable to U.S. licensees and registrants under the Animal Welfare Act (AWA).

Additionally, NMFS must receive a statement from the appropriate foreign government agency certifying that: 1) the information submitted by the foreign facility is accurate; 2) the laws of the foreign government will enable the foreign government to enforce applicable laws; and 3) if it is determined that the foreign facility has acted in a manner inconsistent with a requirement of the MMPA or the AWA that would be applicable to a U.S. facility, the foreign government will afford comity to any enforcement decision that may be made by NMFS, including seizure of the marine mammals exported from the United States, and the recovery of expenses for such seizure or other disposition.

The amendments also provide specifically for the export of marine mammals for purposes of public display without further permit or authorization. Although no such specific provision was included for scientific research or enhancement activities, a general provision was included allowing exports that meet comparable standards.

General Authorization

The 1994 Amendments required NMFS to issue a general authorization and implementing

regulations for scientific research involving Level B harassment of marine mammals in the wild. Level B harassment is defined as any act of pursuit, torment or annoyance which has the potential to disturb by causing disruption of behavioral patterns, including, but not limited, to migration, breathing, nursing, breeding, feeding or sheltering. Research activities involving Level A harassment, which is defined as having the "potential to injure", will require a scientific research permit. If the proposed research includes marine mammals listed under the ESA, activities that do not exceed Level B harassment will be covered under the General Authorization when the researcher is issued a scientific research permit for such activities under the ESA.

An interim final rule was published in the Federal Register on October 3, 1994. This rule establishes a general authorization for scientific research; describes the research activities most likely to be included under the general authorization; identifies submission requirements for the letter of intent; establishes procedures for confirming that the General Authorization applies and for notifying the applicant that a permit is required; and specifies the conditions of the General Authorization including monitoring and reporting requirements. Research activities that are expected to cause no more than Level B harassment include photo-identification studies, behavioral observations, and vessel and aerial population surveys. Public comments were requested and will be considered in the development of the final rule.

Photography Permits

The amendments add a new category of permits to allow marine mammals in the wild to be photographed for educational and commercial purposes. These permits are limited to Level B harassment and require that the photographic products be made available to the public. Proposed regulations for the provision of this new category of permit are under development and are expected to be published in the Federal Register in 1995.

Swim-with-the-Dolphin Programs

The NMFS-sponsored behavioral study of dolphins involved in swim-with-the-dolphin (SWTD) programs, initiated in 1992, was completed in April 1994. The study was undertaken with the purpose of enabling NMFS to decide whether or not the swim programs should be continued and, if so, what modifications, if any, should be made in the special conditions of the program operators' public display permits. Although the data contained in the final report of the study provides substantive new understanding of human/dolphin interactions in the four swim programs studied, all NMFS responsibilities under the MMPA for the welfare of captive marine mammals held in public display facilities was eliminated by the 1994 Amendments which went into effect two weeks after the study report was received. The report, however, was forwarded to APHIS and other interested parties. Similarly, all papers that had been produced to establish veterinary protocols for swim-program dolphins were also sent to APHIS for their consideration and use, after the enactment of the MMPA amendments.

Marine Mammal Identification Study

In the spring of 1993, NMFS contracted for a study to determine the feasibility of individual identification methods for public display animals. A final report discussing the various methods of identification and tagging, along with various recommendations, was completed and submitted to NMFS just prior to the passage of the 1994 Amendments. Since NMFS responsibility in this area was eliminated by the amendments, this report was also forwarded to APHIS for their future use.

Spinner dolphin mother and calf observed during population assessment survey in the Gulf of Mexico. *Photo Credit: C.L. Roden, NMFS, SER.*

Notable Permit and Authorization Requests

Dolphin Feeding Application

One permit application was received for authorization to feed wild dolphins. The applicants, submitting their 9th application, were seeking a permit to approach and feed wild dolphins in the waters off Corpus Christi, Texas, for purposes of public display and education. The application was returned since public display, as re-affirmed by Congress in the 1994 Amendments to the MMPA, is for the exhibition of marine mammals in captive settings only and a public display permit can be issued only to applicants having an exhibitor's license issued by the U.S. Department of Agriculture's Animal and Plant Health Inspection Service under the Animal Welfare Act.

Capture of White-sided Dolphins

On November 27, 1993, the John G. Shedd Aquarium captured three Pacific white-sided dolphins in an area approximately 15 nautical miles southeast of Santa Barbara Island in California. (Although this event occurred in 1993, it was not discussed in the 1992-1993 MMPA annual report.) The capture, authorized under the conditions specified in public display Permit No. 643, was very controversial. Numerous letters were received from the public requesting the return of the dolphins to the wild. A coalition of marine conservation organizations urged NMFS to modify, suspend, or revoke the take authority of the Shedd Aquarium's permit, however there was no basis on which to take such action.

Reintroduction of Dolphins

At the beginning of 1994, the Navy held 101 bottlenose dolphins. In October 1993, the Navy issued Technical Report 1549, "Reintroduction to the Wild as an Option for Managing Navy Marine Mammals" which was prepared to address a request by Congress in November 1991 to "...develop training procedures which will allow mammals which are no longer required for this project to be released back into their natural habitat...." The report, which focuses on requirements for reintroducing excess bottlenose dolphins into the wild, indicates that reintroduction is unlikely to be used extensively by the Navy in disposing of its surplus dolphins. Nonetheless, the Navy has identified five male dolphins that may be suitable candidates for reintroduction to the wild and plans to transfer these animals to the Sugarloaf Dolphin Sanctuary. The transport of these animals, originally scheduled for August 23-25, was postponed until September 10 and was then delayed again at Sugarloaf's request. Three of the 5 dolphins were transferred to Sugarloaf on November 30, 1994. The other 2 dolphin may be transferred in 1995, depending on their health status.

ATOC Off the Coasts of California and Hawaii

Applications have been made by Scripps Institution of Oceanography, La Jolla, CA, for two scientific research permits under the MMPA and the ESA to allow harassment of several species of marine mammals and sea turtles by two low-frequency sound sources (peak frequency 75 Hz, 35 Hz bandwidth; 195 dB level (re 1 uPa at 1 m)) moored at 850-900m, one to be located 14 km north of Kaihu Point, Kauai, HI, and the second 40 km off Point Sur, CA (in the Monterey Bay Sanctuary). This research is part of a 2-year Acoustic Thermometry of Ocean Climate (ATOC) program designed to test the feasibility of a future global ocean climate monitoring program and to investigate the possible effects of this sound on marine mammals and sea turtles.

Based on information to date, there may be potential for physiological damage to the auditory or other systems of marine mammals or sea turtles within a very small sphere around each source. Another concern is that transmissions of greater than 120 dB might influence the distribution and behavior of protected species.

Notice of receipt of these applications was published in the Federal Register, with the public comment period for the Hawaii application opened on November 16, 1993, and the California application opened on February 3, 1994. Public hearings on the applications were held in Silver Spring, MD on March 22, 1994, in Honolulu, HI on April 14, 1994, in Kauai, HI on April 15, 1994, and in Santa Cruz, CA on May 16, 1994. The record remained open for additional comment in anticipation of receiving revised research protocols (to be published for public comment) and public comment on Draft Environmental Impact Statements. After the public hearings and the substantive comments were received on the two permit applications, the applicant decided to modify the research protocols for both sites. The Advanced Research Projects Agency (ARPA) has provided NMFS with written notification of its intention to request initiation of consultation under Section 7 of the ESA for both the Hawaii and California projects. Environmental Impact Statements (EISs) are being prepared on the two projects and will contain the analyses which will constitute the basis for the biological assessments required by the Section 7 consultation process.

ARPA and the University of California, San Diego, with NMFS as a cooperating agency, prepared a combined Federal/State Draft Environmental Impact Statement/Report (DEIS/DEIR) for the California site. This DEIS/DEIR, which incorporates the revised draft research protocol for the California site, was made available for public review on December 2, 1994 and a hearing on the document is scheduled for January 6, 1995. A revised scientific research permit application for the California site was submitted to NMFS on November 28, 1994, and will be made available for public review in early 1995.

At the close of 1994, NMFS and ARPA were completing a combined Federal/State EIS for the Hawaii site. It is anticipated that the DEIS and incorporated revised draft protocol for the Hawaii site will be available for public review in January 1995, and a hearing on that document is planned for February 1995.

Feeding Marine Mammals in the Wild

Report to Congress on Results of Feeding Wild Dolphins

In the 1992 NOAA Authorization, Section 306 of Public Law 102-567, Congress tasked NMFS to conduct a study and summary report, to be completed by April 29, 1994, in the eastern Gulf of Mexico, on the effects of feeding wild (non-captive) dolphins. However, due to budgetary constraints and concerns over the scientific prudence of conducting a designed field study which could do irreversible harm to wild dolphins, the report

submitted to Congress on July 15, 1994, relied instead on documentation and evidence of dolphin feeding collected by NMFS since 1989 in an effort to establish policy consistent with the agency's obligations under the MMPA. Also included with the report were scientific reviews submitted by outside marine mammal experts; comments from various interests with relevant experience and knowledge of the subject; and evidence and affidavits collected during the two years of litigation prompted by NMFS regulations to include "feeding" in the definition of "take" under the MMPA. A revised edition will be available in 1995.

Educational Efforts

Continuing problems with private recreational and charter vessels feeding wild dolphins in Florida and South Carolina resulted in the development of an education / media campaign on the illegality of feeding dolphins in the wild and the harm it causes. A public service announcement was prepared and distributed to 74 television stations and 640 radio stations throughout the southeast region from South Carolina through Texas.

Chapter IX. Marine Mammal Health and Stranding Response Program

Background

In 1992, the United States Congress enacted the Marine Mammal Health and Stranding Response Act (Public Law 102-587). The Act contains three basic provisions: Marine Mammal Stranding Networks, response to unusual mortality events, and the National Marine Mammal Tissue Bank.

To implement the provisions of the Marine Mammal Health and Stranding Response Act, NMFS has instituted the Marine Mammal Health and Stranding Response Program (MMHSRP) which consists of four major components: Stranding Networks (including unusual mortality response); the National Marine Mammal Tissue Bank; Monitoring; and Quality Assurance.

Stranding Networks

Marine Mammal Stranding Networks have been established in each of NMFS' regions. Most members of the Marine Mammal Stranding Networks are volunteers who respond to both live and dead strandings of cetaceans and pinnipeds. Volunteers must satisfy minimum requirements in terms of marine mammal experience in order to be issued letters of authorization by the appropriate Regional Office to respond to strandings. Different levels of authorization may apply, depending on the capabilities of the members, e.g., response to live stranded animals is generally limited to those institutions that have medical expertise and the physical facilities to rehabilitate animals. Network members are required to collect certain basic biological data including species name, sex, length, location, and any evidence of human interaction. In addition, they are encouraged to collect other data and tissues for use in scientific research, analysis and for educational purposes.

Section 302 of the Marine Mammal Health and Stranding Response Act directs efforts to improve information flow to and from the Stranding Networks and to upgrade network capabilities by developing protocols for response to strandings and collection of tissues from dead marine mammals. A Field Guide was produced in 1993 in cooperation with the Texas Sea Grant program and distributed to Stranding Network members containing basic protocols for first aid and rehabilitation of live animals, necropsy techniques, and collection of tissues from dead animals. To supplement the Field Guide, a more detailed laboratory guide was prepared on pinnipeds and distributed to Network members in 1994. A technical memorandum entitled "Small Cetacean Dissection and Sampling: a Field Guide" was also published in April 1994. Pursuant to section 302, NMFS is developing standards for determining whether rehabilitated animals are releasable to the wild. A draft document, currently in development, is expected to be out for review by mid-1995.

Network members do not receive monetary compensation, yet they provide valuable information that helps in the management of marine mammals. In 1994, Network members reported 2039 pinniped strandings and 1533 cetacean strandings. Although the vast majority of strandings are dead animals, a significant number of live animals are rehabilitated each year. Several hundred pinnipeds are treated and returned to the wild annually. Because cetaceans are totally aquatic, they are commonly in critical condition when they strand, and recovery rates have been much lower. Since the passage of the MMPA in 1972, there have been only 63 successful rehabilitation efforts involving stranded cetaceans. However, the success rate for cetacean recovery is improving. Thirty-seven of those 63 have occurred within the last 4 years and 11 cetaceans were successfully rehabilitated in 1994.

Prior to 1991, there was little success in rehabilitating dwarf and pygmy sperm whales. Five have been rehabilitated and released back into the wild in the last 4 years. One rehabilitated pygmy sperm whale has become the subject of an educational video prepared by the National Aquarium in Baltimore. The animal did not begin to improve until a unique procedure was used to remove plastic materials from its stomach. When the animal was released, it was tracked by radio in order to observe its habits and to determine survival. The video recording the rehabilitation process and release is designed to highlight the problem of improper disposal of plastic trash.

Unusual Mortality Events

In accordance with §304 of the Marine Mammal Health and Stranding Response Act, a Working Group on Unusual Marine Mammal Mortality Events has been established. It includes individuals from a range of scientific disciplines including veterinary medicine, pathology, epidemiology, environmental contaminants, and marine mammal science. The Working Group, which named Dr. Joseph Geraci as Chair, is to be consulted when an unusual mortality event is suspected. The working group is charged with providing advice as to specific actions that should be taken in response to an event.

During 1994, two mortality events occurred on which the Working Group was consulted. During a three month period in the spring, over 220 bottlenose dolphins stranded along the Texas coast. Virtually every carcass that washed ashore was so badly decomposed that standard analyses could not be conducted. Because morbillivirus had been detected in the Florida panhandle, Mobile Bay, and Mississippi in late 1993, there was a suspicion that the virus might be related to the mortalities in Texas. Scientists at the Armed Forces Institute of Pathology decided to try using polymerase chain reaction--a novel molecular biology technique that

Brown bear approaching stranded gray whale on the Alaska Peninsula.
Photo credit: D. Withrow, NMFS/NMML.

can detect and identify minute amounts of DNA or RNA--to determine if the virus could be detected in decomposed lung tissue from the dolphins. They were successful in detecting morbillivirus RNA in the lungs of 18 of 25 dolphins tested despite the poor condition of the specimens. Combined with previous findings in the Gulf of Mexico, the conclusion was reached that morbillivirus was the likely cause of the mortality event in Texas.

Stranding Network members were responsible for providing evidence that this disease is present in a second species in the Gulf of Mexico. On July 13, there was a mass stranding of 30 Fraser's dolphins near Sarasota, Florida. After blood values had been established indicating that the dolphins were relatively healthy, 27 dolphins were released on site. Blood collected from the animals was later analyzed for the presence of antibodies to morbillivirus. Results from 9 of 27 blood samples were positive indicating that the dolphins had been exposed to morbillivirus.

The second mortality event involved common dolphins in California. Fifty-four strandings took

place between April 3 and June 30. Thirteen strandings occurred between July 1 and December 31. The majority of the strandings occurred in San Luis Obispo and Santa Barbara Counties. By comparison, the annual totals for common dolphin strandings in California were 28 in 1993, 21 in 1992, and 18 in 1991. Gross necropsy did not reveal a common pathology. Histological results are still being evaluated. The presence of high levels of domoic acid in rock crabs in the Santa Barbara Channel raised the possibility that biotoxins might be involved. Stomach contents and tissue contaminants analyses are still being evaluated. The investigation is proceeding. The findings will be announced at the close of the investigation.

The Marine Mammal Health and Stranding Response Act also mandates the development of a national contingency plan for response to unusual marine mammal mortality events. The contingency plan must contain the following: (1) a list of people at local, regional, and national levels who can assist in responding to and determining necessary to assist in determining the cause of a mortality event; (2) a list of analyses necessary to assist in diagnosis of causes; (3) mobilization and training procedures; and (4) provisions to minimize the deaths of marine mammals. A draft of the plan was made available for public comment on June 13. The final plan should be available in early 1995.

Regional Stranding Networks

The following descriptions of Regional stranding activity present significant activities and summarize stranding reports. A table of all reported regional strandings is located in Appendix E.

Northeast Stranding Network

NMFS Northeast Region continues to coordinate and provide assistance to the Northeast Marine Mammal Stranding Network (MMSN), which has representatives in every state from Maine through and including Virginia. The Marine Mammal Stranding Center (MMSC) hosted the annual meeting of the Northeast MMSN on April 28-29, 1994, in Atlantic City, New Jersey. Agenda items included state-by-state reports of strandings from the past year, routine network business, and presentations on research conducted with specimens from stranded marine mammals as well as related research. Presentations included a re-evaluation of the 1987-88 bottlenose dolphin die-off, a determination of signs of underwater entrapment of small cetaceans, and "Whales 93," the U.S. Navy's use of the undersea surveillance systems to track whales with sonar.

