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Marine Mammal Protection Act of 1972 Annual Report

January 1, 1995 to December 31, 1995

Prepared by
U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Office of Protected Resources

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1335 East-West Highway
Silver Spring, MD 20910
THE DIRECTOR

JUN 13 1996

The Honorable Larry Pressler
Chairman, Committee on Commerce,
Science, and Transportation
United States Senate
Washington, D.C. 20510-4102

The Honorable Don Young
Chairman, Committee of Resources
House of Representatives
Washington, D.C. 20515-0201

Dear Sirs:

I am pleased to submit to you the National Marine Fisheries Service (NMFS) Annual Report regarding the administration of the Marine Mammal Protection Act (MMPA) from January 1, 1995, through December 31, 1995, as required by section 103(f) of the MMPA. The report addresses the conservation, management and research activities conducted by NMFS for the benefit of marine mammals, including whales, dolphins and porpoises of the order Cetacea and seals and sea lions of the suborder Pinnipedia.

Sincerely,

Rolland A. Schmitten

Enclosure

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THE ASSISTANT ADMINISTRATOR
FOR FISHERIES

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Marine Mammal Protection Act of 1972 Annual Report

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Steller sea lion (*Eumetopias jubatus)* bull on Ugamak Island, AK.
Photo by: Thomas Loughlin, NMFS/NMML

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National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Office of Protected Resources
Editor: Margot Bohan, FPR2

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Chapter I. Introduction

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).

Risso's Dolphin, *Grampus griseus*, Gulf of Mexico.
Photo credit: C. Roden, NMFS/SER

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, U.S. Fish and Wildlife Service (USFWS), MMC, animal protection groups and the Alaska Native community.

This report focuses on research and management activities conducted by NMFS in 1995 relative to 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 1995 Annual Report are available from the Office of Protected Resources, NMFS, Building SSMC3, 1315 East-West Highway, Silver Spring, Maryland 20910.

Chapter II. New Regime to Govern Interactions Between Marine Mammals and Commercial Fisheries [Section 118 and 101A5E]

Robyn Angliss and Victoria Cornish

The Marine Mammal Protection Act was amended by Congress on April 30, 1994 (Public Law 103-238). The amendments replaced the Interim Exemption for Commercial Fisheries (section 114 - see chapter II of the MMPA Annual Report for 1994) with a long-term regime for governing interactions between marine mammals and commercial fisheries (sections 117 and 118). This new program has been named the Marine Mammal Assessment Program (MMAP) by NMFS. Final regulations implementing this program were published in 1995, after considerable public involvement.

The considerable effort required to prepare comprehensive regulations implementing Section 118 was spearheaded by the MMPA Task Force, which consists of key NMFS and NOAA individuals and their associates in Regional Offices, Science Centers, and Headquarters line offices, as well as representatives from the U.S. Fish and Wildlife Service (USFWS) (Box 1). The formation of this cross-cutting national team allowed for timely submission of information and review of draft regulations, and greatly enhanced the ability of NMFS to meet the rigorous Congressional deadlines set forth in the 1994 amendments to the MMPA.

The following chapter outlines the major tenets of the new regime under Section 118: the prohibition on intentional lethal take, the new regulations governing interactions between marine mammals and commercial fisheries, the categorization of commercial fisheries in the 1996 List of Fisheries, the marine mammal mortality information used to classify the fisheries, and the public outreach program. The stock assessment reports required by section 117 and prepared in 1995 by NMFS staff provide a critical element of the new regime and will be addressed in detail in Chapter IV.

Prohibition on Intentional Lethal Take

Prior to 1994, fishers were exempt from any marine mammal take prohibitions if the takes occurred incidental to commercial fishing operations. This included actions taken by fishers to protect their gear and/or fish catch from marine mammals. The 1994 amendments to the MMPA contained a new provision to halt the intentional lethal taking of marine mammals (Section 118(a)(5)), although section 101(c) was maintained to authorize intentional lethal taking if imminently necessary in self-defense or to save the life of a person in immediate danger.

NMFS promulgated regulations to implement the prohibition on intentional lethal taking on a faster schedule than regulations implementing the other provisions of Section 118. The proposed rule was published on December 8, 1994 (59 FR 63324) and the final rule was published on February 1, 1995 (60 FR 6037). Comments on the proposed rule focused on the expansion of pinniped stocks on the east and west coast and their impact on salmon runs and aquaculture operations, and the lack of sufficient alternative means for protecting gear and catch. NMFS responded that the statute explicitly prohibits intentional taking of all marine mammals, regardless of the status of the stock. Alternative, non-injurious means for deterring marine mammals are being addressed in a separate set of guidelines, which NMFS published as proposed later in the year (May 5, 1995, 60 FR 22345). Comments on the proposed guidelines and the final guidelines were still under review by NMFS at the end of 1995.

Final regulations prohibit the intentional lethal take of marine mammals in the course of commercial fishing operations. An exception is provided for an intentional lethal take imminently necessary in self-defense or to save the life of another person in immediate danger. The regulations require that if a marine mammal is killed in self-defense or to save the life of another

person, a report must be made to the appropriate Regional Office within 48 hours after the conclusion of the fishing trip. The prohibition became effective on March 3, 1995.

Legislative and Regulatory History of the Section 118 Regulations

Prior to the 1988 amendments of the MMPA, commercial fishers could receive an exception from the MMPA's general prohibition on the taking of marine mammals by applying for permits and certificates of inclusion. The 1988 amendments added section 114 to the MMPA, which provided an interim exemption for taking marine mammals to those commercial fishers who registered their vessels under the Marine Mammal Exemption Program (MMEP) and reported certain information in fisher's logbooks. The Marine Mammal Exemption Program, through observers and fisher self-reporting in logbooks, allowed NMFS to collect information on fishery-specific levels of marine mammal incidental take that could be used to start a comprehensive management regime.

The replacement of section 114 with Section 118 in the 1994 MMPA amendments established a new management regime for the taking of marine mammals incidental to commercial fisheries. Major tenets of this section were: to authorize commercial fishers to incidentally take marine mammals in the course of fishing operations if the fishers comply with registration, reporting, and other requirements of Section 118, to reaffirm that the reduction of mortality or serious injury of marine mammals incidental to commercial fisheries to insignificant levels approaching a zero mortality and serious injury rate is an underlying goal of the MMPA, and to prohibit all intentional lethal taking of marine mammals. Like section 114, Section 118 requires NMFS to classify commercial fisheries into three categories based on the level of serious injury and mortality that occur incidental to each commercial fishery.

BOX 1

MMPA TASK FORCE

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Before the proposed regulations implementing Section 118 were published in the *Federal Register*, NMFS held two informal working sessions in 1994, in Silver Spring, MD, and in Seattle, WA, to discuss the draft proposed regulations. Attendees at the working sessions included Congressional staff, representatives of conservation groups, members of several different fishing industries, representatives of state governments, a representative of the Alaska subsistence community, and NMFS staff. Discussions and recommendations from these sessions, in addition to written comments received on the draft proposed regulations and on the proposed changes to the list of fisheries, were very helpful in developing the proposed implementing regulations.

Decal issued to vessel owners registered in the Marine Mammal Authorization Program

The MMPA Task Force published the proposed rule implementing Section 118 in the *Federal Register* in June of 1995 (60 FR 31666-31696). The proposed List of Fisheries (LOF) for 1996, based on the proposed fishery classification criteria set forth in the proposed rule, was published simultaneously. An Environmental Assessment was prepared to provide the data used to classify fisheries in the proposed LOF and to assess the impacts of the proposed regulations on commercial fishers. NMFS held 10 public hearings to receive comments on the proposed rule and LOF. NMFS received 28 oral comments during the public hearings and received over 70 written comments on either the proposed rule, the proposed LOF, or both.

The final regulations implementing Section 118 of the MMPA were published in the *Federal Register* in August of 1995 and were in place when the regulations under section 114 expired on September 1, 1995. The final List of Fisheries for 1996 was published in December of 1996. Due to the large number of comments on the definition of the Zero Mortality Rate Goal, a final definition was not published in the final implementing regulations. A final definition is being developed and will be published in 1996.

Definitions of Injury and Serious Injury

Injury. Under the old section 114, which was replaced by Section 118 and its implementing regulations, fisheries were classified based on the number of takes that occurred incidental to commercial fishing activities. "Take" was defined broadly and included mortalities, injuries, and, in some cases, harassment. Because Section 118 focuses on impacts to marine mammal populations, harassment is no longer considered in assessing impacts of commercial fisheries.

Under Section 118, commercial fishers in Category I and II must report all injuries and mortalities that occur incidental to commercial fishing. NMFS defined "injury" very explicitly in the final regulations (CFR § 229.2):

> "Injury means a wound or other physical harm. Signs of injury to a marine mammal include, but are not limited to, visible blood flow, loss of or damage to an appendage or jaw, inability to use one or more appendages, asymmetry in the shape of the body or body position, noticeable swelling or hemorrhage, laceration, puncture or rupture of eyeball, listless appearance or inability to defend itself, inability to swim or dive upon release from fishing gear, or signs of equilibrium imbalance. Any animal that ingests fishing gear, or any animal that is released with fishing gear entangling, trailing, or perforating any part of the body will be considered injured regardless of the absence of any wound or other evidence of an injury."

Serious injury. Under Section 118, NMFS must classify commercial fisheries based on the level of serious injury and mortality that occurs incidental to commercial fishing operations. The dichotomy between what the fishers must report ("injury and mortality") and what NMFS must base fishery classification on ("serious injury and mortality") is likely due to recognition by Congress that not all possible injuries to marine

mammals will be serious, cause the animal to die, and impact the population.

In contrast to the definition of "injury", which was defined specifically, "serious injury" was defined broadly in the final regulations:

> "Serious injury means any injury that will likely result in mortality."

Defining serious injury in this way allows NMFS to develop guidelines for which "injuries" may constitute a serious injury. Guidelines could either apply generally to all marine mammals injured in commercial fisheries, or could be species-specific, age-specific, gear-specific, or some combination of the above.

Definitions of Category I, II, and III Commercial Fisheries

NMFS must classify U.S. commercial fisheries into one of three categories under both the old section 114 and the new Section 118 of the MMPA. The MMPA indicates that category I, II and III fisheries are those that have frequent, occasional, or a remote likelihood of incidental mortality and serious injury of marine mammals, respectively. Under the Interim Exemption Program (1988 - 1995), NMFS defined "frequent", "occasional", and "remote likelihood" in terms of the rate of marine mammal taken per vessel per 20 days. This definition was somewhat arbitrary and relied heavily on the collection of fishery effort information, as reported by commercial fishers. Because Section 118 shifted the focus onto impacts of commercial fisheries on marine mammal populations, NMFS redefined "frequent", "occasional", and "remote likelihood" (Category I, II, and III fisheries, respectively) in the final regulations implementing Section 118 to reflect this new focus.

The new definitions of Category I, II and III fisheries capitalize on another section of the MMPA as amended in 1994: Section 117. In this section, Congress mandated that NMFS prepare a Stock Assessment Report (SAR) for each marine mammal stock that occurs in U.S. waters. Each SAR must describe the distribution of the stock, the population size and trends, the extent of human impact on the stock, the fisheries that interact with the stock, and the Potential Biological Removal level (PBR) calculated for each stock. The PBR is defined as the maximum number of animals that can be removed from a population while allowing the population to attain its Optimum Sustainable Population level. The PBR is calculated as the product of the minimum population size of the marine mammal stock, one half of the maximum rate of increase for that stock, and a recovery factor that ranges from 0.1 to 1.0, depending on the status of the stock.