A recurring theme at stranding network meetings focuses on the increase in the number of strandings, particularly of pinnipeds, over the recent years. For 1994, the Northeast MMSN reported **190** cetaceans strandings and **260** pinniped strandings. This is roughly a 14 percent increase in cetacean strandings and a 25 percent increase in pinniped strandings over 1993 totals.

Northern Right Whale in Delaware River. Northeast regional Protected Species staff assembled a team of experts to respond to an out-of-habitat event involving a northern right whale in the Delaware River during December 2-12, 1994. The whale exhibited abnormal swimming behavior and appeared to be visually and acoustically confused. This disorientation may have caused the whale to collide with various fixed objects resulting in superficial injuries. The biologists initially believed that an entanglement was causing the whale's abnormal behavior, but this was eventually ruled out when the whole length of the whale was visible and unencumbered in shallow water. The response team, with substantial assistance from numerous local, state, federal and private

institutions, monitored the whale's movements and behavior. It was tagged with a VHF-FM radio tag on December 9, 1994, to facilitate this monitoring. Signals received on Saturday, December 10, 1994, seemed to indicate that the whale was moving down the river past Salem, New Jersey. When the animal was not found in the river for two days, the team assumed it had headed out of the Delaware system on its way to wintering grounds. The animal was later identified from still photographs by right whale experts at the New England Aquarium as an 11-month old male and was christened "Shackleton" after the Antarctic explorer of the same name.

Southeast Stranding Network

There are 29 institutions which are currently operating in cooperation with the Southeast Stranding network under a Letter of Authorization from the Region. In addition, there are numerous state and federal government agencies or organizations participating in the collection of stranding information. Over 200 individuals from these groups contribute to the network's efforts.

In 1994, there were 969 documented marine mammal strandings. Bottlenose dolphins comprised over 78 percent of the total and 23 species comprised the remainder including 16 harbor seals. One infant spotted dolphin (Stenella attenuta), which stranded with 4 other dolphins near Pensacola, Florida in September 1993, survived, has grown, and is doing very well. She was determined to be non-releaseable because of her age at stranding. She shares a tank with bottlenose dolphins and has adapted well to captivity.

A representative of the Regional Office chaired a meeting of live-care animal facilities located in Florida to discuss care options for stranded marine mammals. Due to the presence of morbillivirus in the Southeast and the high costs of caring for live stranded marine mammals, many facilities are reluctant to accept these animals. Several facilities now have plans to create tanks and care areas designed only for stranded marine mammals.

Western Pacific Stranding Network

A total of 11 marine mammal strandings was reported to the Western Pacific Marine Mammal Stranding Network in 1994 (0 pinnipeds and 11 cetaceans). Cetacean strandings of interest included 2 Pantropical spotted dolphin and 4 Long-snouted spinner dolphin.

California Stranding Network

A total of 1,611 marine mammal strandings was reported to the California Marine Mammal Stranding Network in 1994 (1,489 pinnipeds and 122 cetaceans). Pinniped strandings of interest included 8 northern sea lions, 5 northern fur seals, and 1 Guadalupe fur seal. Cetacean strandings of interest included 2 Cuvier's beaked whales and1 unidentified mesoplodon.

Gray Whale Rescue Effort. On May 14, 1994, a young gray whale entered the Petaluma River at the Marin/Sonoma County line. The animal was a yearling male approximately 25 feet in length and weighing 3 tons. On May 16, 1994, the animal stranded on a mudflat in shallow water. The animal shortly freed itself and continued its meanderings in the river.

The policy of the SWR is not to interfere with the behavior of free-swimming whales that enter bays and freshwater river systems in California. However, due to the tidal fluctuation in the water depth of the river leading to the possibility of the whale re-stranding, and the increase in boat traffic due to the presence of the whale leading to the

possibility of a whale/vessel collision, the SWR decided to try and herd the whale out of the river. Agents from the NMFS Office of Enforcement coordinated the rescue effort. In addition to the NMFS Enforcement agents, the rescue team consisted of personnel from the California Department of Fish and Game, Marine Mammal Center (MMC of California), and the Naval Postgraduate School, and residents of the area who donated the services of their vessels.

The rescue effort began on May 16 and consisted of pushing the whale downstream towards San Pablo Bay by using the vessels and banging on oikomi pipes, a method which proved successful in herding a humpback whale out of the Sacramento River in 1985. This method did not prove successful in this instance and by the end of the day on May 17 the animal was still located far upstream. The rescue effort continued on the morning of May 18. However, the rescue team was unable to relocate the animal. One final thorough search of the river was conducted on May 18, including a flyover by a U.S. Coast Guard helicopter. The whale was not resighted and it was assumed that it had found its way back into San Pablo Bay.

On May 28, the whale was sighted at 10:30 A.M. by U.S. Fish and Wildlife personnel, stranded on a mudflat in Guadalupe Slough, a tidal wetland in South San Francisco Bay, Santa Clara County. Personnel from the MMC of California responded to the stranding. By the time the MMC of California staff had arrived on scene, the whale had freed itself, was swimming upstream, and had entered San Tomas Aquino Creek, an estuarine river system much shallower and narrower than the Petaluma River. The whale re-stranded at 8:00 P.M. at the intersection of Montague Expressway and Great America Parkway in the city of Santa Clara. A command post was set up at this site manned by personnel from the MMC of California, Santa Clara Police Department, and the Santa Clara County Fire Department.

A rescue effort was initiated on May 29. The rescue team consisted of personnel from the MMC of California, California Conservation Corps, and Santa Clara County Search and Rescue. Due to tidal fluctuation, the rescue team had only a 4-5 hour window of opportunity, and the animal was moved only a distance of 0.5 m downstream. The SWR Stranding Coordinator arrived on scene at approximately 8:00 P.M. and assumed control of the rescue effort. The rescue team met later that evening and planned the next day's strategy.

The rescue effort resumed at 7:00 A.M. on May 30. The animal was fitted with a sling made out of fire hose and the sling was attached to two motor-powered inflatables. The animal was towed approximately 1 mile upstream. At 1100 A.M., the tide receded and rescue operations were put on hold until high tide. High tide came in at 3:00 P.M. and very quickly the creek rose from a level of 2 feet to a level of 9 feet. Before the rescue team could react, the whale broke free of the rescuers and swam away. The whale was found dead at 3:30 P.M. at the bottom of the creek. Salvage operations lasted until well into the night. A full necropsy was performed by personnel from the California Academy of Sciences and the MMC of California. The cause of death was listed as severe pulmonary congestion. Tissue samples were collected for histopathology and contaminant analysis. The carcass was buried with future retrieval of the skull and skeleton planned for an educational exhibit at the MMC of California.

Northwest Stranding Network

The Northwest Marine Mammal Stranding Network forwarded stranding reports for 495 strandings in 1994 of which 251 were investigated by network participants or confirmed by federal,

state or local officials responding at the site of the stranding. A species breakdown of stranded marine mammals that were examined or confirmed is located in Appendix E.

Alaska Stranding Network

In 1994 the Alaska Marine Mammal Stranding Network investigated 38 cetacean and 33 pinniped stranding events. Except for a mass live stranding of about 190 beluga whales in CookInlet on June 14, 1994, harbor porpoise were the most commonly reported cetacean strandings. A total of 10 harbor porpoise were found, primarily by a beachcast survey in the Copper River Delta area. Other strandings of interest included unknown whales (7), beluga whale (6), not including the mass live stranding as one event), killer whale (4), gray whale (4), Stejneger's beaked whale (4), and humpback whale (3).

National Marine Mammal Tissue Bank

The National Marine Mammal Tissue Bank (NMMTB) is maintained at the National Bio-monitoring Specimen Bank of the National Institute of Standards and Technology (NIST) and is designed to cryogenically archive select animal tissue samples in order to provide a source of specimens for future retrospective analysis. Specimen sources include stranded, incidentally caught, and subsistence harvested animals. The philosophy behind the banking of tissues is two-fold. With analytical techniques constantly improving, analyses conducted in the future are likely to provide a greater range of information than that which could be collected now. In addition, banked tissues can be compared to currently available tissues to establish trends and determine if a newly introduced chemical may be having an impact on a marine mammal population.

The specimens in the tissue bank are collected following an extremely rigorous protocol to prevent contamination. Liver and blubber are the two principal tissues chosen for banking because blubber has a high lipid content and tends to concentrate several organic contaminants, and liver is a major site for detoxifying chemical compounds. The specimens are stored in liquid nitrogen freezers at -150 C.

In addition to specimens collected through the NMMTB (Tissue Bank proper), specimens from Alaska are collected and banked through the Alaska Marine Mammal Tissue Archival Project (AMMTAP), with funding from the National Biological Service. Archived specimens include tissues from 25 animals of 4 species in the Tissue Bank proper and tissues from 121 animals of 9 species from AMMTAP (See Table 4).

Contaminant Monitoring

The major effort to determine current levels of contaminants in marine mammals has been conducted by the Environmental Conservation Division of the Northwest Fisheries Science Center (NWFSC). Although the primary purpose of the Tissue Bank is not real time monitoring of contaminant levels, a subset of the specimen materials has been analyzed. Tissues from several In addition to providing current information, such analyses provide baselines so that comparisons may be made in the future.

In 1994, tissue samples from the following species were acquired or analyzed: bowhead whale (*Balaena mysticetus*), harbor porpoise *(Phocoena phocoena*), Atlantic white-sided dolphin (*Lageno-rhynchus acutus*), bottlenose dolphin (*Tursiops truncatus*), California sea lion (*Zalophus califor-nianus*), gray whale (*Globicephala malaena*), Steller sea lion (*Eumetopias jubatus*), bearded seal (*Erignathus barbatus*), ringed seal (*Phoca hispida*),

and short- (*Delphinus capensis*) and long-beaked (*Delphinus delphis*) common dolphin.

In addition to analyzing contaminant levels, the NWFSC has initiated a number of projects to improve methodology and gain an understanding of how contaminants may impact marine mammals. One of the difficulties in responding to unusual mortality events has been that analysis of tissues for contaminants often takes a great deal of time. The NWFSC has developed and published a rapid screening method to provide initial indications on the presence of highly toxic planar PCBs. The

TABLE 4
Inventory of Species Sampled for Banking Component of MMHSRP

	Species	Location	No.
NMMTB			
	Pilot Whale	NW Atlantic	9
	Harbor Porpoise	NW Atlantic	9
	Harbor Porpoise	Washington	1
	Atlantic White-Sided Dolphin	NW Atlantic	4
	California Sea Lion	California	2
AMMTAP			
	Ringed Seal	Arctic Ocean	26
	Ringed Seal	Bering Sea	16
	Bearded Seal	Arctic Ocean	2
	Bearded Seal	Bering Sea	7
	Beluga Whale	Arctic Ocean	14
	Beluga Whale	Gulf of Alaska	4
	Bowhead Whale	Arctic Ocean	26
	Northern Fur Seal	Bering Sea	15

	Walrus	Bering Sea	5
	Spotted (Largha) Seal	Bering Sea	1
	Harbor Seal	Gulf of Alaska	4
	Steller Sea Lion	Gulf of Alaska	1
		TOTAL	**146**

method also allows measurements of other PCB congeners as well as providing information on total PCBs, selected DDTs, and hexachlorobenzene. The method, which should be applied to biopsy samples, also affords analysts the ability to rapidly analyze . small samples and should be applicable to biopsy samples.

As a means of determining whether the sampling site of a specific organ could affect analytical results, the NWFSC previously analyzed contaminant levels from different liver and blubber sites in harbor porpoise for both heavy metals and organic chemicals. In the case of the harbor porpoise, they determined that the sampling site for these tissues was not significant. To further examine this issue, the NWFSC is working with Texas A&M University to determine if there are differences in the distribution of organic chemicals in blubber related to seasonal changes in blubber thickness in bottlenose dolphins.

Considerable effort has been taken to examine toxic metals in pilot whales and bottlenose dolphins. In both species, concentrations of total mercury and selenium were elevated in liver, kidney, and brain. In both species there was a strong correlation between levels of mercury and selenium. It is believed that selenium acts to ameliorate the toxicity of mercury. The mean concentration of cadmium in kidney tissue of pilot whales was within a factor of two of the level considered to be toxic in humans. Analysis of mother-fetus pairs showed that such metals are transferred in utero as evidenced by the presence of non-essential metals (arsenic, lead, cadmium, and mercury) in fetal tissues. In fetal kidney, cadmium was more than 30 times higher than in brain or liver indicating early differential accumulation in the fetus. In addition, analyses of methyl mercury in bottlenose dolphin were completed to specifically address the relationship of age and sex to mercury accumulation and disposition. Overall, these results will provide a more comprehensive understanding of the relationships among different elements and their distribution among tissues.

As a step toward assessing the relationship between toxic chemical exposure and disease in marine mammal species, the NWFSC has been working with the Marine Mammal Center in Sausalito, California, to determine if there are differences in contaminant exposure in California sea lions exhibiting disease and sea lions dying of traumatic injury. In 1994, samples were received from 20 California sea lions; 11 exhibiting signs of disease and 9 that died of traumatic injuries. Comprehensive analyses of these samples is continuing into 1995, and additional animals will be sampled.

Quality Assurance

Among the problems confronting researchers in the past has been the lack of comparability of contaminant research results. In response to this problem and in response to the requirement of the Act that guidance be issued for analyzing marine tissue samples through the most advanced and

effective techniques, the Office of Protected Resources initiated the Quality Assurance Program (QA Program) for the contaminant analysis of marine mammal tissues. This QA program, which is coordinated by NIST with NWFSC as the designated lead NMFS laboratory, is designed to assess the accuracy, precision, level of detection and comparability of results among laboratories analyzing marine mammal tissues.

As part of the QA program, interlaboratory comparison exercises, open to any interested laboratory, are conducted using marine mammal materials prepared by NIST. Such exercises are designed to assess the accuracy, precision and level of detection among the participating laboratories and thereby identify steps to improve further the comparability of data generated.

In addition, NIST is in the process of preparing Standard Reference Materials (SRM) for use by other researchers. SRMs are samples containing known levels of specific contaminants. They can be used for calibration or as controls. In June, 1994, the first marine mammal SRM--SRM 1945, Whale Blubber--was made available to researchers. It has been certified for concentration of 27 PCB congeners and 15 chlorinated pesticides.

Chapter X. International Programs and Activities

The Department of Commerce furthers the protection and conservation of marine mammals through participation in existing international agreements, and, when necessary, negotiation of new agreements. This chapter describes NMFS involvement in international programs and activities during 1994.

The Commission for the Conservation of Antarctic Marine Living Resources

The Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) and its Scientific Committee were established in 1982. The Commission meets annually to consider issues related to Antarctic marine living resources. The Scientific Committee reviews the status of marine mammal populations, and, as necessary, makes recommendations to the Commission. The Commission also reviews annual reports by member nations concerning population assessments and steps taken to avoid the incidental mortality of Antarctic marine living resources.

The Commission held its Thirteenth Annual Meeting in 1994 and reported and/or took the actions described in the sections which follow.

Antarctic Pack Ice Seal Program

The Commission noted the Scientific Committee's report on the Antarctic Pack Ice Seal (APIS) Program of the Scientific Committee for Antarctic Research (SCAR).

APIS research will be conducted at circumpolar, regional, and subregional scales. Field activities are planned during the five years from 1995/96 through 1999/2000. The 1998/99 season is targeted for coordinated, multi-ship operations on a circumpolar scale. Two of the focal areas for APIS Program field work are also integrated study regions for CCAMLR Ecosystem Monitoring Program (CEMP) activities (Prydz Bay and Antarctic Peninsula).

The proposed research on crabeater seals, a CEMP species selected for monitoring, will address topics of direct relevance to CCAMLR, initially through the specification of standard methods for studying pack-ice seals.

A planning meeting for the APIS Program is provisionally planned for May or June of 1995. The United States plans aerial surveys and other studies of pack-ice seals during February-March 1995. Scientists from Norway and the United Kingdom will collaborate in the cruise.

Working Group on Ecosystem Monitoring and Management (WG-CEMP)

Considerable progress was made in 1994 in developing CEMP. The Commission recognized this progress and encouraged the Scientific Committee in its efforts towards an objective review of monitoring results and integrated ecosystem assessment. New CEMP-related research programs have been initiated by Italy, South Africa, and Norway and data submissions have increased over 1993.

The Scientific Committee established a new Working Group on Ecosystem Monitoring and Management (WG-EMM) to combine and replace the Working Group on the CCAMLR Ecosystem Monitoring Program and the Working Group on Krill.