The definitions of Category I, II, and III fisheries in the final regulations implementing Section 118 focus on the impacts of commercial fisheries to marine mammal populations by comparing both the cumulative and individual fishery-related annual number of serious injuries and mortalities to the PBR for each species of marine mammal impacted by that fishery. This approach acknowledges that from a population perspective, one mortality of a western North Atlantic harbor seal (population is increasing) is not equivalent to one mortality of a Northern right whale (population is increasing, but species is endangered and consists of fewer than 400 animals). Further, this approach recognizes that fisheries that impact different stocks of marine mammals should be subject to a different level of management for the conservation of protected species.

The definitions of Category I, II, and III fisheries are listed in Box 2. Essentially, the fishery classification criteria consist of a two-tiered, stock-specific approach that first addresses the total impact of all fisheries on each marine mammal stock and then addresses the impact of individual fisheries on each stock. Tier 1 considers the cumulative fishery mortality and serious injury for a particular stock, while Tier 2 considers fishery-specific mortality for a particular stock. NMFS goes through the following decision process when assessing each fishery for which data are available:

Tier 1: If the total annual mortality and serious injury across all fisheries that interact with a stock is less than or equal to 10 percent of the PBR of such a stock, then all fisheries interacting with this stock would be placed in Category III. Otherwise, these fisheries are subject to the next tier to determine their classification.

Tier 2:

Category I: Annual mortality and serious injury of a stock in a given fishery is greater than or equal to 50 percent of the PBR level.

Category II: Annual mortality and serious injury in a given fishery is greater than 1 percent and less than 50 percent of the PBR level.

Category III: Annual mortality and serious injury in a given fishery is less than or equal to 1 percent of the PBR level.

Exceptions to this classification scheme can be made if the data on which the classification is based are scientifically questionable. For example, if the coefficient of variation is unreasonably large for either the mortality estimates from an observer program, or for the population estimate on which the PBR is based, NMFS may determine the level of serious injury and mortality by evaluating other factors, such as the fishing gear type used or whether the fishing season occurs during a time of high marine mammal abundance.

Information Used to Classify Commercial Fisheries

NMFS may base its classification of commercial fisheries on a variety of different types of information. The best source of information on the level of fishery-specific marine mammal incidental serious injuries and mortalities is a fishery observer program. Thus, if data

BOX 2 -- Definitions of Category I, II and III Fisheries*

Category I: a commercial fishery with frequent incidental mortality and serious injuries of marine mammals. A commercial fishery that frequently causes mortality and serious injury of marine mammals is one that is by itself responsible for the annual removal of 50 percent or more of any stock's PBR.

Category II: a commercial fishery with occasional incidental mortality ans serious injury of marine mammals. A commercial fishery that occasionally causes mortality or serious injury of marine mammals is one that, collectively with other fisheries, is responsible for the annual removal of more than 10 percent of any marine mammal stock's PBR and that is by itself responsible for the annual removal of between 1 and 50 percent, exclusive, of any stock's PBR. In the absence of reliable information indicating the frequency of incidental mortality and serious injury of marine mammals in a certain fishery, NMFS will determine whether there is "occasional" taking by evaluating other factors such as fishing techniques, gear used, methods used to deter marine mammals, target species, seasons and areas fished, qualitative data from logbooks or fisher reports, stranding data, and the species and distribution of marine mammals in the area.

Category III: a commercial fishery that has a remote likelihood of, or no known incidental mortality and serious injury of marine mammals. A commercial fishery that has a remote likelihood of causing incidental mortality and serious injury of marine mammals in one that collectively with other fisheries is responsible for the annual removal of 10 percent or less of any marine mammal stock's PBR, or more than 10 percent of any marine mammal stock's PBR, yet that fishery is by itself responsible for the annual removal of 1 percent or less of that stock's PBR. In the absence of reliable information indicating the frequency of incidental mortality and serious injury of marine mammals in a certain fishery, NMFS will determine whether there is a "remote likelihood" of taking by evaluating other factors such as fishing techniques, gear used, methods used to deter marine mammals, target species, seasons and areas fished, qualitative data from logbooks or fisher reports, stranding data, and the species and distribution of marine mammals in the area.

* *The regulatory text at CFR § 229.2 should be consulted for the full definitions for Category I, II, and III fisheries.*

from an observer program are available, NMFS will use this information to classify the fishery. However, because only a few commercial fisheries have been monitored by observer programs, other information may also be used to classify the fisheries.

If data from fishery observer programs are not available, NMFS may also use fishers' reports, stranding data, logbook data, alternative observer programs that use platforms such as aircraft and non-fishing vessels, and other sources of information to classify fisheries.

Publication of the List of Fisheries

Under Section 118, NMFS must publish a list of fisheries (LOF) in the *Federal Register* at least once a year that places all U.S. commercial fisheries into Category I, II, or III based on the level of marine mammal incidental mortality and serious injury that occurs incidental to each fishery. Proposed changes to the LOF for the following year are published in the spring or early summer. Public comments received during the 90-day comment period will be considered when developing the final LOF, which is published during the late fall or early winter.

For each fishery, the LOF must include the number of vessels or participants in that fishery and which marine mammals interact with that fishery. Because the focus in the law is on "injuries and mortalities" to marine mammals, any marine mammal that has been injured or killed in a particular commercial fishery is included.

Definitions of U.S. Commercial Fisheries in the List of Fisheries

The LOF published pursuant to Section 118 includes all U.S. commercial fisheries. Fisheries are defined by the broad or specific geographic area in which they operate, the gear type used, the method used, and the target species. NMFS will, whenever possible, define fisheries the way they are defined in Federal, regional, or state fishery management plans or programs. Using this process to define fisheries in the LOF will:

- reduce confusion caused by having multiple names for the same fishery;
- provide a "common name" for a fishery that can be used by NMFS, fishers, and state and regional fishery managers;
- allow NMFS to more easily collect information on fishery statistics, such as the number of participants, target species landed, length of fishing season, etc.;
- help NMFS meet its statutory obligations by coordinating registration under the MMPA with existing fishery management programs.

NMFS will continue to seek public comment on the optimum way to define commercial fisheries, and will modify the LOF as necessary to reflect changes in the fisheries of the United States.

Registration Requirements for Commercial Fishers

U.S. commercial fishers who participate in Category I or II fisheries in the LOF must register under the MMPA. Fishers must obtain a registration packet from NMFS and submit the application and the $25 fee to the NMFS Regional Office in which their fishery operates. NMFS will send the fisher an Authorization Certificate, program decal, and reporting forms within 60 days of receiving the registration form and application fee.

NMFS has successfully integrated registration under the MMPA with state fishery registration in Washington and Oregon and is actively pursuing integration with state fishery registration in Alaska and California. The benefits of integration have included an elimination of fees and a reduction in paperwork for some commercial fishers, and a reduction in paperwork that must be completed by NMFS. NMFS will continue to integrate MMAP registration with existing state or federal fishery management programs where possible.

Alaska Region's Progress on State-Federal Integration of Vessel Registration

NMFS' Alaska Region (AKR) has met 3 times with the Alaska Department of Fish and Game's Commercial Fishery Entry Commission (CFEC) since the beginning of 1995 to determine the most feasible course of integrating the registration of vessels participating in Category I and II fisheries under the MMAP with the commercial vessel licensing and fishery permitting systems operated by the state. The Alaska Region currently has 12 Category II fisheries that operate in state waters, which include approximately 5,000 vessel owners and set net permit holders. The scenario envisioned to meet the mandate in the MMPA to attempt to integrate existing registration systems and relieve the fishermen of additional paperwork required by the MMAP registration strives also to keep to a minimum any potential impact on the CFEC vessel licensing and fishery permitting systems.

The CFEC was not able to accommodate the full registration integration for the 1996 fishing season due to their own program re-structuring last year, but did assist NMFS in providing a mailing list of commercial vessel license owners and fishery permit holders for the Category II fisheries. This list allowed NMFS to contact 5,000 fishery permit holders and 25,000 commercial vessel owners and notify them of the MMAP registration requirements.

It has been determined that if the integration is to go forward, the CFEC would not be in a position to pass on to the fishermen the MMAP registration fee currently assessed by NMFS by raising state licensing and permitting fees to eventually pass money back to NMFS. State commercial vessel licensing and fishery permitting fees are set by legislative statute. In order to facilitate the integration, NMFS has agreed to drop the fee to the fishermen and pass funds directly to the state to cover the costs associated with the registration. The AKR is requesting the CFEC include in their computerized vessel licensing fishery permitting system a mechanism to allow automatic registration in the MMAP. The vessel license or fishery permit would contain language that stated that the holder was registered in the MMAP for a specific fishery. The CFEC would then turn the list of registrants over to NMFS, who would send follow-up information on the program as well as program decals to the registrants. In this way, fishermen in Category I and II fisheries would not be required to submit separate MMAP registration forms to NMFS or pay the $25 registration fee.

The CFEC is currently deciding if they will agree to integrate the MMAP registration into their system. In order for the integration to be operating for the 1997 fishing season, the bulk of the computer reprogramming must be completed by August 1, 1996, to meet CFEC internal schedules.

Northwest Region's Progress on State-Federal Integration of Vessel Registration

In the Northwest Region (Washington and Oregon), State commercial fisheries licensing agencies have agreed to assist NMFS with the issuance of Marine Mammal Authorizations for Category I and II fisheries conducted under State issued licenses or permits. In each case, this is possible because information collected during the State licensing process is adequate to fulfill the requirements of the MMPA and individual vessels can be identified as participants in the subject fishery.

Under the agreements, NMFS will provide logistic support to the States for issuing Authorization materials (such as printed program information, certificates and reporting forms). The State licensing agencies will distribute the materials at the time of fishing license or permit renewal. The registration information on fishery participants will then be transferred to NMFS for inclusion in the national Marine Mammal Authorization Program database. For 1996, the cost savings associated with the agreements resulted in the elimination of Marine Mammal Authorization registration fees for participants in Category I and II fisheries licensed in Washington and Oregon.

Reporting Requirements for Commercial Fishers

Vessel owners or operators in Category I, II, or III fisheries must report all incidental mortality and injury of marine mammals during the course of commercial fishing operations. Reports will no longer be made in logbooks, as was required under the old MMEP regulations. Instead, reports of marine mammal mortality or injury should be made on postage-paid forms provided by NMFS, and these forms should be sent to NMFS Headquarters.

These reporting forms have been designed to be scannable by computers. Because a computer will electronically "read" the reporting form, data entry will be faster and summaries of reports will be more readily available.

Monitoring Programs

As with the interim exemption program under section 114, Section 118 specifies that NMFS establish a program to monitor incidental mortality and serious injury of marine mammals in the course of commercial fishing operations. The purpose of fishery observer programs is to obtain statistically reliable estimates of incidental mortality and serious injury of marine mammals in commercial fisheries, to determine the reliability of fishers' reports, and to identify changes in fishing methods or technology that may decrease incidental mortality and serious injury.

Seven fisheries were observed in 1995 for interactions with marine mammals: the New England multi-species sink gillnet fishery, the Atlantic swordfish drift gillnet fishery, the Atlantic tuna pair trawl fishery, the mid-Atlantic coastal gillnet fishery, the Gulf of Alaska and Bering Sea groundfish trawl fishery, the Washington coastal (Makah tribe) set gillnet fishery, and the California/Oregon thresher shark/swordfish drift gillnet fishery. In addition, a feasibility survey of several Alaska gillnet and purse seine fisheries was completed in 1995 to determine how observer coverage will be proposed to be allocated in 1996 for these fisheries. The 1994 MMPA Annual Report contains an appendix that lists the fisheries observed in 1989-1994 and their associated levels of observer coverage, observed incidental serious injury and mortality by species, and estimated annual removal levels. Compilation and analysis of the 1995 data are still in progress.

Exclusion of the Treaty Tribe Fisheries

NMFS issued regulations implementing Section 118 to authorize the taking of marine mammals incidental to commercial fishing operations. However, because the rights to fish and hunt are provided separately for Northwest Indian tribes through treaties with the United States, and because the MMPA states that it is not meant to alter any part of a treaty, the NMFS has determined that the MMPA's mandatory registration system does not apply to treaty Indian fishers operating in their usual and accustomed fishing areas. Several Northwest Indian tribes have developed, or are in the process of developing, regulations for the management of tribal activities with respect to marine mammals. The tribes have agreed to cooperate with NMFS in gathering and submitting data on interactions between their fisheries and marine mammals so that the health of affected marine mammal stocks can be monitored.

Environmental Assessment for the Proposed Rule Implementing Section 118 of the MMPA

To fulfill NMFS' obligations under NEPA, NMFS prepared an Environmental Assessment (EA) to examine the consequences of the proposed regulations implementing Section 118 on the environment and on the public. Because the goal of the MMPA is the protection and conservation of marine mammals and their habitats, NMFS determined that any regulations intended to implement the MMPA would impact protected resources in a positive manner. Thus, this part of the EA was minimized, and NMFS focused instead on the impact that the proposed regulations would have on the affected part of the human environment: the commercial fisheries.

NMFS described many of the U.S. commercial fisheries in the EA. New information was synthesized on the geographic range of the fisheries, the seasons during which the fisheries operate, what type of gear is used, how the gear is fished, the number of participants in each fishery, what species of fish are targeted in each fishery, what type of management program exists for each fishery, etc. This new information was primarily gathered by requesting licensing data from individual states, by telephone interview of state fishery managers, and by reviews of interstate or Regional Fishery Management Plans and recent amendments to Federal Fishery Management Plans.

The focus of the search for new information was on those fisheries for which NMFS had data concerning protected species interactions. In most cases, this meant that updated descriptions were provided for those fisheries placed in Category I or II under the Interim Exemption Program. However, new information was also collected for many fisheries that have historically been in Category III.

For each fishery described in the EA, NMFS presented information on the level of takes of marine mammals. Annual mortality levels of marine mammals in each fishery were averaged over the number of years for which data were available (typically 1989-1993). Observer data were used in the calculations if available. If observer data were not available for a particular fishery, logbook data, stranding data, fisher's reports, or Category III reports were included, in that order. Because the EA focused on the period after the implementation of the Interim Exemption Program and because information from 1994 was typically not available from the NMFS Science Centers and Regional Offices at the time the EA was drafted, only logbook and stranding data collected from 1989 through 1993 were used. Because the final Stock Assessment Reports were published after the EA was finalized, there are some differences between the two documents, and both should be consulted if information is being sought on marine mammal mortalities in commercial fisheries.

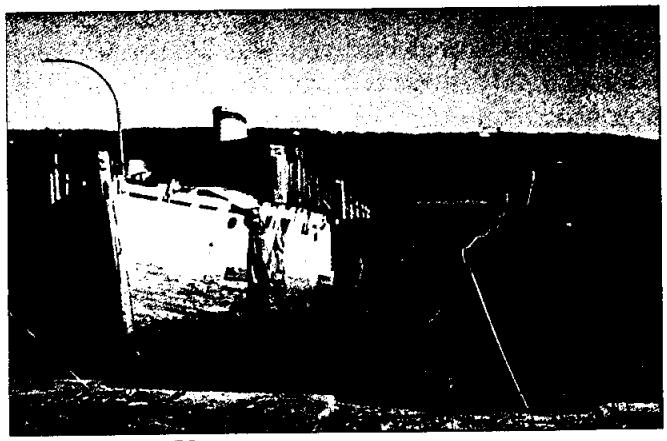


Photo credit: NMFS.

Overall, the commercial fishery with the highest species specific rate of average annual incidental mortality is the New England multispecies sink gillnet fishery. Reduction of takes in this fishery has been the goal of the Harbor Porpoise Working Group for several years. Two other fisheries that had high occurrences of incidental mortalities were the large mesh drift gillnet fisheries targeting pelagic species such as tuna, swordfish, and sharks on both the Atlantic and Pacific coasts. These drift gillnet fisheries have large numbers of incidental mortalities of delphinid species (especially common dolphins), and incidental mortalities of whales (humpback and right whales in the Atlantic drift gillnet fishery; sperm whales and beaked whales in the Pacific drift gillnet fishery). Reduction of marine mammal incidental serious injury and mortality in these fisheries will be a major goal of the Take Reduction Teams, which will be formed and convened in 1996.

NMFS also provided information in the EA on the level of incidental mortality of seabirds and sea turtles in commercial fisheries. Based on observer data, sea turtle captures and mortalities were highest in the Atlantic large pelagics longline fishery. The data indicate, however, that while the number of captures is large (46 observed in 1992; 92 observed in 1993; extrapolated to 1773 captures in 1992 and 1561 captures in 1993), the number of observed, confirmed mortalities is low (one mortality of a leatherback turtles observed in 1992; 2 mortalities of loggerhead turtles

observed in 1993). Based on observer data, sea bird mortality occurs in all observed gillnet fisheries. High levels (> 1000 per year) of total estimated sea bird kill have occurred in the New England multispecies sink gillnet fishery, the Prince William Sound salmon drift gillnet fishery, and the Bering Sea/Gulf of Alaska groundfish longline fishery. In addition, if it is assumed that the observed takes of sea birds in the California angel shark/set gillnet fishery are actually observed kills, the total estimated annual kill of sea birds in this fishery would also be over 1,000 per year.

Zero Mortality Rate Goal

The 1994 amendments to the MMPA requires that commercial fisheries reduce incidental mortality and serious injury of marine mammals to insignificant levels approaching a zero mortality and serious injury rate within 7 years (by April 30, 2001). NMFS proposed a definition of the Zero Mortality Rate Goal (ZMRG) in the proposed regulations implementing Section 118. Because many comments were received on the proposed definition, and NMFS wanted to study some of the issues raised further, a final definition of the ZMRG was not published in the final regulations.

In the proposed regulations for Section 118, NMFS proposed that the definition of the ZMRG be essentially the same as the definition of a Category III fishery. Thus, under the proposed definition, those fisheries in Category III would have met the ZMRG and would not be required to further reduce incidental mortalities and serious injuries. This proposed approach has the following advantages: 1) ZMRG would be based on measurable, quantifiable criteria (annual level of incidental mortality and serious injury relative to the PBR), 2) the criteria would be conservative as they would be synonymous with Category III, where there is a "remote likelihood" of incidental takes, and 3) the stock-specific focus of the Act would be maintained.

Public comments on this proposed definition will be addressed in the *Federal Register* notice that announces the final definition of the ZMRG.

The proposed definition of the ZMRG tracked NMFS' belief that this goal would be met for a marine mammal stock when the incidental mortality and serious injury from commercial fishing operations reach levels significantly below the stock's PBR. Once serious injury and mortality levels reach this low annual rate, the impact of commercial fisheries would have a biologically insignificant effect on the status of the affected stock. NMFS will continue to encourage commercial fishers to reduce incidental mortalities and serious injuries below this level.

The 1996 List of Fisheries

A proposed List of Fisheries for 1996 was published in the *Federal Register* concurrent with the publication of the proposed regulations implementing Section 118 of the MMPA. This proposed LOF was based on the proposed fishery classification criteria described above.

During July of 1995, NMFS held 10 public hearings at various locations to receive comments on the proposed regulations and the proposed LOF for 1996. Of the 86 individuals who attend the hearings, 28 submitted oral comments on either the proposed regulations, the LOF, or both. In addition, NMFS received 23 written letters commenting specifically on the proposed LOF.

The final LOF for 1996 was published on December 28, 1995, and was in place when the previous LOF expired on January 1, 1996. However, in order to allow ample time for the registration of commercial fishers in the Marine Mammal Authorization Program, the previous LOF was extended until 3/1/96. There were several changes to the fisheries in Category I and II in the LOF in 1996 from the LOF published in 1994/1995. The Alaska Southeast salmon purse seine and the North Carolina haul seine, both previously in Category III were moved to Category II in the 1996 LOF. Three new fisheries were placed in Category II: the Oregon swordfish/blue shark surface longline fishery, the Alaska pair trawl, and the North Carolina roe mullet stop net fishery. Some fisheries were also moved from Category II to Category III in the 1996 LOF: the AK southern Bering Sea, Aleutian Islands,

and Western Gulf of Alaska sablefish longline/set line, and the California/Oregon/Washington salmon troll fishery.

Take Reduction Plans

Pursuant to Section 118 of the 1994 MMPA amendments, NMFS is required to convene Take Reduction Teams (TRTs) for each strategic stock that interacts with a category I or II fishery. Each team's primary objective is to develop a plan for reducing the incidental mortality and serious injury to each strategic stock.

Stocks that are determined to have incidental takes that exceed the PBR are to be designated "strategic." (Section 117 of the MMPA requires that NMFS complete stock assessment reports for all marine mammal stocks within waters under U.S. jurisdiction. These stock assessments have to include a calculation of PBR.) In addition, stocks that are declining and are likely to be listed as a threatened species under the Endangered Species Act (ESA), or those that are currently listed as threatened or endangered under the ESA or are listed as depleted under the MMPA are designated "strategic stocks."

The coordination process to form TRTs was initiated in 1995. Each team is to be made up of individuals who represent the variety of interested or affected parties from the commercial and recreational fishing industry, appropriate Regional Fishery Management Councils, interstate fisheries commissions, academic and scientific organizations, state officials, native Alaskans or other Native Americans if appropriate, and environmental groups. NMFS contracted a facilitator group with expertise in environmental dispute resolution in September 1995 to compile the team participants.

The contractor is also responsible for convening six (6) Take Reduction Teams (TRTs) and facilitating their development of Take Reduction Plans (TRPs) during 1996, for the following stocks of marine mammals, listed in order of priority: Gulf of Maine stock (population) of harbor porpoise; Atlantic offshore cetaceans; Pacific offshore cetaceans; and the Atlantic baleen whales (humpback and northern right whales). The development of TRTs for three other stocks; the Atlantic coastal stock of bottlenose dolphins; and the eastern and western stocks of Steller sea lions, is also being considered.

During November and December, 1995, the facilitator was contacting individuals to participate on each of the TRTs. The first TRT meetings will convene in late-January or February, 1996.

Section 101a5E: Interim Permits for the Taking of Threatened and Endangered Marine Mammals

Section 101(a)(5)(E) of the MMPA allows for the take of marine mammals listed as endangered or threatened under ESA incidental to commercial fishing operations, if it can be determined that: (1) incidental mortality and serious injury will have a negligible impact on the affected species or stock, (2) a recovery plan for that species or stock has been developed or is being developed, and (3) where required under Section 118, a monitoring program has been established, vessels are registered, and a take reduction plan has been developed or is being developed.