Assessment and Avoidance of Mortality Incidental to Fishery Operations

Reports on the assessment and avoidance of incidental mortality in the Convention Area (approximately the area south of the Antarctic convergence) for the 1993/94 season were received from eight CCAMLR Member `countries, including the United States. Fishing net fragments,

especially strings and bags, were the most common forms of entangling material. The number of entanglements of Antarctic fur seals at Bird Island, South Georgia, in the 1993/4 season was lower than in previous years but still much higher than in 1990 and 1991. The Commission shared the Scientific Committee's concern about the apparent increase in the number and variety of environmental threats to birds and seals.

In addition to reports on incidental mortality in the Convention Area, Members submitted papers describing results of studies on marine debris. At Bird Island, South Georgia, amounts of debris on beaches were slightly reduced from 1992, but still five times the 1991 amount. Almost all material found probably originated from local fishing vessels, especially packaging bands, whose presence coincided with the arrival in the local area of krill fishing vessels. However, for the first time, all packaging bands recovered had been cut as required by a CCAMLR conservation measure.

At Signy Island the trend since 1991 of a reduction in number and mass of debris was reversed, with a four-fold increase in mass and a five-fold increase in numbers compared to 1993. However, levels are still lower than in 1991. The reason for the 1994 increase is unknown.

At Cape Shirreff, Livingston Island, periodical surveys of beached marine debris resulted in the establishment of a baseline for planning further assessment surveys in accordance with the CCAMLR Guidelines for Conducting Surveys of Beached Marine Debris. During the 1993/94 season, a total of 36 beaches were surveyed and accumulated debris removed. As in previous studies in the area, marine debris consisted of plastic and synthetic fibers (92 percent). It was observed that some nests of Antarctic birds were built with plastic material and some Antarctic fur seals were observed with neck collars. A survey of marine debris conducted at Macquarie Island on a monthly basis over a one-year period recorded debris loading equivalent to past years.

Reports of CCAMLR scientific observers in the 1993/94 season indicated that CCAMLR-produced placards on the prevention of marine debris pollution from vessels, which should be displayed in appropriate places aboard ships operating in the Convention Area, were absent on some vessels.

The United States funded the participation of the CCAMLR Science Officer at the Third International Conference on "Marine Debris - Seeking Global Solutions".

The Ad Hoc Working Group on Incidental Mortality Arising from Longline Fishing met for the first time during the intersessional period and reported to the Commission; the reported mortalities in 1994 were all seabirds.

Large-Scale High Seas Driftnet Fishing

Current Status of the United Nations Driftnet Moratorium, UNGA Resolution 46/215

As of December 31, 1994, the United Nations (UN) global moratorium on large-scale high seas driftnet fishing, pursuant to United Nations General Assembly (UNGA) Resolution 46/215, has been in effect for two years. International implementation of the moratorium in the world's oceans and enclosed and semi-enclosed seas has been generally successful.

North Pacific Ocean. The high seas driftnet fishing countries of Japan, the Republic of Korea (ROK), and Taiwan took positive action to end their large-scale driftnet fisheries by December 31, 1992, the UN moratorium date.

By the end of 1993, Japan had scrapped 272 of a total of 426 high seas squid driftnet vessels. An additional 18 vessels were scheduled to be scrapped in 1994, bringing the total number to 290 by the end of 1994. The disposition of the remaining 136 vessels is not known, although they have probably been shifted to alternative fisheries. No unauthorized driftnet fishing activities by Japanese vessels were reported by Japanese enforcement authorities or detected by the United States in 1994.

NMFS has no specific information on the disposition of ROK and Taiwan large-scale driftnet vessels in 1994. Both countries prohibited all large-scale high seas driftnet fishing operations by the UN driftnet moratorium deadline. As with Japan, no Korean or Taiwan driftnet vessels were reported or detected as having fished in violation of the driftnet moratorium during 1994.

North Atlantic Ocean. During 1993 and until January 1, 1994, French albacore driftnet fishermen were allowed to operate in the eastern North Atlantic, principally the Bay of Biscay, under a European Community (now the European Union or EU) special exemption (Article 9 of Council Regulation 345/92) that allowed them to use driftnets up to 5 kilometers in length. The EU Council of Fisheries Ministers met on December 21, 1993, to discuss a possible extension of the exemption. The Council preliminarily decided against such an extension. Therefore, effective January 1, 1994, France had to comply with the UN moratorium, including the provision in Council Regulation 345/92 that prohibits the use of driftnets longer than 2.5 kilometers. France made a bid for a second extension of the driftnet exemption in early 1994, citing the "enormous social and economic costs" of ending its large-scale high sea albacore driftnet fishery. The EU Council of Fisheries Ministers never approved the extension. Despite comments by France's Agriculture Minister that French fishermen would continue large-scale albacore driftnet fishing with or without renewal of the derogation, strong EU opposition to the driftnet fishery, and extensive U.S. diplomatic efforts, convinced the French Government to announce at the end of May 1994 (prior to the start of that year's albacore fishing season) that it would honor EU regulations and enforce the 2.5 kilometer limit on driftnet length.

The United States became aware in June 1994 of unconfirmed reports that French tuna vessels were fishing with driftnets in excess of 2.5 kilometers in the Northeast Atlantic albacore tuna fishery. A number of confrontations occurred between French and Spanish tuna fishermen when Spanish fishermen tried to seize French driftnets they claimed were illegal. On July 18, 1994, agreement was reached in Brussels by the French and Spanish Agriculture Ministers to resolve the dispute. The most important element of the agreement concerned effective monitoring of the driftnet albacore tuna fishery by EU inspectors, under the aegis of the EU Commissioner for Fisheries, for compliance with EU regulations on driftnet length. Increased enforce-ment efforts by the French Government essentially ended the problem.

The United States demarches and diplomatic notes had an effect on French driftnet policy in 1994. The threat of United States actions, pursuant to the High Seas Driftnet Fisheries Enforcement Act, Public Law 102-582, has been cited by the French media and Government officials as directly influencing France's decision to drop its pursuit of an extension of its 1993 driftnet derogation and to increase driftnet enforcement efforts. The United States will continue to monitor the French driftnet situation closely.

In August 1994, the United Kingdom dispatched a fisheries patrol vessel to the Bay of Biscay area to investigate allegations of British tuna vessels using driftnets longer than 2.5 kilometers. The patrol vessel seized two British vessels using driftnets slightly longer than the 2.5 kilometer EU standard. The United Kingdom Government took

prompt enforcement action against both vessels and no further violations of EU driftnet regulations by British vessels were reported in 1994.

Mediterranean Sea. The United States has been aware of persistent reports of Italian swordfish vessels employing large-scale driftnets in the Mediterranean Sea in 1994. However, United States Naval forces in the Mediterranean reported no confirmed sightings of Italian large-scale driftnet fishing operations in the Mediterranean in 1994. (Italy is a member of the EU and subject to the same driftnet restrictions as France, although Italy's domestic driftnet regulations are more stringent than those imposed by the EU.)

To address the alleged illegal driftnet fishing by Italian fishermen, United States officials repeatedly called on Italian officials at the highest levels to ensure that Italy's driftnet fleet was in compliance with the UN driftnet moratorium or face United States action pursuant to the High Seas Driftnet Fisheries Enforcement Act. These diplomatic efforts proved moderately successful. In July 1994, the Government of Italy stepped up its enforcement efforts and dropped plans to seek its own exemption to EU driftnet regulations. Italian fishery officials requested a budget allocation of $65 million to ensure its fishing fleets' compliance with the driftnet moratorium for 1995-1997.

The United States is encouraged by Italy's recent announcement of an $88 million program to convert the Mediterranean driftnet fleet to other types of fishing gear. Nevertheless, the United States will continue to watch closely the Italian driftnet situation.

United States Driftnet Actions

To monitor compliance with the UN driftnet moratorium in 1994, NMFS, U.S. Coast Guard and Canadian Maritime Forces continued to carry out surveillance activities in the North Pacific areas that in the past were routinely fished by driftnet vessels. U.S. Coast Guard cutters logged 146 vessel days at sea and Coast Guard aircraft put in 223 hours in the 1994 driftnet monitoring program. An additional 150 cutter days were available for response to specific information. Canadian Pacific Maritime Forces aircraft contributed 7 one-week patrols to the effort. A NMFS Special Agent accompanied each of these flights. No evidence of any unauthorized driftnet fishing activity was detected, supporting the conclusion that there has been a high rate of compliance with the U.N. moratorium in the North Pacific.

The United States continued to receive reports of unauthorized high-seas driftnet fishing activity in the eastern North Atlantic by French vessels and in the Mediterranean by Italian vessels in 1994. NMFS is working with the Coast Guard and the Departments of State and Defense to investigate these reports and attempt to document this alleged activity.

On December 3, 1993, the United States and the People's Republic of China (PRC) signed a one-year Memorandum of Understanding (MOU) on effective cooperation and implementation of UNGA Resolution 46/215. The MOU allowed enforcement officials of either country to board and inspect vessels flying either the U.S or PRC flag found using or equipped to use large-scale driftnets. It also provided for enforcement officials of either country to ride on board high seas driftnet enforcement vessels of the other country, which resulted in three PRC enforcement officials riding on three U.S. Coast Guard cutters in the North Pacific. Although the agreement expired on December 3, 1994, both countries have agreed to renew the MOU, via an exchange of diplomatic notes, for an additional two years.

Since December 1992, the United States has been instrumental in ensuring that implementation of the high seas driftnet moratorium remains a priority of the UNGA. It has supported UNGA

Decisions 47/443 (1992) and 48/445 (1993) requesting that the UN Secretary-General submit to the General Assembly annual reports on developments relevant to the implementation of UNGA Resolution 46/215. The United States supported a General Assembly decision, UNGA Decision 49/436, adopted on December 19, 1994, adopted at the recent forty-ninth UNGA session to require a further report on implementation of the driftnet moratorium at the fiftieth UNGA session.

In order to execute the driftnet reporting requirements of UNGA Decisions 47/443 and 48/445, the UN Secretary General solicited all members of the international community, intergovernmental organizations, regional economic integration organizations, and appropriate non-governmental organizations to provide information on implementation of the moratorium. In August 1994, the United States submitted to the Secretary-General for incorporation in his report a paper regarding U.S. views on large-scale pelagic high seas driftnet fishing and UNGA Resolution 46/215. The paper describes in detail the actions taken individually and collectively by the United States to implement the UNGA global driftnet moratorium in 1994. The U.S. paper was integrated into the Secretary General's report entitled "Large-scale pelagic driftnet fishing and its impact on the living marine resources of the world's oceans and seas," A/49/469, October 5, 1994.

At its 9th Special Meeting held in Madrid, Spain, on November 28-December 2, 1994, the International Commission for the Conservation of Atlantic Tunas (ICCAT) adopted a U.S.-proposed resolution which endorses the UN driftnet resolutions and reaffirms the importance the Commission attaches to compliance with them. The resolution expresses the ICCAT's concern about the potential negative impacts that continued large-scale pelagic driftnet fishing could have on marine resources in the Atlantic Ocean and the Mediterranean Sea. The resolution also calls upon member nations to commit themselves immediately to ensuring that their vessels and nationals adhere to UNGA Resolution 46/215 and to impose appropriate sanctions on those vessels and nationals that do not.

International Whaling Commission

Overview: 1994 Annual Meeting; Prep. for 1995

The 46th Annual Meeting of the International Whaling Commission (IWC) was held in Puerto Vallarta, Mexico, from May 23 to May 27, 1994. Highlights of the meeting are as follows:

- The moratorium on commercial whaling (paragraph 10(e) of the IWC Schedule) remains unchanged. It was noted on the floor, however, that Norway is engaging in commercial whaling. A number of delegations, including the United States, expressed opposition to this flagrant disregard for the Commission's authority.

- The IWC established a sanctuary in a majority of the waters south of 40° South latitude as the result of a vote that was 23 in favor of the sanctuary, 1 against (Japan), with 6 abstentions.

- The Commission accepted the work of the Scientific Committee to date on the Revised Management Procedure, yet noted several additional steps that were necessary for completion of the revised procedures, including the development of an effective supervision and control scheme.

- The U.S. was given a large increase in its bowhead subsistence harvest quota in 1994. It will be allowed to land up to 51 animals per

year for four years (up from 41 landed per year for the years 1992-1994). Upon receiving this increase, the U.S. promised to strive for heightened efficiency during the subsistence hunt by aiming at 75 percent efficiency in 1995 (=68 strikes), 76 percent in 1996 (= 67 strikes), 77 percent in 1997 (= 66 strikes) and 78 percent in 1998 (= 65 strikes). A carry-over of up to 10 strikes or landings per year of any unused portion of the quota is permitted. The Commission also agreed to ask the Scientific Committee to start a review of the aboriginal subsistence management procedures.

- The IWC agreed to hold an intersessional meeting in January 1995, to develop a system of supervision and control for whaling. This meeting will probably be held in Norway in January 1995.

- Japan's request for an interim quota of 50 minke whales for its community-based whalers was denied.

- A resolution was passed regarding international trade in whale meat. Among other things, the resolution declares that the meat and products from research whaling should not be allocated for export (previously 49 percent could be exported). In addition, the government is requested to report on smuggling cases.
- A resolution was passed endorsing the Scientific Commission's plans to pursue studies on environmental changes and their impacts on cetaceans.

- The first meeting of the Working Group on Whale Watching resulted in a useful preliminary exchange of information. While most countries felt that whale watching regulations should be the responsibility of the national government, the group agreed to task the Scientific Committee to identify and attempt to assess the possible impacts of whale watching on whales. The Working Group plans to meet again next year to assess the group's progress and to outline long-term objectives.

- Resolutions against Japanese and Norwegian research whaling proposals were passed asking each country to reconsider. Japan started its new North Pacific research whaling program in July 1994.

- The Humane Killing Workshop of 1992 will be reconvened prior to the 1995 IWC Annual Meeting.

- A resolution was passed commending Mexico for its efforts to protect vaquita through establishment of a biosphere reserve. The same resolution invited Mexico to develop an overall management plan for the reserve expeditiously.

Preparations for 1995 IWC Meeting

Prior to the election in April 1995, Iceland's Parliament debated about whether or not to resume whaling and whether or not to rejoin the IWC before doing so. The Parliament deferred a decision until the panel of experts that the IWC established to address this issue could report its findings. These findings are expected in March 1996, after which the question will be reconsidered. While the panel could report sooner, it appears that the issue of resumed Icelandic whaling has been avoided for 1995.

The U.S. has told Iceland repeatedly that it is opposed to commercial whaling and that if Iceland remains interested in whaling, it should rejoin the IWC, abide by the Commission's rules, and work out its differences within the IWC since the Commission is the only international body with authority to manage whaling.

There will be an intersessional meeting of the IWC to discuss supervision and control in Reine, Norway on January 9-13, 1995. In addition, the Workshop on Whale Killing Methods, first convened in 1992, will be reconvened in 1995.

The Annual Meeting of the IWC will be held from May 28 to June 2, 1995, in Dublin, Ireland.

Events Since the IWC Meeting

Japan lodged an objection with regard to the Southern Ocean Whale Sanctuary on August 12, 1994. Although the United States has urged Japan on a number of occasions to withdraw this objection, it is not considered likely that Japan will do so in the near future.

Norway engaged in both commercial whaling and scientific whaling for minke whales in the northeast North Atlantic in the summer 1994. The self imposed commercial whaling quota allocated was originally 189 minke whales, with 112 whales to be taken for scientific research. Midway through the summer, these figures were readjusted when it appeared that the scientific quota would not be reached. The final quotas were: 206 for commercial whaling (of which 206 were taken), and 95 for research (of which 72 were taken). Its 3-year scientific research hunt ended this year (1994). The United States remains opposed to this whaling and continues to urge Norway to cease.

Non-IWC Whaling Activities

In 1994, Canada again issued a permit for its Inuvialuit natives to take one bowhead whale. The United States protested this license to whale outside the IWC and brought the situation to the attention of a number of like-minded countries, asking them to put pressure on Canada to revoke the permit. No whale was taken by the Inuvialuit in 1994. However, on September 21, 1994, a bowhead whale, presumably from the more endangered population of bowheads in eastern Canada, was taken off the Melville Peninsula, north of Hudson Bay. Canadian officials have told us that this hunt was not authorized and that they expect to bring charges against the whale hunters.

On a related issue, Secretary Brown has received a petition from the Animal Alliance of Canada, International Wildlife Coalition and others, requesting that he certify Canada under the Pelly Amendment for various reasons, including issuance of a permit to a Canadian national to kill a bowhead whale and promulgation of a statute which would allow the issuance of other such permits. The petition is currently under review.

Japan went forward with its lethal "feasibility study" in the North Pacific. A total of 21 minke whales were taken out of the proposed sample size of 100 animals. Japan is expected to submit a revised proposal for North Pacific whale research to the IWC in May 1995.