In the proposed rule to implement Section 118 of the MMPA (60 FR 31666, June 16, 1995) and the associated proposed list of fisheries (LOF), comments were requested that addressed (1) those fisheries that interact with species or stocks listed under the ESA and (2) information on the magnitude of the takes of such species or stocks found in the environmental assessment (EA) that accompanied the rule. These comments and NMFS's responses to the comments are included in the final rule to implement Section 118 published in the *Federal Register* on August 30, 1995, (60 FR 45086).

In order to determine whether commercial fishing activities are having a negligible impact on endangered

BOX 3 -- Category I and II Commercial Fisheries in the 1996 List of Fisheries

Pacific Ocean
Category I
CA angel shark/halibut and other species large mesh (> 3.5in) set gillnet
CA/OR thresher shark/swordfish drift gillnet

Category II
AK Prince William Sound salmon drift gillnet
AK Peninsula/Aleutians salmon drift gillnet
AK Peninsula/Aleutian Island salmon set gillnet
Southeast AK salmon drift gillnet
AK Cook Inlet drift gillnet
AK Cook Inlet salmon set gillnet
AK Yakutat salmon set gillnet
AK Kodiak salmon set gillnet
AK Bristol Bay drift gillnet
AK Bristol Bay set gillnet
AK Metlakatla/Annette Island salmon drift gillnet
WA Puget Sound Region salmon drift gillnet
CA anchovy, mackerel, tuna purse seine
AK Southeast salmon purse seine
AK pair trawl
OR swordfish/blue shark surface longline

Atlantic Ocean, Gulf of Mexico, and Caribbean
Category I
Atlantic large pelagics pair trawl
Atlantic Ocean, Caribbean, Gulf of Mexico large pelagics drift gillnet
New England multispecies sink gillnet
Atlantic Ocean, Caribbean, Gulf of Mexico large pelagics longline

Category II
Mid-Atlantic coastal gillnet
Gulf of Maine small pelagics surface gillnet
Southeastern U.S. Atlantic shark gillnet
Atlantic squid, mackerel, butterfish trawl
North Carolina haul seine
North Carolina roe mullet stop net

and threatened stocks of marine mammals, NMFS evaluated the total number of all incidental serious injuries and mortalities due to commercial fishing for each such stock, based on information included in final stock assessment reports and in the EA prepared for the implementation of Section 118 of the MMPA.

Negligible impact, as defined in 50 CFR 228.3, is "an impact resulting from the specified activity that cannot be reasonably expected to, and is not reasonably likely to, adversely affect the species or stock through effects on annual rates of recruitment or survival." Because of the qualitative nature of this definition and limitations on available information, NMFS determined that the application of strict quantitative criteria for making negligible impact findings was not appropriate. However, as a starting point, NMFS considered a total annual serious injury and mortality of not more than 10 percent of a stock's PBR level to be insignificant, based on recommendations of a NMFS workshop held in June, 1994, to propose guidelines for preparing stock assessment reports.

Such a criterion was not, however, the only factor in evaluating whether a particular level of take was considered negligible. The information in the stock assessment reports and the EA had varying degrees of uncertainty, and factors other than PBR level (*e.g.*, population trend) were also considered. Because the negligible impact determinations required some judgement based upon the available information, each finding indicated NMFS' best assessment of whether or not the estimated mortality and serious injury of endangered and threatened marine mammals incidental to commercial fishing operations adversely affects the species or stock through effects on annual rates of recruitment or survival.

In order to determine which fisheries would receive permits under section 101(a)(5)(E), NMFS classified ESA-listed marine mammal stocks into three categories (60 FR 45399, August 31, 1995). These classifications and associated stocks are listed in Box 4. NMFS issued a general interim permit to fisheries in the first category (Appendix A), and will issue individual

BOX 4 -- Classification of ESA-listed stocks under section 101(a)(5)(E)

Species	Stock
Mortality and serious injury incidental to commercial fishing operations are having a negligible impact for the following stocks:	
Humpback whale	Central North Pacific stock
Steller sea lion	Eastern stock
	Western stock
Mortality and serious injury incidental to commercial fishing operations could not be determined to be having a negligible impact for the following stocks:	
Fin whale	Western North Atlantic stock
Humpback whale	Western North Atlantic stock
	California/Oregon/Washington-Mexico
Northern right whale	Western North Atlantic stock
Sperm whale	Western North Atlantic stock
	California/Oregon/Washington stock
Hawaiian monk seal	Entire species
There is no documented evidence of fishery-related interactions for the following stocks:	
Blue whale	Western North Atlantic stock
	California/Mexico stock
	Hawaii stock
Bowhead whale	Western Arctic stock
Fin whale	California/Oregon/Washington stock
	Alaska stock
	Hawaii stock
Humpback whale	Western North Pacific stock
Northern right whale	North Pacific stock
Sei whale	Western North Atlantic stock
	Eastern North Pacific stock
Sperm whale	Northern Gulf of Mexico stock
	Alaska stock
	Hawaii stock
Guadalupe fur seal	Entire species

permits to participants in these fisheries in 1996 and beyond in conjunction with Section 118 authorization certificates, subject to the same terms and conditions.

Outreach Program

The "MMPA Bulletin," a new publication of the Office of Protected Resources, is designed to increase public awareness of and participation in the regulatory process. The first edition, published in September 1994, included a description of the 1994 Amendments to the MMPA, and subsequent editions have focused on NMFS' efforts to implement the amendments. The "MMPA Bulletin" has been sent to approximately 1,600 interested parties, including fishers, members of the environmental community, marine mammal scientists, state and Federal agencies dealing with protected species issues, Native American groups, public display facilities, and Congressional staff.

Outreach Programs in the Alaska Region

AKR staff supplied detailed information on the new regulations governing commercial fishery interaction with marine mammals to the Center for Marine Conservation for a workshop they held in Anchorage in March 1995. At the workshop, which was intended to disperse information to fishermen, AKR staff presented an overview of the regulatory changes and participated in round table discussions on various topics. Topics discussed included new criteria for fisheries categorization, proposed deterrence regulations and new reporting methods of the incidental take of marine mammals during fishing operations.

-A public hearing was held to receive comments on proposed regulations governing commercial fishery interaction with marine mammals in Anchorage in July 1995.

-Staff worked with the University of Alask Sea Grant Office of Marine Affairs to distribute information to fishermen throughout Alaska regarding the new regulations.

-AKR staff gave a talk on the MMPA and the 1994 Amendments to a class on marine mammals at the University of Alaska.

Chapter III. Section 117: Stock Assessment Program and Reports

Paul Wade

Overview

The new section 117 (as amended in 1994) of the MMPA requires NMFS and USFWS to prepare, in consultation with regional Scientific Review Groups, draft assessment reports for each stock of marine mammal that occurs in waters under U.S. jurisdiction. The agencies are to make these reports available for public review and comment and prepare final stock assessment reports based upon public comments and continued consultation with the Scientific Review Groups.

The MMPA requires that each stock assessment report contain several items, including (1) a description of the stock, including its geographic range; (2) a minimum population estimate, a maximum net productivity rate, and a description of current population trend, including a description of the information upon which these are based; (3) an estimate of the annual human-caused mortality and serious injury of the stock and, for a strategic stock, other factors that may be causing a decline or impeding recovery of the stock, including effects on marine mammal habitat and prey; (4) a description of the commercial fisheries that interact with the stock, including the estimated level of incidental mortality and serious injury of the stock by each fishery on an annual basis; (5) a statement categorizing the stock as strategic or not, and why; and (6) an estimate of the potential biological removal level (PBR) for the stock, describing the information used to calculate it.

The primary goal of the MMPA is to ensure that each stock of marine mammal does not become depleted, i.e., reduced below its optimum sustainable population level. A stock which has 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". A marine mammal stock is designated as strategic if (A) its level of direct human-caused mortality exceeds the potential biological removal level; or (B) it is listed as a threatened or endangered species under the ESA, or is designated as depleted under the MMPA; or (C) it is declining and is likely to be listed as a threatened species under the ESA within the foreseeable future. The consequences of being designated strategic are covered in Section 118 of the MMPA, which requires the formation of a TRT for each strategic stock which interacts with a category I or II fishery. These teams are required to develop a take reduction plan for each strategic stock, with an immediate goal of reducing the incidental mortality and serious injury to levels less than the PBR.

Section 117 also requires the formation of three independent regional Scientific Review Groups (SRGs) representing Alaska, the Pacific Coast (including Hawaii), and the Atlantic Coast (including the Gulf of Mexico). The Secretary of Commerce establishes the groups after consulting with the Secretary of the Interior, the Marine Mammal Commission, Governors of affected adjacent coastal States, regional fishery and wildlife management authorities, Alaska Native organizations, Indian tribes, and fishing industry and environmental groups. Members of the groups must have expertise in marine mammal biology and ecology, populations dynamics and modeling, commercial fishing technology and practices, or marine mammal stocks taken under MMPA section 101(b). These groups advise the Secretary on stock assessments, uncertainties and research needed on stocks, impacts to stocks, and methods to reduce incidental mortality in fishing operations.

In 1994, immediately after the amendments were signed into law on 30 April, NMFS held a workshop on 27-29 June at the Southwest Fisheries Science Center in La Jolla, CA, to draft guidelines for preparing the stock assessment reports (called the PBR guidelines). NMFS completed the draft stock assessment reports, including preliminary consultation with the three regional SRGs, and made them available for public

review and comment on August 9, 1994 (59 FR 40527). The three SRGs held their first meetings jointly on 12-13 October, in Seattle, WA, along with NMFS personnel. The primary focus of that first meeting was to provide NMFS with comments and recommendations regarding the draft PBR guidelines. The public comment period on the draft stock assessments ended on 1 December, and these comments were compiled, summarized, and distributed to field offices and the SRGs for review in late December.

The 1995 Stock Assessment Process

From December, 1994, to February, 1995, NMFS consulted extensively with the SRGs to discuss the review groups' and public's comments on the PBR guidelines and the individual stock reports. The draft guidelines and stock assessment reports were modified in response to comments from the SRGs, the public (including non-governmental organizations such as the Humane Society of the U.S., the Center for Marine Conservation, and several Alaska native organizations), and the Marine Mammal Commission. After discussions by NMFS scientists nationally, particularly authors of the stock assessment reports and members of the MMPA implementation task force, the PBR guidelines were finalized near the end of February.

The revised stock assessment reports were submitted to NMFS headquarters in March, 1995. These draft final reports were reviewed by NMFS headquarters staff from April to June, with a particular focus on ensuring that the PBR guidelines were consistently applied in all the reports. Additionally, the reports were sent to the regional SRGs for a final review. Comments resulting from these reviews were incorporated into the final stock assessment reports, and their availability was published in the *Federal Register* on 25 August, 1995 (60 FR 44308).

From July to September, four documents written by NMFS were published in the NOAA Technical Memorandum series to make available the 1995 marine mammal stock assessments and related information. Three of those documents contained the final stock assessment reports prepared by NMFS in each of the three regions covered by Scientific Review Groups: Alaska (including the North Pacific) (Small and DeMaster 1995), the Atlantic coast (including the Gulf of Mexico) (Blaylock *et al.* 1995), and the Pacific coast (including Hawaii) (Barlow *et al.* 1995a). The fourth document contained the final PBR guidelines, a summary of the 1995 stock assessments, and the reports of the June 1994 PBR workshop and the October 1994 Joint Scientific Review Group (Barlow *et al.* 1995b).

Summary of the 1995 Marine Mammal Stock Assessment Reports

Stock Definition

For many species of marine mammals, stocks have never been clearly defined in U.S. waters. Therefore, the first task of preparing the stock assessments was to define all stocks. Stocks of cetaceans were typically based on their known distribution within one of 5 major areas of U.S. EEZ: the Atlantic coast of the continental U.S., the Gulf of Mexico, the Pacific coast of the continental U.S., Alaska, and Hawaii. These were reasonable stock areas for many species because of the different oceanographic habitats found between these areas, the large distances between these areas (especially in the Pacific), and because of the different fisheries that interact with marine mammals within these areas. Where additional biological information indicated a different stock structure was appropriate, smaller or larger stocks were defined. Such stocks included Pacific humpback whales, beluga whales, Pacific killer whales, Pacific harbor porpoise, and both Pacific and Atlantic bottlenose dolphins. Pinniped stocks were typically defined by the area of their haul-outs and rookeries. Where biological information indicated it was appropriate, multiple stocks were defined for species, including the Steller sea lion, the northern fur seal, and the Pacific harbor seal.

A total of 145 stocks were defined for taxa that are under the authority of NMFS (see Appendix B), which are cetaceans and most pinnipeds (8 additional stocks of manatees, polar bears, sea otters, and walrus are under the authority of the USFWS). There are 60 marine mammal stocks in the Atlantic and Gulf of Mexico, 54 along the Pacific coast of the continental U.S. and Hawaii, and 31 in Alaska or the North Pacific. Further work on the definition of stock structure of many species was recognized as being needed, including Pacific and Atlantic harbor porpoise, Pacific killer whales, beluga whales, Atlantic bottlenose dolphins, and Pacific harbor seals. It is therefore anticipated that the number of stocks will change as additional information is collected and stock structure is revised.

Stocks Designated Strategic Because of Incidental Fisheries Mortality

Along the Atlantic coast of the continental U.S. there are 16 stocks that are strategic because their estimate of incidental fisheries mortality exceeds their calculated PBR, out of a total of 34 stocks. Three of those 16 stocks are also strategic because they are endangered or depleted. The Gulf of Maine harbor porpoise had fisheries mortality estimated to be 4.65 times its PBR, primarily in the New England multispecies sink gillnet fishery, which was also mainly responsible for the strategic designation of Atlantic white-sided dolphins. Mortality in the Atlantic drift gillnet fishery for swordfish, tuna, and shark was primarily responsible for the strategic designation of 13 other stocks of cetaceans. Significant mortality of some of these stocks also occurred in the Atlantic pair-trawl fishery and the Atlantic longline fishery which also target swordfish, tuna, and shark, and it is possible that there was also significant mortality in the Atlantic mid-water trawl fisheries for mackerel and for squid. Some of these stocks may be strategic only because of species identification difficulties and under-estimation of abundance; NMFS has planned additional research to address these issues. The U.S. Atlantic coastal gillnet fishery was thought to be the source of incidental mortality estimated from strandings that exceeds the PBR of Atlantic coastal bottlenose dolphins, as well as being responsible for additional mortality of harbor porpoise.

None of the 26 stocks in the Gulf of Mexico had estimates of incidental fisheries mortality greater than their PBR. However, the Gulf of Mexico stock of bottlenose dolphin (in bays, sounds, and estuaries) is strategic because it was concluded that in most of the bays and sounds the take of a single animal would exceed that area's individual PBR, and there is documentation of stranded animals with evidence of fisheries entanglement in those areas. Additionally, Gulf of Mexico short-finned pilot whales are strategic because of their low population size and the documentation of fishery-related mortality in the longline fishery.

Along the Pacific coast of the continental U.S., 7 stocks out of a total of 34 are strategic because of incidental fisheries mortality that exceeds their calculated PBRs. Their incidental mortality is nearly exclusively from the California/Oregon/Washington drift gillnet fishery for swordfish and shark. Two of these stocks are also strategic because they are listed as endangered under the ESA.

None of the 20 Hawaii stocks or 31 Alaska stocks have incidental fisheries mortality that exceeds their calculated PBRs.

A list of all stocks that are strategic because of incidental fisheries mortality is provided in Box 5.

Stocks Designated Strategic Because of Other Human-Caused Mortality

The stocks of dwarf and pygmy sperm whales in the western North Atlantic were both designated strategic on the advice of the Atlantic Scientific Review Group because of stranding data indicating apparent mortality due to the ingestion of plastic bags, and because identification difficulties between the two species prevented the calculation of a separate PBR for either species. Additionally, they may interact with the drift

BOX 5 - - Summary of stocks that are strategic because their estimate of total annual incidental fisheries mortality exceeds their estimated PBR. If a stock is additionally listed under the ESA or MMPA, that is indicated.

Species	Stock
North Atlantic right whale (endangered)	Western North Atlantic
Sperm whale (endangered)	Western North Atlantic
Cuvier's beaked whale	Western North Atlantic
True's beaked whale	Western North Atlantic
Gervais' beaked whale	Western North Atlantic
Blainville's beaked whale	Western North Atlantic
Sowerby's beaked whale	Western North Atlantic
Pilot whale, long-finned	Western North Atlantic
Pilot whale, short-finned	Western North Atlantic
Atlantic white-sided dolphin	Western North Atlantic
Common dolphin	Western North Atlantic
Atlantic spotted dolphin	Western North Atlantic
Pantropical spotted dolphin	Western North Atlantic
Bottlenose dolphin	Western North Atlantic, offshore
Bottlenose dolphin (depleted)	Western North Atlantic, coastal
Harbor porpoise	Gulf of Maine/Bay of Fundy
Sperm whale (endangered)	California/Oregon/Washington
Humpback whale (endangered)	California/Oregon/Washington-Mexico
Pilot whale, short-finned	California/Oregon/Washington
Baird's beaked whale	California/Oregon/Washington
Mesoplodont beaked whales	California/Oregon/Washington
Cuvier's beaked whale	California/Oregon/Washington
Pygmy sperm whale	California/Oregon/Washington

gillnet fishery. Similarly, the stocks of dwarf and pygmy sperm whales in the Gulf of Mexico were both also designated strategic because of apparent mortality due to the ingestion of plastic bags, and because identification difficulties between the two species prevented the calculation of a separate PBR for either species.

Stocks Designated Strategic Because They are Endangered, Threatened, or Depleted

Stocks that are listed as endangered or threatened under the ESA or are designated as depleted under the MMPA are automatically designated as strategic. Blue, Fin, Sei, Humpback, Right, Bowhead, and Sperm whales were all listed as endangered in the 1970's, mostly because they were considered severely depleted due to commercial whaling harvests. There are 21 stocks from these seven species in U.S. waters, and they are all therefore strategic (see Table 1). None of these stocks are (a) known to be commercially listed as depleted under the MMPA; (b) subject to subsistence harvests by Alaska Natives but where mortality and serious injury incidental to commercial fishing is absent or is a relatively minor contribution to total human-related mortality and injury; and (c) where indicated in the stock assessment reports, believed to have a total estimated human-related mortality that may not be sustainable over the long-term.

Estimates for PBR and status determinations for such stocks will be determined from the analysis of scientific and other relevant information discussed during the Co-management process, and these will maintain the intent of best available scientific information and reflect the degree of uncertainty associated with the information obtained for these stocks. Three stock assessment reports were affected by these criteria, which were harbor seals in the Gulf of Alaska and beluga whales in Cook Inlet and in Norton Sound.

Regional Scientific Review Groups

The primary responsibility in 1995 of the three regional SRGs was to review the draft stock assessment reports, and this was the main focus of their meetings. As discussed above, they worked closely with NMFS personnel to revise and finalize the 1995 stock assessments. The SRGs held several meetings just before and during 1995 (see box 6). Also participating in the meetings were NMFS personnel from the field offices in each region and from the headquarters office.

BOX 6 - - Scientific Review Group Meeting Schedule

Dec. 13-15, 1994	2nd Pacific SRG meeting, La Jolla, CA
Jan. 4-5, 1995	2nd Atlantic SRG meeting, Woods Hole, MA
Jan. 4-5,11, 1995	2nd Alaska SRG meeting, Anchorage, AK
Feb. 16-17, 1995	3rd Alaska SRG meeting, Anchorage, AK
Apr. 4-6, 1995	3rd Pacific SRG meeting, Maui, HI
Dec. 12-14, 1995	3rd Atlantic SRG meeting, Orlando, FL

The SRGs have also provided specific advice to NMFS on what are high priority research activities to improve the stock assessments. In 1996 and beyond, it is anticipated that the SRGs will continue to provide advice, assistance, and guidance to NMFS during the review and revision process that the stock assessment reports will undergo. It is also anticipated that they will review Take Reduction Plans for stocks within their regions, and contribute to identifying critical habitat for strategic stocks.

Take Reduction Teams

Take Reduction Teams (TRTs) are required under Section 118 of the MMPA for each strategic stock

which interacts with a category I or II fishery. Therefore, in 1995, the process of forming such teams was initiated. These teams are required to develop a take reduction plan for each strategic stock, with an immediate goal of reducing the incidental mortality and serious injury to levels less than the PBR.

Six TRTs were proposed for the following fisheries/marine mammal complexes: Gulf of Maine harbor porpoise, Atlantic offshore cetaceans, Pacific offshore cetaceans, Atlantic baleen whales, Atlantic coastal bottlenose dolphins, and Alaska marine mammals. Initial meetings of the Gulf of Maine harbor porpoise, Pacific offshore cetacean, and Atlantic offshore cetacean teams were planned for February-March 1996. Refer to Chapter II for further information regarding the formation of these teams.

Stock Assessment Planning

Review and Revision

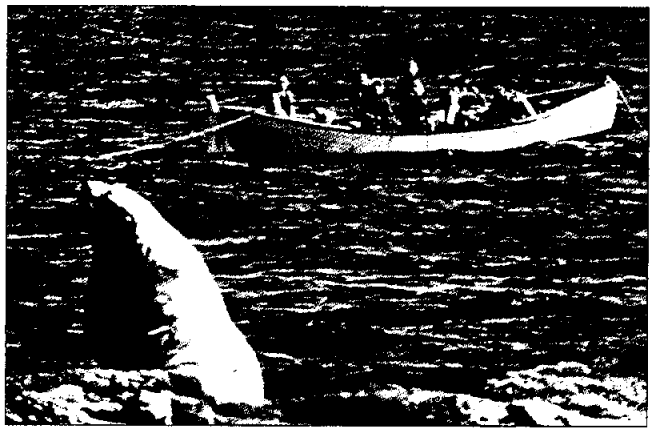
Section 117 requires the Secretary to review stock assessments at least (A) annually for strategic stocks; (B) annually for stocks with significant new information; and (C) once every 3 years for all other stocks. The stock assessment reports are required to be revised if the review indicates that the status of the stock has changed or can be more accurately determined. Furthermore, calculations of PBR include a minimum population estimate, which is required to be based on the best available scientific information on abundance, incorporating the precision and variability associated with such information; and, provides reasonable assurance that the stock size is equal to or greater than the estimate. As a stock's abundance estimate become old and thus out-dated, it will fail to meet this requirement of reasonable assurance if no information is available about the population trend of the stock. Recognizing this, the PBR guidelines recommend making downward adjustments to the recovery factor when abundance estimates are more than five year's old. Therefore, NMFS has made plans to repeat abundance surveys periodically to meet this requirement of providing reasonable assurance about the stock's size (see next section).