U.S.-Russia Marine Mammal Project, 02.05-61, under Area V of the Environmental Protection Agreement

The goal of this project is to conduct cooperative research on the biology, ecology, and population dynamics of marine mammal species of concern to both countries, leading to the development of methods for the management and protection of these animals.

During 1994, the following exchanges took place:

1. Two American scientists (one from NMFS and one from ADF&G) took part in an international working group meeting on Steller sea lions and northern fur seals in Petropavlovsk-Kamchatskii, Russia, in April. The workshop reviewed recent research on these species, and developed plans for future joint efforts.

2. One scientist from the Far East Branch of the Russian Academy of Sciences worked on spotted (or larga seal) satellite tagging data analysis with ADF&G scientists in Alaska for 5 weeks in September-October. This work builds upon earlier joint studies that developed an effective system for tagging to monitor movements and behavior of spotted seals.

3. Two scientists from TINRO (Vladivostok) took part in aerial and shipboard surveys of Steller sea lions in Alaska for 2 weeks in June-July.

4. One scientist from the Far East Branch of the Russian Academy of Sciences in Kamchatka worked with NMFS scientists on harbor seal aerial surveys in Alaska for 3 weeks during September. These last two exchanges build upon earlier survey efforts on both Steller sea lions and harbor seals. The result has been a useful transfer of technology and methodology that will make future national efforts more compatible in joint use of data.

Steller sea lion on the rocks of Frederick Sound, Alaska. *Photo credit: NMFS/FPR.*

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

NMFS participated in the Ninth Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in Ft. Lauderdale, Florida, in November, 1994. The following issues concerning marine mammals, were discussed:

Listing criteria

The United States opposed a resolution put forward by the Standing Committee of CITES to change the criteria used for evaluating proposals for listing species in the CITES Appendices. In discussions prior to the Conference, NMFS had argued that the criteria proposed by the Standing Committee could be disadvantageous to marine species in general and marine mammals in particular. The U.S. developed an alternative proposal submitted as a resolution for consideration. After considerable discussion, a resolution containing compromise criteria, incorporating many elements of the U.S. proposal were adopted by the CITES Parties. Use of the new listing criteria will begin with the Tenth Conference of the Parties in 1997.

Downlisting of North Atlantic Minke Whales

The Government of Norway proposed that the northeastern and north central Atlantic stocks of minke whales be transferred from Appendix I (no commercial trade) to Appendix II (trade subject to regulation). The United States opposed the proposal. Norway's original proposal was modified by the proponent to move the populations to Appendix II with a zero quota, on condition that if deliberations of the Scientific Committee of the IWC resulted in a population estimate for stocks that, if applied to the Revised Management Procedure, would result in a positive quota. After opposition was voiced by the United States, the European Union and other Parties, the proposal was defeated - 16 for and 48 against.

Illegal Trade in Whale Meat

In recognition that even with the moratorium of the IWC on commercial whaling, illegal trade in whales listed in Appendix I of CITES has continued, the United States proposed this agenda item for discussion at the Conference. A resolution was passed by consensus which recognizes the work of the IWC on the issue and urges CITES Parties to investigate illegal trade in whale meat and cooperate with the CITES Secretariat in the collection of this information. It also encourages the sharing of information between the IWC and CITES on illegal trade and directs the Secretariat to share with the IWC any information it collects regarding illegal trade in whale meat.

When NMFS recently participated in the Ninth Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) in Ft. Lauderdale, Florida, several agenda items were issues of interest to the IWC. The United States proposed the agenda item: Illegal Trade in Whale Meat. A resolution was passed by consensus which recognized the work of the IWC on the issue and urged CITES Parties to investigate illegal trade in whale meat and cooperate with the CITES Secretariat in the collection of this information. It also encouraged the sharing of information between the IWC and CITES on illegal trade, and directed the Secretariat to share with the IWC any information it collects regarding illegal trade in whale meat.

In a related incident a Norwegian citizen at the CITES meeting imported into the United States a seal skin vest in violation of the MMPA. A law enforcement agent of the USFWS seized the vest and transferred it to an agent of the NMFS for adjudication.

The Government of Norway also proposed that the northeastern Atlantic and north central Atlantic stocks of minke whales be moved from Appendix I to Appendix II. Norway's original proposal was subsequently modified by the proponent to move the populations to Appendix II with a zero quota, provided that deliberations of the Scientific Committee of the IWC resulted in a population estimate for stocks that, if applied to the Revised Management Procedure, would result in a positive quota. After opposition was voiced by the European Union and other Parties, the proposal was defeated -- 16 for and 48 against.

Petition on Chilean Crab Fishery

On May 13, 1992, the Sierra Club Legal Defense Fund on behalf of the Defenders of Wildlife, petitioned the Secretary of the Treasury for a prohibition on the importation of Chilean crab on the basis that marine mammals were being used as bait in the fishery for false king crab and snow crab. The petition presented supporting documentation demonstrating that Commerson's dolphins (*Cephalorhynchus commersonii*), black dolphins (*Cephalorhynchus eutropia*), southern sea lions (*Otaria flavescens*), and southern fur seals (*Arctocephalus australis*) had been used as bait in the crab fishery. In August 1992, the Department of the Treasury forwarded the petition to NMFS for a finding of fact. Letters supporting the petition were received from 8 other environmental organizations and three American fishing groups. The petition was filed under section 101(a)(2) of the MMPA which provides:

> "The Secretary of the Treasury shall ban the importation of commercial fish or products from fish which have been caught with commercial fishing technology which results in the incidental kill or incidental serious injury of ocean mammals in excess of United States standards."

This provision has been in the law since it was first passed in 1972. With the exception of specific language addressing the tuna purse seine fishery, this was the first instance when NMFS was asked to apply it.

After consultations with the Office of Protected Resources, the Director of Chile's National Fisheries Service (SERNAP) made a commitment to take a series of actions to end the practice of using marine mammals as bait in the crab fishery. In early 1994, the Government of Chile implemented measures to fulfill this commitment. The actions taken included the following:

1. A Commission was set up to address the issue. It includes representatives from the industry, SERNAP, port officials, Navy, fishermen, police, and academics. It has met twice a month since January. It has set up a multipoint program addressing marine mammals and birds (penguins).

2. Education and biological studies
   a. Both national and regional funds have been committed to do biological studies to determine the status of marine mammal populations.
   b. An 800 phone system has been set up and publicized for reporting of violations.
   c. Posters and stickers have been distributed in the region.
   d. An educational program for schoolchildren has been developed.
   e. The issue has been publicized in radio station broadcasts.

3. When registering for the fishery, each fisherman is given information and required to sign an agreement not to use marine mammals or birds as bait.

4. Bait is being given to fishermen at no cost from fish processing waste. The Government estimates that 300-600 tons of bait are needed annually for the fishery. One plant, Pan-Chile, produces 2 1/2 tons per day. In addition, 40 tons of frozen bait are in storage to cover periods when fish wastes may not be available. The Government has committed to keeping documentation on provision of bait.

5. Enforcement
   a. The penalties have been increased to the highest of any fisheries violation--$1,000 for each marine mammal or bird taken.
   b. Enforcement has a priority in the Navy which is responsible for enforcement actions. The second highest naval officer is responsible for fisheries enforcement. There appears to be enthusiasm for this work, and patrols and boardings appear to be handled professionally.
   c. Six patrol boats are assigned to the southern region where the fishery takes place. They reach every area of the fishery and are supported by helicopter surveillance.
   d. SERNAP has stationed two people on the major penguin rookery.

In May 1994, a representative of CODEFF, a Chilean environmental organization, confirmed that many of the individual steps were being imple-mented. She stated that she has seen "a strong political will to resolve this issue." In June, the Director of the Office of Protected Resources went to Chile to observe progress in implementation. Based on his report and other information, Defenders of Wildlife withdrew its petition on August 16, 1994.

Chapter XI. Law Enforcement

NMFS Special Agents and Enforcement Officers enforce the provisions of the MMPA. NMFS employs about 115 Special Agents and 25 uniformed Enforcement Officers. These officials are assisted by enforcement officers from several states who act under agreements authorized by the MMPA.

The total number of alleged violations of the MMPA that were investigated by NMFS and State enforcement personnel during 1994 exceeded the combined totals for the previous two years. The most notable increase in violations was in the category of unlawful takes. An increase in violations connected with the interim exemption program for commercial fisheries also took place in 1994. However, as the total number of incidental takes still falls well below violation levels detected in the early years of this program, this increase may not be significant.

NMFS and state enforcement personnel investigated a total of 144 alleged violations of the MMPA during 1994. Of these alleged violations, 28 involved infractions by commercial fishermen regarding Certificate of Exemption and/or marine mammal observer requirements. There were 84 investigations of unlawful taking (including harassment), 11 cases of illegal importation of marine mammal parts and products, 9 involving illegal sale of marine mammal products, and 12 miscellaneous violations.

Regional Trends

In 1994, the activities of NMFS enforcement personnel in dealing with marine mammal issues took a wide variety of forms. From testifying against criminal violators in court to disseminating information to the boating public on new dolphin interaction rules, Special Agents and Enforcement Officers maintained a high-profile presence in many matters dealing with marine mammals, e.g., as the Northwest Office of Enforcement has committed to improving the coordination, support, and rapid response of the marine mammal stranding networks along the Washington and Oregon coasts, the response to marine mammal strandings has dramatically improved in those areas.

In September, a 40-ton sperm whale carcass floated up on the tidal flats in Ipswich, Massachusetts. The ivory-laden lower jaw had been cut off the dead sperm whale carcass with a chain saw. Northeast Special Agents, with the cooperation of local and state enforcement agencies and the news media, conducted an investigation and successfully recovered the jaw and all teeth. Two individuals were charged with an unlawful take under both the ESA and MMPA.

In the Northwest, enforcement personnel were heavily involved in the efforts to minimize sea lion predation of endangered and threatened salmon and steelhead trout. Special Agents assigned to an underwater investigative unit investigated the sabotage and sinking of a floating sea lion capture platform in Puget Sound. They executed the salvage of the platform and devised a method to prevent it from being sunk again. They also assisted in the installation and maintenance of acoustic deterrent devices at the Ballard Locks throughout the year. Furthermore, Northwest Special Agents worked in conjunction with the Washington Department of Fish and Wildlife to capture and relocate Sea Lion #17, from the Shilshole area. This sea lion, weighing in at 870 pounds, was alleged to be the second largest sea lion consumer of steelhead in the Shilshole/Ballard Locks vicinity.

Noteworthy Enforcement Cases

A regulatory amendment, clarifying that feeding marine mammals in the wild is a form of "take" prohibited under the MMPA, became effective in March 1991 (56 FR 11693). In October 1992, however, a Texas district court, ruling in favor of a Corpus Christi couple running a dolphin feeding operation, issued an injunction against NMFS's feeding regulations, as it applied to bottlenose dolphins. In October 1993, the Fifth Circuit Court of Appeals in New Orleans lifted the injunction, stating that it was reasonable for NMFS to prohibit feeding as a potential hazard to dolphins, thus, clearing the way for NMFS to begin enforcing this regulation. Because of this 1993 change, enforcement personnel in the Southeast became active in 1994, investigating allegations of dolphin harassment connected to wild feeding. Certain persons who were active in dolphin feeding in the past threatened to continue their activities in order to test the new court decision and NMFS' ability to enforce it. The Office of Enforcement conducted overt and covert investigations and determined that the threatened violations had probably not occurred. The Office remains active in providing information to the public on the latest rules regarding feeding marine mammals in the wild.

The Southwest Office of Enforcement brought to jury trial a case involving a fishing vessel operator and a crewman who conspired to gut hook sea lions intentionally. They rigged juvenile barracuda with shark hooks to a accomplish this illegal taking. Both defendants were found guilty.

Also in the Southwest, two cases initiated in 1993 are expected to go to trial in the United States District Court in 1995 following successful investigation. One case involved the illegal taking of marine mammals by employees of a San Diego bait barge using a variety of weapons including bows and arrows, harpoons, and spears. In this case, Special Agents documented the taking of a large quantity of marine mammals by crewmen while engaged in a Category II fishery and the subsequent failure to record these takes in the required marine mammal log. The other case expected to go to trial in the Southwest involves a fishing vessel operator's intentional hunting of marine mammals with firearms. This same operator also devised a new sport called "dog wrestling," in which marine mammals were baited and subsequently gaffed by the operator and others. The "players" then vied to see who could hold on to the gaff the longest before it ripped out of the marine mammals' flesh.

Chapter XII. Litigation

Ongoing Legal Actions

American Tunaboat Association, et al., v. Ronald H. Brown, et al., No. 94-0736 (TEH) (N.D. Cal.): On February 7, 1994, NMFS notified U.S. tuna fishing fleet members that, effective immediately, all tuna fishing involving setting on dolphins in the eastern tropical Pacific Ocean (ETP) was prohibited because the fleet had reached the annual quota of dolphin mortalities specified in sec. 306(a)(4) of the MMPA. On February 25, 1994, plaintiffs filed a complaint and motion for Temporary Restraining Order (TRO) and Preliminary Injunction in the district court for the Southern District of California seeking injunctive and declaratory relief from NOAA's February 7, 1994, notice. Because this case was similar to one pending in Earth Island Institute v. Brown, No. C88-1380 (N.D. Cal.), this case was transferred to the district court for the Northern District of California.

The plaintiffs alleged that NOAA improperly determined that the U.S. tuna fleet in the ETP had reached its allowable quota of dolphins killed for 1994 and that the closure of the fishery therefore violated the MMPA. NMFS had based its determination on sec. 306(a)(4) of the MMPA, which requires that U.S. fleet-caused dolphin mortality, for every year after 1992, cannot exceed the number of mortalities for the preceding year. In addition, sec. 306(a)(4) requires that total dolphin mortalities occurring under the ATA general permit each year continue to decline by statistically significant amounts each year. NMFS observer records indicated that there were 115 dolphin mortalities caused by the U.S. fleet in 1993. During January and the first week of February, 1994, NMFS received reports that an unusually high rate of dolphin mortality had already occurred in 1994 such that the fleet would reach and exceed the 114 quota for 1994 by the end of the day on Feb. 7, 1994.

The plaintiffs claimed that the correct quota was 800 dolphins for the period Jan. 1, 1993 to February 28, 1994, and that the phrase "each year after 1992" used in sec. 306(a)(4) of the MMPA should be construed to mean any consecutive 12 month period, not a calendar year. They also alleged that the form of the Feb. 7 notice was improper because the ATA was notified directly rather than by publication of a notice in the Federal Register as called for in NMFS' regulations.

On April 15, 1994, the district court denied the plaintiffs' motion for a TRO, finding no showing of irreparable injury, no probability of success on the merits, and no balance of hardships favoring the plaintiffs. The motion for preliminary injunction was then briefed, and Earth Island Institute, the plaintiff in the related case, filed a brief amicus curiae in support of NMFS' position. A hearing on the PI motion was held on May 23, 1994, and on July 6, 1994, the district court denied the plaintiffs' PI motion and granted partial summary judgment to the government on the substantive issue of whether NMFS had applied the correct 1994 quota (i.e., 114). The court found that the plaintiffs were likely to prevail on the issue of whether the form of the notice was proper, but that "any remedy granted for the apparent procedural violation would have no effect on the 1994 quota and so would not result in the fishery's being reopened for the remainder of the 1994 year or any significant portion thereof."

Plaintiffs then filed an appeal with the NinthCircuit Court of Appeals alleging that district's court's decision to deny the preliminary injunction was an abuse of discretion. The appeal was pending as of the end of 1994.

Animal Protection Institute v. Mosbacher and International Wildlife Coalition v. Franklin, Civil No. 89-1696 TPJ (and consolidated Civil No. 92-0223 TPJ) (D.D.C.): API v. Mosbacher challenged the issuance of a permit authorizing Shedd Aquarium in Chicago to import false killer whales

Breaching humpback whale (*Megatera novaengliae)* in Southeast Alaska. *Photo credit: J.M. Waite, NMFS/NWR.*

(pseudorcas) from Japan. On Nov. 29, 1991, NMFS issued to Shedd Aquarium another permit to import beluga whales from Canada. On January 24, 1992, International Wildlife Coalition (IWC) filed a complaint challenging issuance of this permit. The issues raised in the two cases were identical, and the court consolidated the cases. The issues presented by these cases were detailed in the 1992-1993 Annual Report.

On July 31, 1992, the court granted the government's motion for summary judgment; the plaintiffs filed a notice of appeal with the District of Columbia Circuit Court of Appeals on August 3, 1992. As discussed in last year's Annual Report, in light of developments subsequent to their notice of appeal which essentially rendered the case moot, plaintiffs filed a motion to dismiss their appeal and on Sept. 10, 1993, the Court of Appeals issued a order holding the cases in abeyance until December 31, 1993, at which time the parties were to report back to the court as to whether the appeal should be dismissed. On Feb. 7, 1994, after the parties reported back to the court, the court issued an order dismissing the appeal.