NMFS has planned a workshop in April, 1996 to consider further the guidelines for preparing the marine mammal stock assessments. During this workshop it is anticipated that the details of the stock assessment review and revision process required under section 117 will be established.

Long-Term Planning of Marine Mammal Research

NMFS has developed a preliminary long-term plan for marine mammal activities supported with MMPA and ESA funds. One important part of this planning process is the annual review and revision of a recommended three-year spending plan. This part of the long-term plan was first implemented in 1995 with the development of a recommended spending plan for fiscal years 1996-98. Research needs for improving stock assessments were a primary consideration in the development of the three-year plan.

To aid in planning the frequency with which marine mammal surveys will be conducted, NMFS developed a suggested rotation schedule for abundance surveys.



Threatened stocks of species such as the Steller sea lion are automatically considered strategic pursuant to Section 117 of the MMPA. *Photo credit: NMFS*

Each marine mammal stock was placed in a priority category using the following criteria: a high priority

was assigned if human-caused mortality was greater than PBR for a particular stock; medium priority was assigned to surveys for stocks with mortality > 10% of PBR; and low priority was given to surveys with mortality < 10% of PBR. A target survey interval was established for the three different priority categories: high (every 3 years), medium (every 4 years), and low (every 5 years). In addition to this general prioritization, high priority was also given to abundance surveys for some stocks with mortality < PBR, including surveys of endangered stocks, surveys of threatened or depleted stocks where there is known or suspected incidental mortality, surveys of unlisted but declining stocks, and surveys of de-listed stocks required as part of 5-year research and monitoring plans (e.g., gray whales).

The draft survey schedule generated in this manner was the starting point for further discussions. Reasons for modifying the draft survey schedule included recovery plans requiring more frequent monitoring than decided upon for high priority stocks in general, ship or airplane availability in certain years, efficient use of the manpower of an individual science center in each year, and the desire to coordinate adjacent surveys carried out by different science centers.

The survey rotation schedule was then used to develop the three-year plan. Similar prioritization and consideration was also given to other research needed for stock assessments and for the implementation of Take Reduction Plans, including stock structure studies, fishery observer programs, and by-catch reduction studies. The survey rotation schedule and three-year plan will be updated annually. In this way, NMFS can anticipate and provide new information necessary to revising the marine mammal stock assessments.

Chapter IV. Dolphin Interactions With Commercial Tuna Fisheries in the Eastern Tropical Pacific Ocean

Wanda Cain, Elizabeth Edwards, and Dana Wilkes

Domestic Fleet

Five U.S. flag purse seine fishing vessels, each with a carrying capacity of greater than 400 short tons, operated in the Eastern Tropical Pacific (ETP) in 1995. Since June 1994, the MMPA allows only tuna that are dolphin safe to be sold, bought, offered for sale, shipped or transported in the United States. Even though the U.S. market was restricted under the MMPA to only dolphin safe tuna, the General Permit issued to the American Tunaboat Association allowed U.S. boats an incidental mortality of (kill) 105 dolphins in 1995.

U.S. law requires all U.S. purse seine vessels intending to fish in association with dolphin in the ETP to request a Dolphin Mortality Limit (DML) from the Inter-American Tropical Tuna Commission (IATTC). A boat is not required to have a DML if it fishes "dolphin safe" and does not target schools of fish found beneath dolphins. None of the U.S. vessels requested DML's from the IATTC at the beginning of the year but the five boats did request and receive DML's for the second semester. However, the U.S. fleet did not make any sets on dolphins in 1995 and the total mortality for 1995 was zero dolphins.

Under the MMPA, the annual quota cannot exceed the number of dolphin mortalities which occurred under the permit during the preceding year. The MMPA requires that in each subsequent year dolphin mortalities must be reduced by statistically significant amounts, approaching zero by December 31, 1999. This means that there is no allowable mortality quota available to the U.S. fleet in 1996, regardless of DML's issued by the IATTC.

International Fleet: Yellowfin Tuna Embargoes

By the end of 1995, the following five harvesting nations with purse seine vessels greater than 400 short tons (362.8 metric tons) carrying capacity harvesting yellowfin tuna in the ETP remained under primary embargo under the MMPA: Colombia, Mexico, Panama, Vanuatu and Venezuela. The MMPA requires that yellowfin tuna or products from yellowfin tuna caught in the ETP by purse seine vessels cannot be imported into the United States from any harvesting nation unless the Secretary has issued an affirmative finding. An affirmative finding is issued if the nation demonstrates that it has a marine mammal regulatory program and a marine mammal mortality rate comparable to that of the United States. Alternatively, a harvesting nation may request an affirmative finding if it has prohibited dolphin sets by its fleet. Spain and Ecuador currently have affirmative findings as harvesting nations whose vessels do not set on dolphins.

Under the MMPA, an intermediary nation is one that exports yellowfin tuna to the United States and also imports yellowfin tuna or yellowfin tuna products that are subject to a ban on direct importation into the United States. Three nations, Costa Rica, Italy and Japan, are currently subject to "intermediary nation" embargo. All yellowfin tuna and yellowfin tuna products are prohibited from importation into the United States from a nation under "intermediary nation" embargo.

The La Jolla Agreement

The United States, as a member of the IATTC, participates in the Intergovernmental meetings (IGM) and the International Review Panel (IRP) meetings. The IRP was established by international agreement in 1992 in La Jolla, California, to review the performance of each of the vessels of the international fleet that

participates in the yellowfin tuna purse seine fishery (La Jolla Agreement). The goal of this multilateral agreement is to reduce marine mammal mortalities in the fishery while sustaining the yield of tuna. Reductions in dolphin mortality in the international fishery have been achieved through the International Dolphin Conservation Program (IDCP) by the La Jolla Agreement. The overall annual Dolphin Mortality Limit (DML) set for the international fleet by the La Jolla Agreement through 1999, is allocated annually to vessels that meet certain criteria, including observer coverage, possession of the equipment required for releasing captured dolphins unharmed, agreement to adhere to IATTC standards regarding fishing practices, training of crew members in dolphin safety techniques, and monetary support of the IDCP observer program. Every vessel in the fishery is assigned an individual vessel quota based on the total number of vessels in the fishery for the year divided into the total DML for the year. The information collected by the required 100 percent observer coverage is essential for scientific research and for ensuring compliance with the agreement.

The IRP meets about three times annually and is charged with reviewing and reporting on the compliance of the international fleet with the La Jolla Agreement and verifying the performance of individual vessels. The IRP is made up of representatives of governments, the fishing industry, and non-governmental environmental organization.

On October 4, 1995, the governments of Belize, Colombia, Costa Rica, Ecuador, France, Honduras, Mexico, Panama, Spain, the United States of America, Vanuatu, and Venezuela met in Panama City to reaffirm the following commitments and objectives of the La Jolla Agreement: (1) progressively reducing dolphin mortality in the ETP to levels approaching zero through the setting of annual limits and (2) with a goal of eliminating dolphin mortality in the fishery, seeking ecologically sound means of capturing large yellowfin tunas not in association with dolphins. These nations announced their intention to formalize the La Jolla Agreement as a binding legal instrument which shall be open to all nations with coastlines bordering the ETP or with vessels fishing for tuna in this region. This shall be accomplished by adoption of a binding resolution or other legally binding instrument. The adoption of the IATTC resolution or other legally binding instrument, that utilizes to the maximum extent possible the existing structure of the IATTC is contingent upon the enactment of changes in U.S. Law, specifically the Marine Mammal Protection Act.

The Panama Declaration would, among other things, establish: (1) through the year 2000 a per-stock, per-year cap of between 0.2% of the Minimum Estimated Abundance (Nmin) (as calculated by NMFS or equivalent standard) and 0.1% of Nmin; (2) beginning in the year 2001 a per-stock, per-year cap of 0.1% of Nmin; (3) a 5,000 total numerical cap on dolphin mortalities in the fishery; and (4) a per-vessel maximum annual DML consistent with the per-year mortality caps.

The countries agreeing to the Panama Declaration envisioned several changes to U.S. Law which would result in the lifting of current primary and secondary embargoes, and a change in the definition of "dolphin safe" to describe any tuna caught in the ETP purse seine fishery in a set in which no dolphin mortality occurred as documented by observers.

Legislation pending before Congress at the end of 1995 would implement all or some of the provisions of the Panama Declaration. Both the Senate and the House have hearings set for early 1996 to discuss the proposed legislation.

Dolphin-Safe Research Program

During FY95, NMFS's Dolphin-Safe Research Program awarded contracts for and oversaw completion of 3 top-priority projects recommended during the previous year's Research Planning Workshop. These projects included 1) acoustic signal propagation in the eastern tropical Pacific (ETP) marine environment, 2) acoustic target strength of schools of large yellow tuna, and 3)

radar location of tuna in the ETP environment. Contract results indicate that acoustic detection of large yellowfin tuna unassociated with dolphins in the ETP should be feasible with existing sonar systems, and that feasible ranges for radar detection of bird flocks can probably be doubled using larger antennas, but that radar detection of fish-associated surface disturbances is probably not feasible for locating submerged tuna schools. Optical detection methods received less attention during FY95 than in earlier years, as longer-range detection methodologies were of greater current interest.

Subsequent studies planned for FY96 include potential effects of proposed acoustic and optical detection devices on tuna and marine mammal physiology (i.e., hearing interference from acoustic detection systems and eye damage from optical (laser) detection systems), acoustic system design, and survey design for estimating distribution and abundance of unassociated large yellowfin tuna in the ETP.

Chapter V. Marine Mammal Interactions with Other Human Activities

Ken Hollingshead, Joe Scordino, Brent Norberg

Small Take Authorizations

Since 1982, the MMPA has provided 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.

During 1995, four specific activities had authorizations to incidentally take marine mammals under this provision of the MMPA. 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 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. However, only the taking of ringed seals on the ice in the Beaufort Sea and the launching of Titan IV rockets from Vandenberg were active during the year. No new regulated small takes applications were received in 1995.

California Sea Lion ("Herschel") Conflict with Wild Steelhead

Efforts to protect the 1995 season's wild winter-run steelhead at the Ballard locks in Seattle from sea lion predation ended in June and are presently being evaluated by managers at NMFS. Although the 1995 returns of wild steelhead are better than 1994, with final spawning escapement totaling 126 fish -- an 80% increase over the all time low return of 70 in 1994 -- the implications for any long-term run improvement are less certain.

From December 5 to June 17, 1995, observers monitoring sea lion predation in the Lake Washington Ship Canal documented a total of 8 steelhead eaten by sea lions. The total estimated take was 11 wild steelhead, approximately 8 percent of the total wild run, significantly lower than the 50% to 65% predation rates observed from 1986 to 1991. This lower rate may be either the result of fewer available steelhead, which are down from over 1,000 per year prior to 1992, or the effectiveness of the acoustic devices used in deterring sea lions from the prime "feeding" area at the entrance to the fish ladder.

The 1995 predation control program was conducted by the Washington Department of Fish and Wildlife (WDFW) in conjunction with NMFS, in accordance with a Letter of Authorization issued to WDFW by NMFS under the MMPA. NMFS convened a Pinniped-Fishery Interaction Task Force and conditionally approved the Task Force's recommendation to have WDFW lethally remove individually-identified sea lions. The principal condition specified by NMFS in its authorization was to place captured sea lions in captivity, allowing lethal removal only in cases where captive holding was unfeasible.

A total of three sea lions were captured and held in the 1995 season; they were later released. Sea lion #17, branded in 1989, was captured in Seattle on January 25th and held in captivity during the 1995 steelhead run until June 8th, when it was released into the wild in the Channel Islands. A satellite tag applied to the animal tracked its movements to the Pacific Northwest. At last report, on August 29, the animal had migrated north past Oregon and Washington to Barkley Sound on Vancouver Island, B.C. It is anticipated that #17

will soon return to Puget and make its way to the Ballard Locks. During captivity, #17 increased in weight from 872 pounds when captured to 1,082 pounds at the time of release. This was the only animal placed in captivity, although several others were identified as candidates for captivity if captured. One of those, #255, which had killed three steelhead on February 8 (the most steelhead observed killed on any single day), was captured on May 24 and, due to the lateness in the season, was not placed in captivity but rather transported to the Straits of Juan de Fuca and released. The same circumstances occurred with sea lion #87, the most frequently observed, identifiable sea lion at the Locks in 1995. Sea lion #87 was captured on June 17 and also released in the Straits. Both sea lion #87 and #225 were observed at the Locks later in June, feasting on downstream migrating smolts.

Section 120: Pinniped Removal Authority

The 1994 MMPA Amendments 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 seal 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.

In July 1994, NMFS received an application from the State of Washington requesting initiation of the Section 120 process to consider authorizing the intentional lethal taking of California sea lions that are depredating a wild run of winter steelhead during their migration through the Ballard Locks. In September 1994 the Ballard Locks Pinniped - Fishery Interaction Task Force was convened to review the available data and public comments, and to develop their recommendations on whether the application for lethal removal authority should be approved or denied. The Task Force submitted its report and recommendations for conditioned approval of the State's application in November 1994 and minority views were incorporated into the report in December.

On January 4, 1995, NMFS issued a Letter of Authorization (LOA) to Washington State for the lethal removal of individually identified California sea lions from the Ballard Locks under certain conditions. Under the NMFS LOA, lethal removal of "predatory" sea lions was authorized provided non-lethal deterrence measures, such as an acoustic barrier, were implemented first. "Predatory" sea lions were defined as individually identified animals that had been observed preying on steelhead in the Lake Washington Ship Canal. In addition, lethal removal was only authorized if it was determined that adequate holding facilities were unavailable or if temporary captive holding , for the duration of the steelhead run, proved infeasible or impractical. Further, lethal removal was not to occur until the sea lion predation rate exceeded 10 percent of the available fish in a seven day period. In addition, lethal removal would be suspended if the predation rate fell below 10 percent of the available fish for 14 consecutive days of fish passage.

On January 24, 1995, the 10 percent predation rate "trigger" was exceeded and the lethal removal authorization went into effect. On January 25, "predatory" sea lion number 17 was captured and placed in a temporary holding facility for the duration of the steelhead run. On April 2nd, the lethal removal authorization ceased as 14 days of fish passage had occurred without any observed predation. Two additional "predatory" sea lions (numbers 87 and 225) were captured and relocated to the Strait of Juan de Fuca in May and June, following the cessation of the lethal removal authority. Sea lion number 17 was released to the wild on June 8, 1995. Based on observations at the Locks, the estimated steelhead mortality attributable to sea lion predation was eleven fish or approximately eight percent of the total reconstructed run size. An estimated 126 adult steelhead escaped to spawn in 1995. No California sea lions were lethally removed under the 1995 LOA. It is noteworthy that sea lion number 17 returned to the Locks area in 1995 after spending the summer on the

breeding islands off of southern California, and that sea lions 87 and 225 also returned following release.

In September 1995, the Ballard Locks Pinniped - Fishery Interaction Task Force was reconvened to evaluate the effectiveness of the lethal removal authorization and alternative measures which were implemented as mitigation in the sea lion/steelhead conflict. In light of continuing and projected low numbers of returning adult steelhead, the Task Force voted 11 to 8 to recommend modifications to the conditions for lethal removal. The Task Force, citing information from the Washington Department of Fish and Wildlife that returning numbers are now so low that individual fish may be critical to the recovery process, indicated that no avoidable loss of steelhead from predation should be allowed.

On November 8, 1995 the Task Force submitted its recommendations, along with minority views, to NMFS. The Task Force recommended that, for the 1995/96 steelhead run, a) sea lions which had been previously observed killing steelhead should be removed either to permanent captivity or lethally if observed in area of central Puget Sound; b) newly identified sea lions observed taking salmon or steelhead after October 1, 1995 should be removed to captivity for the duration of the steelhead run (if funding for captive holding is available) or be lethally removed; and c) sea lions observed foraging near the Locks, but not yet observed to have taken a fish, should be removed to temporary captivity or relocated but not lethally removed. These recommendations were judged to be necessary because the Task Force believes that any predation event would have a significant negative impact on the steelhead recovery process. At the end of 1995, NMFS was still considering the Task Force recommendations.

Small Take Amendment-Incidental Harassment

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 processing the application, for public notice and comment on the application and for issuance or denial of the authorization.

On May 31, 1995, NMFS published a proposed rule to amend the small take regulations (60 FR 28379) to implement the process for issuing harassment authorizations without the need to issue specific regulations governing the taking of marine mammals for each and every activity. This rule would set forth the process for applying for and obtaining an authorization; the time limits set by the statute for NMFS review, publication, and public notice and comment on any applications for authorization that would be granted; and the requirements for submission of a plan of cooperation and for scientific peer review of an applicant's monitoring plans (if that activity may affect the availability of a species or stock of marine mammal for taking for subsistence purposes). The proposed changes to the existing regulations were made to clarify the requirements for obtaining a small take authorization.

If implemented, this rule would result in a more streamlined and cost effective method for obtaining small take by incidental harassment authorizations, without lessening the MMPA's protection of species and stocks of marine mammals. However, because of a request by the U.S. Navy to extend the comment period on the proposed rule for 120 days, the comment period for this rule did not close until October 20, 1995.

Under the new small take provisions, during 1995, NMFS accepted applications from, and issued authorizations to, the following activities: (1) McNeil Island dock demolition by Washington State Department of Corrections; (2) Lockheed Corporation for launches of the Lockheed family of rockets from Vandenberg Air Force Base, California; (3) the U.S. Air Force for launches of McDonnel Douglas rockets from Vandenberg; and (4) the Exxon Corporation for

conducting a 3-D seismic survey in the Santa Barbara Channel, California.

McNeil Island, Washington, Dock Demolition

On January 20, 1995, NMFS issued a one-year Incidental Harassment Authorization to the State of Washington Department of Corrections to take small numbers of harbor seals by harassment incidental to the non-explosive demolition of the Still Harbor Dock Facility on McNeil Island in southern Puget Sound. NMFS and the State believed that the noise from the construction site would cause those harbor seals that come ashore at a nearby "haul-out" beach to leave the shore for the water. However, as the project was timed to avoid the peak pupping season, NMFS anticipated that the impact on harbor seals by this activity would be negligible under the Authorization which included monitoring requirements and mitigation measures.

For comparison purposes, monitoring of the haul-out site was conducted during pre-demolition, demolition and post-demolition periods. A total of 363 incidental harassment takes were attributed to associated activities of the four month demolition project. Demolition related disturbances caused by contractor activities resulted in decreased numbers of harbor seals using the haul-out site when compared to pre-demolition counts. Following completion of the demolition activities, harbor seal numbers returned to pre-demolition levels. Due to budgetary constraints, the State has not begun construction of the new pier facility and, therefore, has not applied for a second authorization.

Lockheed Corporation for Launches of Lockheed rockets from Vandenberg Air Force Base, California

On July 18, 1995, NMFS issued a small take (harassment) authorization to Lockheed Environmental Systems and Technologies Company, Las Vegas, Nevada, to take small numbers of harbor seals by harassment incidental to launches of its family of 3 space vehicles at Space Launch Complex 6, Vandenberg Air Force Base, California. Based upon documentation submitted with the request, NMFS concurred with Lockheed that the launches will result in only negligible impacts to harbor seals located on the Vandenberg base and no impacts are likely at the pinniped haul-outs on San Miguel Island. To ensure that these determinations are correct, Lockheed will conduct shore-side pinniped surveys along South Vandenberg and will employ time-lapse photographic monitoring during the launch when observers are denied access to the beach. Acoustic monitoring will also be employed along South Vandenberg and on San Miguel Island.

U.S. Air Force for Launches of McDonnell Douglas Rockets from Vandenberg

On September 19, 1995, NMFS issued an incidental harassment authorization to the U.S. Air Force for harassment takes during launches of NASA/ McDonnell/Douglas' Delta II rockets from Vandenberg AFB, California. This authorization, which is valid for 1 year, allows the unintentional harassment by launch noises on harbor seals, northern elephant seals and California sea lions. No sonic boom effects are anticipated to harass pinnipeds on the Channel Islands since the noise over the islands would be less than ambient and therefore undetectable. The Air Force will undertake monitoring and reporting similar to that imposed on Lockheed.

Exxon Corporation for Conducting a 3-D Seismic Survey in the Santa Barbara Channel, California

An Incidental Harassment Authorization was issued on October 11, 1995, to the Exxon Company to harass small numbers of cetaceans incidental to conducting a three-dimensional (3-D) seismic survey in the Santa Ynez Unit (SYU), located in the western portion of the Santa Barbara Channel, California, in Federal waters. The authorization expired on December 31, 1995. Three-D seismic surveys have been in common use in U.S. waters for several years. Based on the best

available information, NMFS has concluded that the authorization to harass small numbers of cetaceans: is not likely to jeopardize the continued existence of any listed species (as defined under the Endangered Species Act); will not result in more than the incidental harassment (as defined by the MMPA) of small numbers of mysticete cetaceans, sperm whales, and possibly pygmy sperm whales; would have only a negligible impact on these cetacean stocks; will not have an unmitigable adverse impact on the availability of these stocks for subsistence uses; and would result in the least practicable impact on the stocks. The short-term impact from conducting these surveys may result in a temporary modification in behavior of certain listed and non-listed whale species.

Chapter VI. Conservation and Recovery Programs

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The MMPA authorizes NMFS to initiate management actions, such as the development of conservation plans, for species or stocks whose survival is in jeopardy. The ESA offers similar management authority to NMFS for endangered and threatened marine species. This chapter summarizes species management activities undertaken by NMFS pursuant to the MMPA and ESA in 1995.

Steller Sea Lion, *Eumetopias jubatus*

Section 7 Consultations

With regard to proposed Federal actions that may affect Steller sea lions, the ESA Section 7 consultation process continues to be an important part of the NMFS Recovery Program.

Several important consultations occurred in Alaska in 1995:

1. NMFS consulted with the Federal Aviation Administration on a proposed NEXRAD (next generation radar facility) on Middleton Island (consultation resulted in a project design expected to result in no adverse effects to sea lions and their use of the haulout on the island, and may provide additional information on sea lion use of this site).

2. NMFS reinitiated and completed formal consultation on the Bering Sea and Aleutian Islands and Gulf of Alaska groundfish fisheries. The new consultations summarized and evaluated the most recent available data on Steller sea lions and the fisheries. No new mitigation measures were determined to be necessary.