Earth Island Institute, et al. v. Brown, et. al, and American Tunaboat Association, et al., No. 88-1380 (N.D.Cal.); No. 92-15387 and 92-15126 (9th Cir.): This case, which has been reported in several previous Annual Reports to Congress, came to a conclusion in 1994. Plaintiffs have alleged various

failures of NOAA to enforce the MMPA with respect to yellowfin purse seine fisheries in the eastern tropical Pacific Ocean (ETP). Developments in 1994 addressed the issues of setting purse seine nets on depleted stocks of dolphin, the district court's jurisdiction to rule on embargo issues and attorneys fees.

On February 3, 1992, the district court for the Northern District of California granted the plaintiffs' motion for preliminary injunction, but denied their motion for a permanent injunction and summary judgment, ordering NOAA to prohibit the importation of yellowfin tuna and products from any intermediary nation until that nation's government provides certification and proof that it has acted to prohibit the importation of tuna that is barred from direct importation into the United States under the MMPA. The government appealed the preliminary injunction order to the Ninth Circuit Court of Appeals and sought a stay of proceedings due to legislative action that might have addressed the secondary embargo issues; the government at this time also argued that the district court lacked subject matter jurisdiction to rule on issues involving embargoes. On August 13, 1992, the Ninth Circuit granted a stay of proceedings. On January 6, 1993, the Ninth Circuit issued an order continuing the stay. When it became apparent that a legislative solution would not be forthcoming, the stay was lifted and oral argument on the appeal was heard on August 10, 1993.

On Nov. 19, 1993, the plaintiffs filed a motion for preliminary injunction to force NOAA to prohibit the U.S. ETP yellowfin purse seine fleet from setting its nets on depleted northeastern offshore spotted dolphins. The government opposed this motion, and a hearing was held before Judge Henderson in the U.S. District Court for the Northern District of California on Jan. 3, 1994. On Jan. 27, 1994, Judge Henderson issued an order enjoining the government from allowing the incidental taking of any northeastern offshore spotted dolphins during tuna fishing in the ETP, requiring NMFS to issue regulations prohibiting setting on any schools of dolphin where any northeastern offshore spotted dolphins are observed and incorporating such prohibitions into the foreign comparability standards applied to other nations. The court also enjoined the American Tunaboat Association from allowing vessels operating under its permit from encircling schools of dolphin where northeastern offshore spotted dolphins were sighted until NMFS issued final regulations on the subject. Due to the difficulty involved in trying to distinguish northeastern offshore spotted dolphins from southwestern offshore spotted dolphins, the court also ordered the parties to meet with the goal of minimizing takes of northeastern offshore spotted dolphins along the boundary between the two stocks. On Jan. 31, 1994, NMFS notified the U.S. tuna fleet that sets on schools containing northeastern offshore spotted dolphins was prohibited effective immediately. On Feb. 4, 1994, NMFS extended the prohibition to all offshore spotted dolphins in the ETP. The government ultimately decided not to appeal the district court's Jan. 27, 1994, order.

On March 3, 1994, while the parties grappled with how to implement the district court's Jan. 27, 1994, order, the Ninth Circuit Court of Appeals issued its opinion in the government's appeal of the district court's February 1992 order regarding intermediary nation embargoes. The Ninth Circuit agreed with the government that the district court lacked subject matter jurisdiction to hear the case because 28 USC 1581(i)(3) vests exclusive jurisdiction over any case arising out of "any law of the United States providing for...embargoes or other quantitative restrictions on the importation of merchandise for reasons other than the protection of the public health or safety" in the Court of International Trade (CIT). Finding that the MMPA is the type of law covered by 28 USC 1581(i)(3), the

Ninth Circuit held that the CIT has exclusive jurisdiction over the issues raised in this case, vacated the district court's 1992 injunction and dismissed the lawsuit.

On March 17, 1994, the plaintiffs asked the Ninth Circuit to stay the effective date of its order pending the Court's decision on plaintiffs' request for rehearing. On July 22, 1994, the Ninth Circuit filed its mandate vacating and remanding the case back to the district court, and the plaintiffs filed a motion asking the Ninth Circuit to recall and stay the mandate while they petitioned the U.S. Supreme Court for certiorari. On Aug. 12, 1994, the Ninth Circuit granted the motion, after which the plaintiffs filed a Petition for Certiorari with the Supreme Court. The government filed its brief in opposition in October, 1994, and the Supreme Court denied certiorari on Nov. 14, 1994.

On Sept. 29, 1994, the parties submitted to the district court a proposed final judgment that would dispose of the remaining issues in this case, except for attorneys fees and those addressed by the plaintiffs' then-pending Petition for Certiorari. The court signed the final judgment on Oct. 5, 1994, and the parties agreed to a compromise on the attorneys fees issue just before a scheduled hearing on the matter; the agreement was approved by the court on Dec. 14, 1994. The agreed amount of attorneys fees was transmitted to plaintiffs' attorneys on Dec. 23, 1994. With settlement of this final issue, this case was closed.

Greenworld, Inc., et al. v. Brown, et al., No. 93-10623-MA (D. Mass.): The issues raised by this case were described in detail in the previous Annual Report. There were no court-related developments in 1994, although NOAA had discussions with federal and state agencies and plaintiff groups attempting to resolve the issues.

Marine Mammal Fund, et al. v. Brown, et al., Civil No. C93-4155 MHP (N.D. Cal.): On Nov. 23, 1993, the plaintiffs sought a temporary restraining order to enjoin NMFS from allowing Chicago's Shedd Aquarium to capture three pacific white-sided dolphins off southern California pursuant to a MMPA public display permit issued by NMFS. As described in detail in last year's Annual Report, plaintiffs' attempts to obtain TROs were unsuccessful, and the captured animals were moved to Shedd Aquarium in Chicago. The case was dismissed in January, 1994.

Mirage Resorts v. Franklin, Civil No. CV-S-92-759-PMP.LR (D. Nev.): On August 31, 1992, the Mirage, a Las Vegas resort holding a MMPA public display permit to exhibit dolphins, sued NMFS over the agency's decision to defer consideration of the Mirage's request to begin a "swim-with-the-dolphin" (SWTD) program which allows members of the public to enter the pool and swim with dolphins. As described in greater detail in the 1992-1993 Annual Report, the Mirage's suit alleged that NMFS had no statutory jurisdiction under the MMPA to regulate the captive maintenance of marine mammals. In an order dated Nov. 24, 1993, the court agreed with plaintiffs, granted the plaintiffs' motion for summary judgment and denied the agency's cross motion for summary judgment.

NMFS filed a notice of appeal with the Ninth Circuit Court of Appeals on Feb. 10, 1994. In light of amendments made to the MMPA on April 30, 1994, however, which made clear that jurisdiction over captive maintenance of marine mammals resides with the Department of Agriculture (and its Animal and Plant Health Inspection Service) pursuant to the Animal Welfare Act, NMFS filed a motion on June 21, 1994, asking that the matter be dismissed as moot. On June 27, 1994, the Ninth Circuit issued an order directing the district court to dismiss the matter as moot, which it did on July 7, 1994.

Natural Resources Defense Council v. Department of the Navy, et al., No. 94-2337-SVW (CTx) (C.D. Cal.): On April 12, 1994, plaintiffs filed this action seeking injunctive and declaratory relief regarding NMFS' authorization, under the MMPA section 101(a)(5) "small take" provisions, of the take of small numbers of marine mammals incidental to the Navy's planned underwater detonation of explosives to test the structural integrity of new "Aegis"-class destroyers. The first tests were to be conducted on the U.S.S. JOHN PAUL JONES (DDG-53). NMFS authorized the marine mammal takes in a Letter of Authorization that required the Navy to implement substantial mitigation measures to ensure that the tests would result in no more than a negligible impact on marine mammals.

The test site was chosen after extensive aerial surveys were conducted by NMFS to locate areas of ocean off southern California with the lowest practicable marine mammal densities, taking into consideration certain operational constraints of the Navy. For instance, the detonations had to occur in water of a certain depth but close enough to shipyard facilities so that the DDG-53 could be towed back to port if the detonations damaged the ship. Complicating matters was the constraint that the test sites also had to be within the range of aircraft that were to perform pre- and post-detonation marine mammal surveys. The preferred site was southwest of the Channel Islands off the southern California coast. Both the Navy and NMFS prepared environmental assessments under the National Environmental Policy Act (NEPA) that concluded in Findings of No Significant Impact.

The plaintiffs alleged, primarily, that the Navy's and NMFS' analyses of the project under NEPA were deficient because they failed to consider an adequate range of alternatives. Plaintiffs believed that other locations farther north along the coast, farther out to sea, and off the eastern U.S. coast, should have been considered and analyzed. The plaintiffs believed, in particular, that a location farther west than the preferred site chosen by the Navy with NMFS' concurrence was likely to have lower marine mammal densities and should therefore have been chosen. A hearing on plaintiffs' motion for preliminary injunction was held from April 20-22, 1994. On April 26, 1994, the court issued an order granting plaintiffs a preliminary injunction, agreeing that the range of alternatives considered by the Navy and NMFS was insufficient. The court enjoined the Navy from conducting its tests and NMFS from issuing any more Letters of Authorization until alternative locations could be analyzed.

The parties subsequently agreed to a compromise arrangement wherein the Navy, with NMFS' concurrence, agreed to move the test to the plaintiffs' more western preferred site and to modify mitigation measures (e.g., underwater sonar searches for marine mammals, amended aerial survey techniques). The details of this arrangement were set forth in a consent decree that was approved by the court on May 6, 1994 (subsequently amended on June 15, 1994). In light of the consent decree, the court's April 26 decision was vacated.

With observers on hand from the plaintiff organization, the tests were conducted on June 9, 1994, and June 27, 1994. Extensive pre- and post-detonation aerial and shipboard surveys were conducted to ensure that no marine mammals were present in the area of the test. Post-detonation surveys, in particular, resulted in the conclusion that the mitigation measures were successful in that no marine mammals were found to have been injured or killed due to the tests.

Sabella, et al. v. United States, et al., Civil Action No. 94-0350 JLG (D.D.C.): This case came about due to a letter sent on January 7, 1994, by counsel for plaintiffs to the NOAA General Counsel asking for a "definitive statement" of

NOAA's interpretation of section 307(a)(2) of the MMPA, which makes it unlawful "for any person or vessel that is subject to the jurisdiction of the United States, intentionally to set a purse seine net on or to encircle any marine mammal during any tuna fishing operation after February 28, 1994." Counsel for plaintiffs asked specifically whether this provision applied to U.S. citizens who work as captains or crew on foreign flag vessels.

On February 25, the NOAA General Counsel sent counsel for plaintiffs a letter expressing the opinion that, under sec. 307(a)(2) of the MMPA, U.S. citizens may not lawfully engage in any foreign tuna fishing operations after February 28, 1994, that would involve the intentional encirclement of dolphins. On February 24, 1994, the named plaintiff and three other U.S. citizens who work as tunaboat captains or crew members on foreign flag vessels documented under the laws of Mexico, Venezuela or Vanuatu, filed suit seeking injunctive and declaratory relief from agency enforcement of an interpretation that the MMPA applies to U.S. citizens on foreign flag vessels. Earth Island Institute, an environmental organization with interest in tuna-dolphin issues, intervened in the case as a defendant.

The court held a hearing on the TRO motion on March 10, 1994, and on March 11, 1994, issued an order treating the TRO motion as a motion for preliminary injunction because the parties had an opportunity to brief the issues and argue their positions in open court. The court then denied the plaintiffs' motion for preliminary injunction based on findings that the threatened economic loss claimed by plaintiffs did not constitute irreparable harm because the losses did not threaten the plaintiffs' livelihoods or the existence of their businesses. Second, the court found that the threat of enforcement of civil and criminal penalties against the plaintiffs was speculative and not sufficient to support a preliminary injunction.

The government thereafter filed an answer to the complaint, and in April, 1994, the parties filed cross motions for summary judgment. The government sought summary judgment on the grounds that, among other things, the plaintiffs asked for judicial review of the issue even though the government had not yet pursued any administrative enforcement actions against any of the plaintiffs and, thus, there was no "final agency action" for the court to review. On June 27, 1994, the court agreed, finding that the NOAA General Counsel's letter did not reflect a definitive agency position on the issue, but merely stated the General Counsel's opinion and that, while it might be a "highly educated guess" as to the decision the agency might make, it did not create any law or bind the NOAA Administrator. The court held that the General Counsel's letter did not constitute "final agency action," and that judicial review of the issue was therefore premature. The court dismissed the case without prejudice on June 27, 1994.

United States v. Hayashi, No. 92-10044 (Ninth Circuit Court of Appeals): This case was described in detail in the 1992-1993 Annual Report. Briefly, on January 24, 1991, David Hayashi, a part-time commercial fisherman, and his son were fishing for tuna off the coast of Waianae, Hawaii. Hayashi fired a rifle into the water with the intent of deterring four dolphins that had begun swimming around his fishing gear from eating his bait or fish that had been caught on the lines. The shots did not hit the dolphins. Hayashi was a commercial fisherman allowed by regulation promulgated under the MMPA interim exemption for commercial fisheries (section 114) to engage in this kind of deterrent action in the course of his commercial fishing operations.

Hayashi was charged by the local Assistant U.S. Attorney in Honolulu with criminal violations of the MMPA for "taking" marine mammals by shooting at, and thereby "harassing," them and he was convicted before a Magistrate Judge in July

1991. Hayashi appealed to the District Court, which upheld the conviction in December 1991. Hayashi appealed again to the Ninth Circuit Court of Appeals, which on September 27, 1993, overturned Hayashi's conviction. In addition to other issues discussed in last year's Annual Report, the Ninth Circuit found that Hayashi's conduct did not violate the MMPA because it did not constitute "harassment." The court noted that the MMPA failed to define "harass" in the statutory definition of "take," and so the court defined the term as "sustained and serious disruptions of normal mammal behavior."

Concerned that the Ninth Circuit's construction of "harassment" in the MMPA could cause significant problems for the agencies responsible for administering and enforcing the statute, the government on Nov. 9, 1993, petitioned the Ninth Circuit for rehearing or other appropriate relief. The agency was particularly concerned by the element of the court's definition which required a "sustained and serious disruption" of marine mammal behavior, as this was contrary to longstanding agency interpretation. On Feb. 1, 1994, the Ninth Circuit ordered the parties to file briefs stating whether the matter should be reheard en banc. On Feb. 22, 1994, the Justice Department filed a brief recommending that the case should be reheard en banc. The Federal Public Defender for the District of Hawaii, on behalf of Hayashi, submitted a brief on Feb. 22, 1994, opposing rehearing en banc.

On April 26, 1994, the Ninth Circuit denied the request for rehearing en banc, but issued an order amending its Sept. 27, 1993, opinion and dissent which deleted the phrases "sustained," "extended," and "sustained effect" wherever they appeared in the context of "harassment" and replaced certain paragraphs with revised language to limit the scope of the opinion so that "sustained" effects on marine mammal behavior was no longer an element of the Ninth Circuit's opinion. In addition, however, Footnote 15 of the majority's opinion was amended to indicate that the court sought to afford private fishermen the same ability to deter marine mammals from damaging their gear or catch as the MMPA then provided to commercial fishermen. This latter amendment to the court's opinion may have been cause for further concern except that the effect of the Ninth Circuit's opinion, both before and after the April 26, 1994, order, was largely supplanted only 4 days later with enactment of the 1994 amendments to the Marine Mammal Protection Act. On April 30, 1994, the MMPA was amended by Congress, in part, by adding a statutory definition of "harassment" which does not contain the concept of "sustained" disruptions. In addition, Congress specifically provided authority for private fishermen (and others) to deter marine mammals from damaging fishing gear, catch or other property. Thus, this case has minimal, if any, import in light of the subsequent amendments to the MMPA.

Chapter XIII. Publications

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Appendix A

Table A-1
1994 List of Category I and Category II Fisheries

FISHERY	CATEGORY
AK Prince William Sound - drift gillnet	II
WA marine set gillnet in Areas 4, 4A, and 4B	I
CA set and drift gillnet fisheries (except the CA Klamath River gill net fishery) that utilize a stretched mesh size of <3.5 inches	I
AK Copper River and Bering River Districts salmon - drift	II
WA and OR thresher shark and swordfish drift gillnet	I
Gulf of Maine Atlantic salmon aquaculture fishery	II
SNE, MDA Foreign mackerel - trawl	I
Atlantic Ocean, CB, GMX tuna, swordfish, shark - pair trawl	I
Atlantic Ocean, CB, GMX swordfish, tuna, shark - longline	II
GME groundfish/mackerel - sink gillnet	I
AK Prince William Sound - set gillnet	II
AK South Unimak (False Pass and Unimak Pass) drift gillnet	II
AK Peninsula (other than South Unimak) drift gillnet	II
AK Southeast Alaska - drift gillnet	II
AK Yakutat - set gillnet	II
AK Cook Inlet - drift gillnet	II
AK Cook Inlet - set gillnet	II
AK Kodiak - set gillnet	II
AK Peninsula - set gillnet	II
AK Peninsula - drift gillnet	II
AK Bristol Bay - drift gillnet	II
AK Bristol Bay - set gillnet	II
WA Puget Sound Region, incl. Hood Canal, Strait of Juan de Fuca (estuaries and lower river areas subject to tidal action) - set and drift gillnet	II
WA coastal river - gillnet	II
CA Klamath River - gillnet	II

Table A-1 (cont'd)
1994 List of Category I and Category II Fisheries

FISHERY	CATEGORY
AK - gillnets (except salmon and herring)	II
CA - gillnets for white sea bass, yellow tail, soupfin shark, white croaker, bonito/flying fish - set gillnet	II
AK South Unimak (False Pass and Unimak Pass) - purse seine	II
AK South Unimak (False Pass and Unimak Pass) - drift gillnet	II
WA, OR, CA salmon - troll	II
CA herring - purse seine	II
CA anchovy, mackerel, tuna - purse seine	II
CA sardine - purse seine	II
CA squid - purse seine	II
AK Prince William Sound - longline/setline	II
AK Southern Bering Sea, Aleutian Islands, and Gulf of Alaska (Unimak Pass and westward) - longline/setline	II
AK Metlakatla fish trap	II
CA squid -dip net	II
WA, OR salmon - net pens	II
OR salmon - ranch	II
New England Multispecies - sink gillnet	I
Gulf of Maine small pelagics - surface gillnet	I
Mid-Atlantic (includes Atl.crkr, mack, sturg., herring, perch wkfish, strped bass, etc.) - coastal gillnet	II
AK (except salmon, herring, and sunken gillnets for groundfish) - gillnet	II
AK groundfish -sunken gillnet	II
Atlantic, CB, GMX swordfish, tuna, shark - gillnet	I
SNE, MDA Atlantic mackerel - trawl	II

Appendix B

APPENDIX B: National Marine Fisheries Service Observer Program
Federal Observer Program Data - All Years

Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
ATLANTIC OCEAN OBSERVER PROGRAMS									
Foreign and Joint Venture Squid/Mackerel Trawl (01)	1990	TOTAL	92	656 days	0.140	2.81	100%	92 (0)	N.A.*
		Pilot whale	71		0.108	2.16		71 (0)	
		Common dolphin	11		0.017	0.34		11 (0)	
		Atlantic white-sided dolphin	10		0.015	0.31		10 (0)	
Foreign and Joint Venture Squid/Mackerel Trawl (01)	1991	TOTAL	21	284 days	0.074	1.47	100%	21 (0)	N.A.
		Pilot whale	12		0.042	0.84		12 (0)	
		Common dolphin	2		0.007	0.14		2 (0)	
		Atlantic white-sided dolphin	7		0.025	0.50		7 (0)	
New England Multispecies Sink Gillnet (02)	1990	TOTAL	21	188 days (647 sets)	0.111	2.22	1%	3502 (1028759)	0.29
		Harbor porpoise	17		0.090	1.80		2900 (861184)	0.32
		Harbor seal	4		0.021	0.42		602 (167575)	0.68

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New England Multispecies Sink Gillnet (02)	1991	TOTAL	79	1217 days (4547 sets)	0.065	1.30	6%	2300 (493275)	0.31
		Harbor porpoise	47		0.039	0.77		2000 (490000)	0.35
		Harbor seal	23		0.020	0.38		231 (2583)	0.22
		Atlantic white-sided dolphin	4		0.003	0/07		49 (508)	0.46
		Minke whale	1		0.001	0.016		10 (92)	0.96
		Unknown	1		0.001	0.016		10 (92)	0.96
New England Multispecies Sink Gillnet (02)	1992	TOTAL	98	1400 days (5882 sets)	0.07	1.40	7%	1727 (73765)	0.16
		Harbor porpoise	53		0.036	0.72		1200 (63500)	0.21
		Harbor seal	24		0.017	0.34		373 (7360)	0.23
		Atlantic white-sided dolphin	9		0.006	0.13		154 (2905)	0.35

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Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
New England Multispecies Sink Gillnet (02)	1993	TOTAL	83	887 days (3956 sets)	0.09	1.87	4%	2321 (85455)	0.13
		Harbor porpoise	53		0.060	1.2		1400 (63504)	0.18
		Harbor seal	20		0.023	0.46		698 (17588)	0.19
		Grey seal	3		0.003	0.07		18 (324)	1.00
		Atlantic white-sided dolphin	7		0.008	0.16		205 (4039)	0.31
New England Multispecies Sink Gillnet (02) AVERAGE	1990-1993	Atlantic white-sided dolphin						102	
		Gray seal						5	
		Harbor porpoise						1875	
		Harbor seal						476	
		Minke whale						3	
		Unid. species						3	

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Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
Atlantic Swordfish Drift Gillnet (39)	1989	TOTAL	51	100 days (54 sets)	0.95/set	18.9/set	9%	914 (102245)	0.35*+
		Common dolphin	19		0.35/set	7.00/set		540 (88209)	0.55*+
		Beaked whale	12		0.22/set	4.44/set		60 (864)	0.49*+
		Bottlenose dolphin	8		0.15/set	3.00/set		72 (1805)	0.59*+
		Pilot whale	7		0.13/set	2.59/set		77 (7174)	1.10*+
		Striped dolphin	1		0.02/set	0.37/set		39 (1073)	0.84*+
		Risso's dolphin	3		0.06/set	1.11/set		87 (2047)	0.52*+
		Unid. dolphin	1		0.02/set	0.37/set		39 (1073)	0.84*+
Atlantic Swordfish Drift Gillnet (39)	1990	TOTAL	66	119 days (69 sets)	0.96/set	19.1/set	7%	1525 (148914)	0.25
		Common dolphin	23		0.33/set	6.67/set		893 (127592)	0.40
		Risso's dolphin	14		0.16/set	3.26/set		144 (4388)	0.46
		Pilot whale	11		0.13/set	2.56/set		132 (6065)	0.59
		Bottlenose dolphin	8		0.09/set	1.86/set		115 (2333)	0.42
		Spotted dolphin	7		0.10/set	2.03/set		51 (3263)	1.12
		Beaked whale	1		0.01/set	0.30/set		76 (1811)	0.56
		Striped dolphin	1		0.01/set	0.30/set		57 (1731)	0.73
		Unid. dolphin	1		0.01/set	0.30/set		57 (1731)	0.73

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Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
Atlantic Swordfish Drift Gillnet (39)	1991	TOTAL	72	80 days (46 sets)	1.56/set	31.3/set	21%	323 (7360)	0.27
		Common dolphin	55		1.19/set	23.8/set		223 (6445)	0.36
		Bottlenose dolphin	5		0.11/set	2.17/set		26 (131)	0.44
		Pilot whale	4		0.09/set	1.7/set		30 (520)	0.76
		Beaked whale	3		0.06/set	1.3/set		13 (55)	0.57
		Risso's dolphin	3		0.06/set	1.3/set		21 (133)	0.55
		Striped dolphin	1		0.02/set	0.4/set		10 (76)	0.87
Atlantic Swordfish Drift Gillnet (39)	1992	TOTAL	153	171 days (93 sets)**	1.65/set	32.9/set	67%	350 (2336)	0.14
		Common dolphin	97		1.01/set	20.2/set		227 (2061)	0.20
		Risso's dolphin	16		0.17/set	3.4/set		31 (70)	0.27
		Pilot whale	14		0.16/set	3.3/set		33 (92)	0.29
		Bottlenose dolphin	12		0.12/set	2.5/set		28 (35)	0.21
		Spotted dolphin	12		0.12/set	2.5/set		20 (49)	0.35
		Beaked whale	1		0.01/set	0.2/set		10 (28)	0.53
		Spinner dolphin	1		0.01/set	0.2/set		1 (1)	0.61

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Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
Atlantic Swordfish Drift Gillnet (39)	1993	TOTAL	152	134 days (86 sets)	1.76/set	35.34/set	40%	345 (1662)	0.12
		Common dolphin	111		1.29/set	0.32/set		238 (1450)	0.16
		Striped dolphin	13		0.15/set	3.02/set		21 (18)	0.20
		Pilot whale	11		0.13/set	2.32/set		31 (111)	0.34
		Bottlenose dolphin	6		0.07/set	1.40/set		22 (30)	0.25
		Atlantic white-sided dolphin	2		0.02/set	0.46/set		3 (1)	0.32
		Beaked whale	5		0.06/set	1.20/set		12 (15)	0.32
		Harbor porpoise	1		0.01/set	0.23/set		2 (1)	0.45
		Risso's dolphin	2		0.02/set	0.40/set		14 (35)	0.42
		Humpback whale	1		0.01/set	0.23/set		2 (1)	0.45

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Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
Atlantic Swordfish Drift Gillnet (Called "The pelagic swordfish, tuna, and shark drift gillnet fishery" in the EA) AVERAGE	1989-1993	Atlantic white-sided dolphin						3	
		Beaked whale						34	
		Bottlenose dolphin-offshore stock						53	
		Common dolphin						424	
		Harbor porpoise						1	
		Humpback whale						1	
		Pilot whale						61	
		Risso's dolphin						59	
		Spinner dolphin						1	
		Spotted dolphin						23	
		Striped dolphin						27	
		Unid. dolphin						19	
Atlantic Tuna Pelagic Pair Trawl	1992	TOTAL	8	67 days (48 tows)	0.119	2.38	14%	109 (1531)	0.36
		Common dolphin	3		0.045	0.090		32 (236)	0.48
		Bottlenose dolphin	4		0.060	1.20		73 (1279)	0.49
		Risso's dolphin	1		0.015	0.30		4 (16)	1.0

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Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
Atlantic Tuna Pelagic Pair Trawl	1993	TOTAL	28	151 days (103 tows)	0.185	3.7	41%	120 (1442)	0.32
		Common dolphin	6		0.039	0.78		35 (227)	0.43
		Bottlenose dolphin	17		0.113	2.26		85 (1215)	0.41
Atlantic Tuna Pelagic Pair Trawl AVERAGE	**1992-1993**	**Common dolphin**						**33**	
		Bottlenose dolphin						**79**	
		Risso's dolphin						**2**	
Atlantic Swordfish Longline (used data provided by the Southeast Region)	1992	TOTAL*	1	329 days (161 sets)	0.003	0.06	2.4%	52 (CI 32-83)	N.A.
		Pilot whale	1		0.003	0.06			
Atlantic Swordfish Longline (used data provided by the Southeast Region)	1993	TOTAL*	1	890 days	0.001	0.03	5.8%	13 (CI 8-21)	N.A.
		Risso's dolphin	1		0.001	0.03			
Atlantic Swordfish Longline AVERAGE	1992-1993	Pilot whale						26	
		Risso's dolphin						6.5	

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Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
N. Atlantic Otter Trawl	1990	TOTAL	1	453 days (1395 sets)	0.002	0.04	<1%	184 (33182)	0.99
		Pilot whale	1		0.002	0.04		184 (33182)	0.99
N. Atlantic Otter Trawl	1991	TOTAL	3	764 days (2408 sets)	0.004	0.08	<1%	272 (38617)	0.72
		Bottlenose dolphin	1		0.001	0.02		91 (7792)	0.97
		Striped dolphin	2		0.003	0.06		181 (30825)	0.97
N. Atlantic Otter Trawl	1992	TOTAL	1	721 days (1955 sets)	0.001	0.02	<1%	110 (12100)	1.00
		Atlantic white sided dolphin	1		0.001	0.02		110 (12100)	1.00
N. Atlantic Otter Trawl	1993	No observed kills in 1993		415 days (1143 tows)			<1%		
N. Atlantic Otter Trawl AVERAGE	1990-1993	Atlantic white sided dolphin						28	
		Bottlenose dolphin - coastal stock						23	
		Pilot whale						46	
		Striped dolphin						45	
S. Atlantic/Gulf of Mexico Swordfish Longline	1992	N.A.	N.A.	171 sets (days?)			N.A.	N.A.	N.A.

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Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
S. Atlantic/Gulf of Mexico Swordfish Longline	1993	N.A.	N.A.	295 sets (days?)	N.A.	N.A.	N.A.	N.A.	N.A.
Mid-Atlantic Coastal Gillnet	1993	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
PACIFIC OCEAN OBSERVER PROGRAMS									
Prince William Sound Salmon Drift Gillnet (06)	1990	TOTAL	3	3166 sets	0.0009 (/set)	N.A.	4%	44 (0-97)†	-
		Harbor seal	2		0.0006			36 (0-74)	-
		Harbor porpoise	1		0.0003 (/set)			8 (0-23)	-
Prince William Sound Salmon Drift Gillnet (06)	1991	TOTAL	7	5875 sets	0.0012 (/set)	N.A.	5%	83 (7-296)†	-
		Harbor porpoise	3		0.0005			32 (3-103)	-
		Steller sea lion	2		0.0003			29 (2-108)	-
		Harbor seal	1		0.0002			12 (1-44)	-
		Unid. porpoise	1		0.0002 (/set)			11 (1-41)	-

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Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
Prince William Sound Salmon Drift Gillnet	1990-1991	Harbor porpoise						20	
		Harbor seal - GOA/BS stock						24	
AVERAGE		Steller sea lion						14.5	
		Unid. small cetacean						5.5	
Prince William Sound Salmon Set Gillnet (07)	1990	No mortalities observed	N. A.	302 hours of 159 sets	N.A.	N.A.	3% set net hours	N. A.	N. A.
Alaska Peninsula (South Unimak) Salmon Drift Gillnet (08)	1990	TOTAL	1	373 sets	0.0027 (/set)	N.A.	4%	28 (0-81)†	
		Dall's porpoise	1		0.0027 (/set)			28 (0-81)	
Bering Sea Groundfish Trawl (14)	1989	TOTAL	7	1327	0.0053	0.106	12%	60 (846)	0.48
		Steller sea lion	5	1327	0.0038	0.075	12%	43 (716)	0.62
		Dall's porpoise	1	1327	0.0008	0.015	12%	9 (65)	0.94
		Ringed seal	1	1327	0.0008	0.015	12%	9 (65)	0.94

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Bering Sea Groundfish Trawl (14)	1990	TOTAL	23	11026	0.0021	0.042	74%	24 (14)	0.15
		Steller sea lion	13	11026	0.0012	0.024	74%	13 (10)	0.24
		Dall's porpoise	6	11026	0.0005	0.011	74%	7 (3)	0.27
		Northern elephant seal	1	11026	0.0001	0.002	74%	-	-
		Ribbon seal	1	11026	0.0001	0.002	74%	1 (0)	0.51
		Harbor seal	1	11026	0.0001	0.002	74%	1 (1)	0.59
		Unid. cetacean	1	11026	0.0001	0.002	74%	1 (1)	0.51

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Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
Bering Sea Groundfish Trawl (14)	1991	TOTAL	31	13590	0.0023	0.046	53%	45 (39)	0.14
		Steller sea lion	13	13590	0.0010	0.019	53%	19 (16)	0.22
		Walrus	5	13590	0.0004	0.007	53%	7 (7)	0.34
		Northern fur seal	3	13590	0.0002	0.004	53%	6 (5)	0.39
		Bearded seal	3	13590	0.0002	0.004	53%	6 (5)	0.39
		Killer whale	1	13590	0.0001	0.001	53%	2 (2)	0.68
		Dall's porpoise	1	13590	0.0001	0.001	53%	2 (2)	0.68
		Unid. cetacean	1	13590	0.0001	0.001	53%	2 (2)	0.68
		Unid. pinniped	3	13590	0.0002	0.004	53%	2 (2)	0.68
		Unid. marine mammal	1	13590	0.0001	0.001	53%	-	-

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Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
Bering Sea Groundfish Trawl (14)	1992*	TOTAL	36	12697	0.0028	0.057	63%	48 (30)	0.11
		Steller sea lion	15	12697	0.0012	0.024	63%	21 (14)	0.18
		Walrus	5	12697	0.0004	0.008	63%	6 (4)	0.30
		Northern fur seal	4	12697	0.0003	0.006	63%	5 (3)	0.35
		Dall's porpoise	5	12697	0.0004	0.008	63%	6 (4)	0.30
		Killer whale	1	12697	0.0001	0.002	63%	2 (1)	0.61
		Harbor seal	2	12697	0.0002	0.003	63%	3 (2)	0.43
		Ringed seal	2	12697	0.0002	0.003	63%	3 (2)	0.43
		Unid. cetacean	1	12697	0.0001	0.002	63%	2 (1)	0.61
		Unid. pinniped	1	12697	0.0001	0.002	63%	-	-
Bering Sea Groundfish Trawl (14)	1993	TOTAL	15	10332	0.0015	0.029	66%	15 (11)	0.22
		Steller sea lion	4	10332	0.0004	0.008	66%	6 (5)	0.36
		Walrus	4	10332	0.0004	0.008	66%	3 (2)	0.41
		Northern fur seal	1	10332	0.0001	0.002	66%	-	-
		Dall's porpoise	4	10332	0.0004	0.008	66%	5 (4)	0.43
		Killer whale	1	10332	0.0001	0.002	66%	-	-
		Unid. cetacean	1	10332	0.0001	0.002	66%	2 (1)	0.58

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Bering Sea Groundfish Trawl	1989-1993	Bearded seal						1.2	
AVERAGE		Dall's porpoise-Bering Sea Stock						5.8	
		Harbor seal - GOA/BS stock						0.8	
		Killer whale						0.8	
		N. fur seal						2.6	
		Ribbon seal						0.2	
		Ringed seal						2.4	
		Steller sea lion						20.4	
		Walrus						3.2	
		Unid. pinniped						0.4	
		Unid. cetacean						1.4	
Gulf of Alaska Groundfish Trawl	1989	TOTAL	0.00	130	-	-	5%	-	-
Gulf of Alaska Groundfish Trawl	1990	TOTAL	3	2902	0.0010	0.021	55%	5 (0)	0.13
		Steller sea lion	2	2902	0.0007	0.014	55%	4 (3)	0.47
		Northern elephant seal	1	2902	0.0003	0.007	55%	2 (1)	0.67

APPENDIX B: National Marine Fisheries Service Observer Program
Federal Observer Program Data - All Years

Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
Gulf of Alaska Groundfish Trawl	1991	TOTAL	1	2566	0.0004	0.008	38%	3 (4)	0.79
		Harbor seal	1	2566	0.0004	0.008	38%	3 (4)	0.79
Gulf of Alaska Groundfish Trawl	1992	TOTAL	1	2544	0.0004	0.008	41%	2 (3)	0.77
		Harbor seal	1	2544	0.0004	0.008	41%	2 (3)	0.77
Gulf of Alaska Groundfish Trawl	1993	TOTAL	3	2152	0.0014	0.028	37%	5 (9)	0.56
		Steller sea lion	1	2152	0.0005	0.009	37%	3 (5)	0.80
		Dall's porpoise	1	2152	0.0005	0.009	37%	3 (5)	0.80
		Unid. pinniped	1	2152	0.0005	0.009	37%	-	-
Gulf of Alaska Groundfish Trawl AVERAGE	1989-1993	Dall's porpoise - Bering Sea stock						0.6	
		Harbor seal - GOA/BS stock						1	
		N. elephant seal						0.4	
		Steller sea lion						1.4	
		Unid. pinniped						0.2	
Bering Sea/Gulf of Alaska Domestic Groundfish Longline	1989	TOTAL	0	78	N.A.	N.A.	3%	N.A.	N.A.

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Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
Bering Sea/Gulf of Alaska Domestic Groundfish Longline	1990	TOTAL	2	3633	0.0006	0.011	45%	4 (5)	0.52
		Steller sea lion	1	3633	0.0003	0.006	45%	2 (3)	0.74
		Northern elephant seal	1	3633	0.0003	0.006	45%	2 (3)	0.74
Bering Sea/Gulf of Alaska Domestic Groundfish Longline	1991	TOTAL	0.00	4721	N.A.	N.A.	55%	N.A.	N.A.
Bering Sea/Gulf of Alaska Domestic Groundfish Longline	1992	TOTAL	0	6358	N.A.	N.A.	28%	N.A.	N.A.
Bering Sea/Gulf of Alaska Domestic Groundfish Longline	1993	TOTAL	2	4924	0.0004	0.008	25%	4 (12)	0.87
		Steller sea lion	1	4924	0.0002	0.004	25%	N.A.	N.A.
		Northern elephant seal	1	4924	0.0002	0.004	25%	N.A.	N.A.
		Harbor seal - GOA/Bering Sea stock	1	4924	0.0002	0.004	25%	4 (12)	0.87

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Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
Bering Sea/Gulf of Alaska Domestic Groundfish Longline	1989-1993	Harbor seal - GOA/Bering Sea						0.8	
		Steller sea lion						1.2	
AVERAGE		N. elephant seal						1.2	
Bering Sea/Gulf of Alaska Domestic Groundfish Pots	1990	TOTAL	0	353	N.A.	N.A.	7%	N.A.	N.A.
Bering Sea/Gulf of Alaska Domestic Groundfish Pots	1991	TOTAL	0	624	N.A.	N.A.	22%	N.A.	N.A.
Bering Sea/Gulf of Alaska Domestic Groundfish Pots	1992	TOTAL	9 (8)	1442	0.0062	0.125	22%	36 (127)	0.31
		Sea otter	8 (8)	1442	0.0055	0.111	22%	36 (127)	0.31
		Harbor seal	1 (0)	1442	0.007	0.014	22%	N.A.	N.A.
Bering Sea/Gulf of Alaska Domestic Groundfish Pots	1993	TOTAL	0.00	298	N.A.	N.A.	11%	N.A.	N.A.

APPENDIX B: National Marine Fisheries Service Observer Program
Federal Observer Program Data - All Years

Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
Bering Sea/Gulf of Alaska Domestic Groundfish Pots	1989-1993	Harbor seal - GOA/Bering Sea						5	
		Sea otter						36	
AVERAGE									
Washington, Oregon and California Domestic Groundfish Trawl	1990	TOTAL	0.00	34	N.A.	N.A.	54%	N.A.	N.A.
Washington, Oregon and California Domestic Groundfish Trawl	1991	TOTAL	1	688	0.0015	0.029	44%	N.A.	N.A.
		Unid. pinniped	1	688	0.0015	0.029	44%	N.A.	N.A.
Washington, Oregon and California Domestic Groundfish Trawl	1992	TOTAL	1	677	0.0015	0.030	72%	N.A.	N.A.
		Dall's porpoise	1	677	0.0015	0.030	72%	N.A.	N.A.
Washington, Oregon and California Domestic Groundfish Trawl	1993	TOTAL	0	305	N.A.	N.A.	58%	N.A.	N.A.

APPENDIX B: National Marine Fisheries Service Observer Program
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Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
Washington, Oregon and California Domestic Groundfish Trawl	1990-1993	Dall's porpoise						1	
		Unid. pinniped						2	
AVERAGE									
Bering Sea/Gulf of Alaska Joint-Venture Groundfish Trawl	1989	TOTAL	8	4747	0.0017	0.034	58%	14 (10)	0.23
		Steller sea lion	5	4747	0.0011	0.0011	585	9 (6)	0.29
		Northern fur seal	1	4747	0.0002	0.0002	58%	2 (1)	0.65
		Harbor seal	1	4747	0.0002	0.0002	58%	2 (1)	0.65
		Minke whale	1	4747	0.0002	0.0002	58%	2 (1)	0.65
Bering Sea/Gulf of Alaska Joint-Venture Groundfish Trawl	1990	TOTAL	1	1353	0.0007	0.015	43%	2 (3)	0.75
		Walrus	1	1353	0.0007	0.015	43%	2 (3)	0.75
Washington, Oregon and California Joint-Venture Groundfish Trawl	1989	TOTAL	1	2,193	0.0005	0.009	66%	2 (1)	0.58
		Dall's porpoise	1	2,193	0.0005	0.009	66%	2 (1)	0.58

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Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
Washington, Oregon and California Joint-Venture Groundfish Trawl	1990	TOTAL	13	1,673	0.0078	0.155	62%	2 (1)	0.61
		Dall's porpoise	3	1,673	0.0018	0.036	62%	2 (1)	0.61
		Pacific white-sided dolphin	8	1,673	0.0048	0.096	62%	N.A.	N.A.
		Unid. cetacean	2	1,673	0.0012	0.024	62%	N.A.	N.A.
WA Makah (Areas 4,4A,4B) Salmon Set Gillnet (09)	1989[1a]	TOTAL	30	361 net days[3]		1.7	27%	89 ( )	-
		Harbor porpoise	14		0.084			33 ( )	0.26
		Harbor seal	15		0.042			56 ( )	0.25
		Sea otter	1		0.006			2 ( )	1.00
WA Makah (Areas 4,4A,4B) Salmon Set Gillnet (09)	1990[1b]	TOTAL	23	264 net days[3]		1.7	47%	34 ( )	-
		Harbor porpoise	13		0.241			16 ( )	0.27
		Harbor seal	9		0.034			19 ( )	0.33
		Gray whale	1		0.019			1 ( )	0.99
WA Makah (Areas 4,4A,4B) Salmon Set Gillnet (09)	1991	TOTAL	29	238 net days[3]	0.122	2.4	62%	46 ( )	-
		Harbor porpoise	14		0.058			22 ( )	0.29
		Harbor seal	15		0.063			24 ( )	0.28

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Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
WA Makah (Areas 4,4A,4B) Salmon Set Gillnet (09)	1992	TOTAL Harbor porpoise	10 10	264 net days[3]	0.038 0.038	0.76	80%	13 ( ) 13 ( )	0.31 0.31
WA Makah (Areas 4,4A,4B) Salmon Set Gillnet (09)	1993	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
WA Makah (Areas 4,4A,4B) Salmon Set Gillnet AVERAGE	1989-1993	Gray whale Harbor porpoise - WA/OR stock Harbor seal - WA/OR stock Sea otte r						0.25 21 24.75 0.5	

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Federal Observer Program Data - All Years

Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
Columbia River, Willapa Bay, Gray's Harbor Drift Gillnet (10)	1991	TOTAL	10	3432 sets		N.A.	3.8%	249 ( )	
		Columbia River:		(2,582 sets)		0.34	4.7%	249	
		Harbor seal	9		0.002 - 0.027			233 ( )	0.37-0.9
		California sea lion	1		0.0009 (/set)			16 ( )	1.0
		Willapa Bay:		(752 sets)			2.5%		
		No mortalities	N. A.						
		Grays Harbor:		(98 sets)			4.5%		
		No mortalities	N. A.						
Columbia River, Willapa Bay, Gray's Harbor Drift Gillnet (10)	1992	TOTAL	19	2428 sets			3.9%	227 ( )	
		Columbia River:		1545 sets		0.77	27.2%	117	
		Harbor seal	15		0.006 - 0.051			189 ( )	0.32- 0.45
		California sea lion	3		0.004			28 ( )	0.58
		Willapa Bay:		576 sets		N.A.	1.4%	N.A.	
		No mortalities	N.A.		N.A.				
		Grays Harbor:		307 sets		0.29			
		Harbor seal	1		0.009 (/set)		4.2%	10 ( )	10

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Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
Columbia River, Willapa Bay, Gray's Harbor Drift Gillnet (10)	1993	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.
Columbia River drift gillnet	1990-1992	California sea lion Harbor seal - WA/OR stock						22 211	
Willapa Bay drift gillnet	1990-1992	Harbor seal - WA/OR stock						0.33	

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Federal Observer Program Data - All Years

Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
WA, OR, CA Thresher Shark and Swordfish Drift Gillnet (11)	1990	TOTAL	25	168 days	0.149	2.98	5%	885 ( )	0.24
		Common dolphin	9		0.054			430 ( )	0.40
		Northern elephant seal	4		0.024			101 ( )	0.49
		Pacific white-sided dolphin	3		0.018			76 ( )	0.74
		California sea lion	2		0.012			101 ( )	0.69
		Unid. seal	2		0.012			-	-
		Dall's porpoise	1		0.006			51 ( )	0.65
		Pilot whale	1		0.006			25 ( )	1.03
		Beaked whale	1		0.006			25 ( )	1.02
		Harbor seal	1		0.006			25 ( )	0.97
		Risso's dolphin	1		0.006			51 ( )	0.67

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Federal Observer Program Data - All Years

Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
WA, OR, CA Thresher Shark and Swordfish Drift Gillnet (11)	1991	TOTAL	82	470 days (470 sets)	0.174	3.49	9.9%	809 (113.1SE***)	0.14
		Common dolphin	44		0.094			445 (93.0SE)	0.21
		Northern elephant seal	13		0.028			131 (33.1SE)	0.25
		Northern right whale dolphin	7		0.015			71 (29.0SE)	0.41
		Pacific white-sided dolphin	5		0.011			51 (31.8SE)	0.62
		Risso's dolphin	5		0.011			51 (25.3SE)	0.50
		California sea lion	4		0.009			40 (23.4SE)	0.59
		Dall's porpoise	2		0.004			20 (13.5SE)	0.68
		Unid. sea lion	1		0.002			-	-
		Unid. cetacean	1		0.002			-	-

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Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
WA, OR, CA Thresher Shark and Swordfish Drift Gillnet (11)	1992	TOTAL	105	596	0.176	3.52	13.2%	784 (87.5SE)	0.11
		Common dolphin	47		0.079			356 (66.1SE)	0.19
		Northern elephant seal	15		0.025			114 (27.1SE)	0.24
		California sea lion	9		0.015			68 (23.0SE)	0.34
		Cuvier's beaked whale	6		0.010			45 (16.5SE)	0.37
		Risso's dolphin	5		0.008			38 (18.2SE)	0.48
		Mesoplodont beaked whale	3		0.005			23 (12.0SE)	0.52
		Unid. beaked whale	3		0.005			23 (12.1SE)	0.53
		Bottlenose dolphin	3		0.005			23 (21.1SE)	0.92
		Pacific white-sided dolphin	3		0.005			23 (15.8SE)	0.69
		Sperm whale	3		0.005			8 (7.0SE)	0.88
		Northern right whale dolphin	2		0.003			15 (9.8SE)	0.65
		Steller sea lion	1		0.002			8 (7.0SE)	0.88
		Dall's porpoise	1		0.002			8 (7.0SE)	0.88
		Short-finned pilot	1		0.002			8 (7.0SE)	0.88

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Federal Observer Program Data - All Years

Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
WA, OR, CA Thresher Shark and Swordfish Drift Gillnet (11)	1992, cont.	Unid. cetacean	1		0.002			8 (7.0SE)	0.88
		Unid. delphind	1		0.002			8 (7.1SE)	0.89

APPENDIX B: National Marine Fisheries Service Observer Program
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Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
WA, OR, CA Thresher Shark and Swordfish Drift Gillnet (11)	1993	TOTAL	95	728	0.130	2.61	13.5%	702 (94.1SE)	0.13
		Common dolphin (unk. stock)	23		0.032			170 (55.2SE)	0.32
		Northern elephant seal	14		0.019			103 (27.0SE)	0.26
		California sea lion	12		0.016			89 (34.3SE)	0.39
		Short-finned pilot whale	11		0.015			81 (34.7SE)	0.43
		Dall's porpoise	9		0.012			67 (29.2SE)	0.44
		N. right whale dolphin	7		0.010			52 (20.1SE)	0.39
		Common dolphin (short-beaked)	5		0.007			37 (20.4SE)	0.55
		Risso's dolphin	4		0.005			30 (21.7SE)	0.72
		Sperm whale	3		0.004			22 (15.4SE)	0.70
		Cuvier's beaked whale	3		0.004			22 (11.7SE)	0.53
		Pacific white-sided dolphin	2		0.003			15 (9.7SE)	0.65
		Pygmy sperm whale	1		0.001			7 (6.9SE)	0.99
		Unid. cetacean	1		0.001			7 (6.9SE)	0.99

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Federal Observer Program Data - All Years

Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
Thresher Shark and Swordfish Drift Gillnet	1990-1993	Beaked whale (all stocks)						34.5	
AVERAGE		Bottlenose dolphin - offshore stock						5.8	
		California sea lion						74.5	
		Common dolphin (all stocks)						359.5	
		Dall's porpoise						36.5	
		Harbor seal						6.25	
		N. right whale dolphin						34.5	
		N. elephant seal						112.25	
		Pacific white-sided dolphin						41.25	
		Pilot whale						28.5	
		Pygmy sperm whale						1.75	
		Risso's dolphin						42.5	
		Sperm whale						7.5	
		Steller sea lion						2	
		Unid.						3.75	
								2	

APPENDIX B: National Marine Fisheries Service Observer Program
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Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
CA Halibut and Angel Shark Set Gillnet (12/13)	1990	TOTAL	121	139 days	0.871	17.42	4%	3808 ( )	0.11
		California sea lion	67		0.482			2652 ( )	0.14
		Harbor seal	30		0.216			865 ( )	0.17
		Northern elephant seal	13		0.094			182 ( )	0.36
		Harbor porpoise	5		0.036			84 ( )	0.43
		Sea otter	3		0.022			-	-
		Unid. pinniped	2		0.014			-	-
		Unid. sea lion	1		0.007			-	-
CA Halibut and Angel Shark Set Gillnet (12/13)	1991	TOTAL	203	706 days (2215 sets)	0.288	5.75	10%	2501 (300SE)	0.12
		California sea lion	143		0.203			1865 (271SE)	0.15
		Harbor seal	43		0.061			571 (126SE)	0.22
		Northern elephant seal	3		0.004			27 (15.2SE)	0.56
		Harbor porpoise	5		0.007			38 (18.3SE)	0.48
		Unid. sea lion	6		0.008			-	-
		Unid. pinniped	3		0.004			-	-

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Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
CA Halibut and Angel Shark Set Gillnet (12/13)	1992	TOTAL	461	697	0.661	13.2	12.7%	4623 (979.4SE)	0.21
		California sea lion	341		0.489			3255 (878.9SE)	0.26
		Harbor seal	90		0.129			1136 (486.4SE)	0.43
		Northern elephant seal	7		0.010			51 (17.8SE)	0.35
		Harbor porpoise	6		0.009			44 (20.6SE)	0.47
		Unid. pinniped	7		0.010			59 (25.6SE)	0.43
		Common dolphin	2		0.003			17 (11.4SE)	0.67
		Unid. cetacean	1		0.001			7 (6.8SE)	0.97
		Unid. sea lion	7		0.010			63 (21.9SE)	0.35
CA Halibut and Angel Shark Set Gillnet (12/13)	1993	TOTAL	330	875	0.377	7.54	15.1%	2590 (251.3SE)	0.10
		California sea lion	239		0.273			1984 (241.3SE)	0.12
		Harbor seal	71		0.081			480 (59.9SE)	0.12
		Northern elephant seal	11		0.013			71 (19.5SE)	0.27
		Harbor porpoise	2		0.002			12 (7.8SE)	0.65
		Unid. pinniped	7		0.008			43 (30.2SE)	0.70

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Fishery	Year	Marine Mammal Species	Observed Kills	Observed Effort	Kill Rate (/day)	Kill Rate (/20 days)	Observer Coverage	Total Estimated Kill (variance)	Coeff. Variation
CA Halibut and Angel Shark Set Gillnet **	1989-1993	California sea lion						731.7	
		Common dolphin (all stocks)						1.28	
AVERAGE		Harbor porpoise						13.35	
		Harbor seal						228.9	
		N. elephant seal						24.83	
		Unid. cetacean						0.53	
		Unid. delphinid						12.39	

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* N.A. = not available at this time

** For this fishery/species interaction, the values provided afor the total estimated kill, the variance of the total estimated kill, and the coefficient of variation for the total estimated kill are preliminary and likely to be revised in February 1995 when final stock assessment analyses are complete. The preliminary total kill estimates represent extrapolated values using unstratified fishing effort and hence may be higher than estimates more properly derived using stratified effort. The statistical reliability of the preliminayr estimates are lower than indicated by their variances because the variance calculations do not include all relevant sources of variability.

** Alternate estimates: Observed Kills: 155; Observed Effort: 172 observer days. Credle, VR et. al., 1994. NMFS Observer Programs: Minutes and recommendationas from a workshop held in Galveston, Texas, November 10-11, 1993.

*** SE = Standard error

* When animals caught and released alive are added to the number of lethal takes, the resulting total estimated takes for 1992 and 1993 are as follows:
1992 - Pilot whale, 12 observed, 302 total take; Risso's dolphin, 3 observed, 76 total take; common dolphin, 1 observed, 25 total take; Unidentified dolphin, 1 observed, 25 total take
1993 - Pilot whale, 16 observed, 263 total take; Risso's dolphin, 3 observed, 49 total take; bottlenose dolphin, 2 observed, 33 total take; Atlantic spotted dolphin, 1 observed, 16 total take

† Variance expressed as the 95% confidence interval around the total estimated kill.

** In the future, mortality of some species will be affected by California Proposition 132, implemented 1/94, which prohibits set gillnet fishing within three miles of the mainland from Pt. Arguello south to the U.S.-Mexico border.

1a: ALSO INCLUDES AREA 3 1b: ALSO INCLUDES AREA 3 AND 5
2: ONE NET DAY = ONE 100 FATHOM NET SET FOR A 24 HOUR PERIOD

Appendix C

Appendix C. Estimates of Total Incidental Dolphin Mortality for U.S. and Foreign Purse Seine Vessels in the Eastern Tropical Pacific Ocean, 1971-1994

Year	U.S. Vessels[1]	U.S. Kill[2]	Foreign Vessels[1]	Foreign Kill[3]	Total Kill[4]
1971	124	246,213	48	15,715	261,928
1972	127	368,600	58	55,078	423,678
1973	133	206,697	68	58,276	264,973
1974	135	147,437	77	27,245	174,682
1975	142	166,645	82	27,812	194,457
1976	155	108,740	94	19,482	128,222
1977	142	25,452	104	25,901	51,353
1978	101	19,366	121	11,147	30,513
1979	93	17,938	121	3,488	21,426
1980	89	15,305	132	16,665	31,970
1981	94	7,890	118	7,199	35,089
1982	89	23,267	97	5,837	29,104
1983	60	8,513	99	4,980	13,493
1984	34	17,732	91	22,980	40,712
1985	36	19,205	105	39,642	58,847
1986	34	20,692	101	112,482	133,174
1987	34	13,992	126	85,195	99,187
1988	37	19,712	95	59,215	78,927
1989	29	12,643	93	84,336	96,979
1990	29	5,083	94	47,448	52,531
1991	13	1,004	90	26,288	27,292
1992	7	431	90	15,108	15,539
1993	7	115	89	3,486	3,601
1994	7	106	75	3,989	4,095

[1]Data from Inter-American Tropical Tuna Commission (IATTC).
[2]Data from National Marine Fisheries Service (NMFS).
[3]Derived by subtracting U.S. data from IATTC total mortality estimates of sets made on dolphin during theperiod.
[4]Data for 1971-78 from NMFS; data after 1978 from IATTC using MPS method.

Appendix D

Table D-1
Summary of Permit Applications
January 1, 1994 to December 31, 1994

	Scientific Research	Public Display	Scientific Research & Public Display	Totals
NUMBER OF APPLICATIONS SUBMITTED	**26**	**5**	**0**	**31**
No. of Animals Requested (Total)	2,495,575	50	0	2,495,625
OF THESE:				
Taken by Killing	0	0	0	0
Taken and Kept Alive	0	0	0	0
Killed in Captivity	0	0	0	0
Taken and Released	17,896	0	0	17,896
Found Dead	0	0	0	0
Stranded/Exchanged	34	12	0	46
Imports	0	0	0	0
Harass	2,477,645	38	0	2,477,683
ACTION TAKEN ON APPLICATIONS:				
No. Forwarded to Marine Mammal Commission	25	4	0	29
No. Reviewed by Marine Mammal Commission	25	4	0	29
No. Withdrawn	1	0	0	1
No. Referred to Fish and Wildlife Service	0	0	0	0
No. Referred to States	0	0	0	0
No. Referred to Regions	0	0	0	0
No. Resolved through	0	0	0	0
No. Returned	2	11	0	13
No. Denied	0	1	0	1
No. Approved	24	4	0	28
No. Pending	5	1	0	6

Table D-1 (cont'd)
Summary of Permit Applications
January 1, 1994 to December 31, 1994

	Scientific Research	Public Display	Scientific Research & Public Display	Totals
NO. OF ANIMALS APPROVED	**1,092,738**	**5**	**0**	**1,092,743**
OF THESE:				
Taken by Killing	0	0	0	0
Taken and Kept Alive	0	0	0	0
Killed in Captivity	0	0	0	0
Taken and Released	17,716	0	0	17,716
Found Dead	0	0	0	0
Stranded/Exchanged	12	5	0	17
Imports	0	0	0	0
Harass	1,075,010	0	0	1,075,010

Table D-2
Number of Cetaceans in Scientific Research/Public Display Permit Requests
January 1, 1994 to December 31, 1994

	Taken / Imported and Kept Alive	Tagged or Taken and Released	Found Dead / Stranded	Total Requested
Atlantic Bottlenose Dolphin	0	0	0	0
Atlantic Hump-Backed Dolphin	0	15	0	15
Northern Right Whale	0	16	0	16
Blue Whale	0	165	0	165
Bottlenose Dolphin	0	35	0	35
Beaked Whales	0	15	0	15
Bottlenose Whales	0	15	0	15
Bowhead Whale	0	15	0	15
Bryde's Whale	0	15	0	15
Burmeister's Porpoise	0	15	0	15
Boto, Amazon River Dolphin	0	15	0	15
Commerson's Dolphin	0	15	0	15
Common Dolphin	0	15	0	15
Cuvier's Beaked Whale	0	15	0	15
Dall's Porpoise	0	15	0	15
Dwarf Sperm Whale	0	15	0	15
False Killer Whale	0	15	0	15
Finback Whale	0	45	0	45
Finless Porpoise	0	15	0	15
Fraser's (Sarawak) Dolphin	0	15	0	15
Ganges River Dolphin	0	15	0	15
Gray Whale	0	15	0	15
Harbor Porpoise	0	15	0	15
Humpback Whale	0	15	0	15
Indo-specific Hump-Backed Dolphin	0	15	0	15
Indus River Dolphin	0	15	0	15
Irrawaddy Dolphin	0	15	0	15

Table D-2 (cont'd)
Number of Cetaceans in Scientific Research/Public Display Permit Requests
January 1, 1994 to December 31, 1994

	Taken / Imported and Kept Alive	Tagged or Taken and Released	Found Dead / Stranded	Total Requested
Killer Whale	0	15	0	15
Lagenorhynchine Dolphin	0	15	0	15
Long-finned Pilot Whale	0	15	0	15
Melon-Headed Whale	0	15	0	15
Minke Whale	0	15	0	15
Northern Right Whale Dolphin	0	15	0	15
Pacific White-sided Dolphin	0	15	0	15
Pygmy Killer Whale	0	15	0	15
Pygmy Sperm Whale	0	15	0	15
Risso's Dolphin, Grampus	0	15	0	15
Rough-Toothed Dolphin	0	15	0	15
Sei Whale	0	15	0	15
Short-Finned Pilot Whale	0	15	0	15
Southern Right Whale Dolphin	0	15	0	15
Spectacled Porpoise	0	15	0	15
Sperm Whale	0	15	0	15
Spinner Dolphin	0	15	0	15
Stenelline Dolphin	0	15	0	15
Striped Dolphin, Streaker	0	15	0	15
Chinese River Dolphin	0	15	0	15
White Whale, Beluga	0	20	0	20
TOTAL	**0**	**911**	**0**	**911**

Table D-3
Number of Pinnipeds in Scientific Research/Public Display Permit Requests
January 1, 1994 to December 31, 1994

	Taken By Killing	Taken / Imported and Kept Alive	Tagged or Taken and Released	Found Dead/ Stranded	Total Requested
California Sea Lion	0	0	20	5	25
Hawaiian Monk Seal	0	0	2540	0	2540
Northern Elephant Seal	0	0	14,540	10	14,540
Pacific Harbor Seal	0	0	0	12	12
TOTAL	**20**	**0**	**17,100**	**27**	**17,127**

Table D-4
Number of Cetaceans Authorized in Scientific Research/Public Display Permits
January 1, 1994 to December 31, 1994

	Taken/Imported and Kept Alive	Tagged or Taken and Released	Found Dead/ Stranded	Total Requested
Atlantic Hump-Backed Dolphin	0	15	0	15
Northern Right Whale	0	16	0	16
Blue Whale	0	150	0	150
Bottlenose Dolphin	0	15	0	15
Boto, Amazon River Dolphin	0	15	0	15
Commerson's Dolphin	0	15	0	15
Cuvier's Beaked Whale	0	15	0	15
Dall's Porpoise	0	15	0	15
Dwarf Sperm Whale	0	15	0	15
False Killer Whale	0	15	0	15
Finback Whale	0	15	0	15
Finless Porpoise	0	15	0	15
Fraser's (Sarawak) Dolphin	0	15	0	15
Ganges River Dolphin	0	15	0	15
Gray Whale	0	15	0	15
Harbor Porpoise	0	15	0	15
Humpback Whale	0	15	0	15
Indus River Dolphin	0	15	0	15
Irrawaddy Dolphin	0	15	0	15
Killer Whale	0	15	0	15
Lagenorhynchine Dolphin	0	15	0	15
Melon-Headed Whale	0	15	0	15
Minke Whale	0	15	0	15
Northern Right Whale Dolphin	0	15	0	15
Pacific White-Sided Dolphin	0	15	0	15
Pygmy Killer Whale	0	15	0	15
Risso's Dolphin, Grampus	0	15	0	15

Table D-4 (cont.)
Number of Cetaceans Authorized in Scientific Research/Public Display Permits
January 1, 1994 to December 31, 1994

	Taken/Imported and Kept Alive	Tagged or Taken and Released	Found Dead/ Stranded	Total Requested
Rough-Toothed Dolphin	0	15	0	15
Sei Whale	0	15	0	15
Short-Finned Pilot Whale	0	15	0	15
Southern Rigght Whale Dolphin	0	15	0	15
Spectacled Porpoise	0	15	0	15
Sperm Whale	0	15	0	15
Spinner Dolphin	0	15	0	15
Stenelline Dolphin	0	15	0	15
Striped Dolphin, Streaker	0	15	0	15
Chinese River Dolphin	0	15	0	15
White Whale, Beluga	0	15	0	15
TOTAL	**0**	**706**	**0**	**706**

Table D-5
Number of Pinnipeds Authorized in Scientific Research/Public Display Permits
January 1, 1994 to December 31, 1994

	Taken By Killing	Taken/ Imported and Kept Alive	Tagged or Taken and Released	Found Dead/ Stranded	Total Requested
California Sea Lion	0	0	0	5	5
Hawaiian Monk Seal	0	0	2540	0	2540
Northern Elephant Seal	0	0	14,520	0	14,520
Pacific Harbor Seal	0	0	0	12	12
TOTAL	**0**	**0**	**17,060**	**17**	**17,077**

Appendix E

Table E-1
Marine Mammal Strandings in 1994

Species	1994				
	NE	SE	SW	NW	AK
Beaked Whale		1			
Blainville Beaked Whale		1			
Cuvier's Beaked Whale		1	2	1	
Gervais' Beaked Whale	1	4			
Stejneger's Beaked Whale					4
Bottlenose Whale		1			
Beluga Whale					196
Bryde's whale					
Dwarf Sperm Whale	4	2			
Pygmy Sperm Whale	5	30	1		
Pyg. or Dwf. Sperm Whale		3			
Blue Whale					
Fin Whale	2	2			
Gray Whale			15	2	4
Humpback Whale	2	7	1	1	3
Killer Whale			1		4
Melon Headed Whale					
Minke Whale	4			1	
Northern Right Whale					
Pilot Whale	1				
Long-finned Pilot Whale	3	1			
Short-finned Pilot Whale	1	58			
Pygmy Killer Whale		2			
Sperm Whale	1	4	5	1	
Unidentified Whale		1	1	2	7
Bottlenose Dolphin	57	762	5		
Common Dolphin	9		66		
Frasier's Dolphin		31			
Pacific White-sided Dolphin			2		
Atlantic White-sided Dolphin	15				
Risso's Dolphin	2	2	1		
Rough Toothed Dolphin		2			

Table E-1 (cont'd)
Marine Mammal Strandings in 1994

Species	1994				
	NE	SE	SW	NW	AK
Spinner Dolphin		1			
Atlantic Spotted Dolphin		6			
Spotted Dolphin	1				
Striped Dolphin	1	3	1	1	
Pantropical Spotted Dolphin		2	2		
Unidentified Dolphin	2	5	12		
Unidentified *Stenella sp.*			1		
Dall's Porpoise			3	3	
Long-Snouted Spinner		1	4		
Harbor Porpoise	84	12	8	9	10
Unidentified Cetacean	4	7	2		
TOTAL CETACEAN	**199**	**952**	**133**	**21**	**228**

Table E-1 (cont'd)
Marine Mammal Strandings in 1994

Species	1994				
	NE	SE	SW	NW	AK
California Sea Lion			834	11	
Northern (Steller) Sea Lion			8	1	7
Gray Seal	17				
Guadalupe Fur Seal			1		
Harbor Seal	148	16	268	196	36
Harp Seal	55				
Hooded Seal	30	1			
Northern Elephant Seal			293	15	
Northern Fur Seal			5	2	
Ringed Seal	1				
Unidentified Pinniped	9		80	5	
TOTAL PINNIPED	**260**	**17**	**1489**	**230**	**43**
TOTAL MARINE MAMMALS	**459**	**969**	**1622**	**251**	**271**