3. NMFS has been consulting with the Federal Highway Administration regarding a proposed road from Juneau that could have serious impacts on a Steller sea lion haulout listed as critical habitat. A draft Environmental Impact Statement and formal consultation on the project are expected in 1996;

4. NMFS has consulted with the Environmental Protection Agency (EPA) regarding a statewide NPDES General Permit for seafood processing waste discharge. Through the consultation process, EPA has established no-processing buffer zones around Steller sea lion rookeries and haulouts;

5. NMFS has consulted with the Mineral Management Service regarding several OCS lease sales and exploration activities;

6. NMFS has begun consultation regarding a proposed Kodiak rocket launch site, which may have effects on a nearby Steller sea lion haulout; and

7. NMFS has been consulting with the US Forest Service, the Bureau of Land Management, and the Department of Interior Solicitor's Office regarding the applicability of Section 7 to land transfers from the Federal government to the state of Alaska or Alaska Native Corporations under the Alaska Native Claims Settlement Act and the Alaska Statehood Act. In the past, these Federal agencies had not consulted with NMFS during land transfers, and thus, some critical habitat sites for Steller sea lions passed out of Federal jurisdiction without any consultation with NMFS.

Proposed Reclassification Under the Endangered Species Act

In an emergency rule issued on April 5, 1990, NMFS determined that the Steller sea lion was a threatened species under the ESA (55 FR 12645; see also, 55 FR 13488, April 10, 1990). The final listing became effective on December 4, 1990 (55 FR 49294, November 26, 1990; see also, 55 FR 50005, December 4, 1990). The species was listed throughout its range because of a precipitous decline in abundance. This

decline was concentrated primarily in areas near the Gulf of Alaska and Aleutian Islands.

Since 1990, NMFS and the Alaska Department of Fish and Game (ADFG) have conducted monitoring surveys that indicate that the decline of Steller sea lions has continued throughout most of Alaska. Because of this continued decline, on November 1, 1993, NMFS initiated a formal population status review under the ESA to determine whether a change in its listing status as a threatened species is warranted (58 FR 58318, November 1, 1993).

NMFS received sixteen comments in response to the status review notice. Based on these comments, recommendations from the Steller sea lion recovery team, and additional data collected by NMFS (including a summer 1994 population survey), NMFS issued a proposed rule and request for comments on October 4, 1995 (60 FR 51968). NMFS proposed in this rule that the western stock of the species (west of 144° W longitude) be listed as endangered, while the eastern stock (east of 144° W longitude) remain classified as threatened.

Recommendations of the Steller Sea Lion Recovery Team

The Recovery Team was appointed by NMFS in 1990 to draft a recovery plan for the species and to serve as an advisory body to NMFS on Steller sea lion research and management issues. On November 29-30, 1994, NMFS convened the Recovery Team specifically to consider the appropriate ESA listing status for the species and to evaluate the adequacy of ongoing research and management programs. In the course of that meeting, and in subsequent letters to the Assistant Administrator for Fisheries, NOAA (AA), the Recovery Team recommended that NMFS list the Steller sea lion as two separate population segments, split to the east and west of 144° W long. (a line near Cape Suckling, AK). The Recovery Team recommended that the western population segment be listed as endangered and that the eastern population segment be listed as threatened.

Proposed Population Determinations

Only a "species" may be listed as threatened or endangered under the ESA, although this term is defined to include any subspecies of fish or wildlife and any distinct population segment of any species of fish or wildlife that interbreeds when mature. On December 21, 1994, NMFS and the USFWS issued a proposed policy to clarify their interpretation of the phrase "distinct population segment" for the purposes of listing, delisting, and reclassifying species under the ESA (59 FR 65884, December 21, 1994). Although this policy is only a proposal at this time, it represents the best available guidance for interpreting the term "distinct population segment."

NMFS proposed to use the criteria announced in the December 21, 1994 policy proposal to assess the presence of distinct populations of Steller sea lions. The proposed policy outlined three elements that should be considered in any decision regarding the status of a possible distinct population segment:

- discreteness of the population segment in relation to the remainder of the species to which it belongs;
- significance of the population segment to the species to which it belongs; and
- conservation status of the population segment in relation to the ESA's standards for listing.

Under the proposed policy a population segment of a vertebrate species may be considered discrete if it is either markedly separated from other populations of the same taxon as a consequence of physical, physiological, ecological, or behavioral factors (quantitative measures of genetic or morphological discontinuity may provide evidence); or delimited by international governmental boundaries that are significant in light of section 4(a)(1)(D) of the ESA. The former criterion is particularly relevant for Steller sea lions.

Genetic studies provide the strongest evidence that distinct populations of Steller sea lions exist. Genetic samples from 224 Steller sea lion pups were collected

from rookeries in Russia, the Aleutian Islands, the western and central Gulf of Alaska, southeastern Alaska, and Oregon. Mitochondrial DNA analyses of these samples identified a total of 52 haplotypes (sets of alleles of closely linked genes that tend to be inherited together, uniquely identifying a chromosome) that could be further grouped together into eight lineages. Bickham et al. found a distinct break in haplotype distribution between the four western localities and the two eastern localities. Cluster analysis indicated that the eight lineages could be subdivided into two genetically differentiated populations, with the division at about Prince William Sound.

Similar analyses were conducted from samples obtained from 11 Steller sea lions on Año Nuevo Island, CA, and seven haplotypes were identified. Six of these were identical to those identified from southeastern Alaska and Oregon, and one was unique to Año Nuevo Island.

Tagging and branding studies provide evidence that the breeding behavior of Steller sea lions probably reduces opportunities for genetic mixing among rookeries although Steller sea lions have been documented to travel large distances during the non-breeding season. The majority of females marked as pups, then later resighted as adults, have returned to their rookery of birth to breed. The few resighted females observed breeding at rookeries other than their natal site were all at rookeries near their birth rookery. This apparent natal site fidelity not only reduces genetic mixing among rookeries, but it also makes it less likely that declining rookeries will be bolstered by recruitment from other rookeries.

Population trend data provide further evidence of separation among these two population segments. The Steller sea lion population east of Cape Suckling (with the exception of the portion in southern California) has remained stable since the 1970s, whereas the population to the west has declined dramatically. Futhermore, the only break in the distribution of Steller sea lions along the Alaskan coast occurs in the Yakutat area, near the proposed longitudinal border that would delineate the western and eastern populations. A phylogeographic approach to discern population discreteness in Steller sea lions indicates that, based on an evaluation of distribution, population response, phenotypic, and genotypic data, Steller sea lions should be managed as two discrete populations, a western and an eastern population, with the separation line at about 144° W. long.

Status of the Western Steller Sea Lion Population Segment

Population Monitoring Data

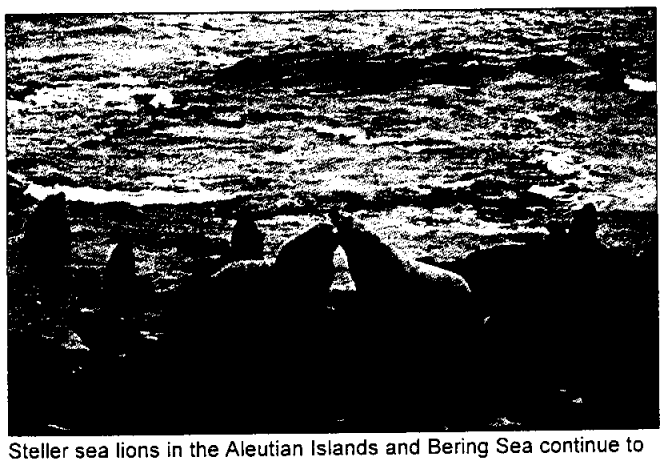
The western Steller sea lion population segment had suffered substantial declines prior to the 1990 ESA listing. Loughlin et al. (1992) estimate a 70-percent decrease in the number of adult and juvenile sea lions in this area between the 1960's and 1989. Since the 1990 listing, Steller sea lion trend counts for the western population segment have shown a continued decline. The number of adult and juvenile animals counted at trend sites during aerial surveys has dropped from 30,525 in 1990 to 24,104 in 1994 (a 21-percent decrease).

Regionally Differing Decline Rates

Counts of eastern and central Gulf of Alaska (a 38-percent and a 36-percent decline, respectively) and the central and western Aleutian Islands (a 28-percent and a 13-percent decline, respectively) have shown the largest declines in adult/juvenile numbers since 1990. Counts of the eastern Aleutian Islands area and western Gulf of Alaska area have been relatively stable since 1990, while the Bering Sea region has shown an increase in adult/juvenile counts since 1990. However, the eastern Aleutian Islands and Bering Sea regions declined substantially prior to 1990, and populations there remain only a fraction of what they were 20 years ago.

Pup production has decreased since the 1990 listing. Overall, a decline of about 28-percent has been observed between pup counts made in 1989-90 as compared to 1993-94 (excluding the western Aleutian

Islands and Bering Sea where comparative counts are not available). Regional differences in the rate of change in pup production are apparent. Pup production in the central Gulf of Alaska declined by 49-percent between 1989-90 and 1993-94. The central and eastern Aleutian Islands also had large decreases in pup production (a 19-percent and a 16-percent decline, respectively), while pup production in the eastern and western Gulf of Alaska was relatively stable over the time period.



Steller sea lions in the Aleutian Islands and Bering Sea continue to decline in 1995. *Photo credit: NMFS.*

Population Viability Analysis

Steller sea lion abundance trends within the decline area were modeled to provide an estimate of the likelihood of extinction given the available population data. Using both the 1985-94 and 1989-94 population trends, two models were developed based on a stochastic model of exponential growth that required only count data and count variance to predict future trends. One model (an aggregate Kenai-Kiska Island (trend sites) 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.

Both models predicted that the Kenai-Kiska population would be reduced to low levels (<500 females) within 100 years from the present, if either the 1985-94 or 1989-94 trend continues into the future. The Kenai-Kiska regional model predicted a probability of extinction within 100 years of 100 percent from the 1985-94 trend data, and a probability of extinction within 100 years of 65 percent if the 1989-94 trend data are used.

Under all modelling scenarios during the next 20 years, assuming that observed rates of decline will continue independent of changes in density and that the current rate of decline is independent of environmental stochasticity, populations on individual rookeries are predicted to be reduced to low levels (mean size <100 adult females). These results indicate that, if either trend persists, the next 20 years will be crucial to the survival of the western Alaska population.

Conclusions Concerning the Western Population

An analysis of the conservation status of the western population segment of the Steller sea lion in relationship to the standards for threatened and endangered status indicates that the western stock fits the criteria for listing as endangered under the ESA.

Status of the Eastern Steller Sea Lion Population Segment

Population Monitoring Data

The 1990 ESA listing of Steller sea lions resulted primarily from the declines observed in the western population area; in the eastern population, a decline has been noted only in the California part of the range. Since the 1990 listing, trend counts of the eastern population segment show about a 17-percent increase overall in adult/juvenile numbers. Similar to the western population, regional differences in trends within the eastern population are evident.

California experienced a large decline in Steller sea lion numbers prior to 1980; NMFS (1995) estimated a greater than 50-percent decline between about 1950 and 1980. Some of the available data indicate that a

northward shift in the Steller sea lion range may be occurring, which may exacerbate the decline at southern rookeries. Steller sea lion counts in California have been relatively stable since 1980 (1980 count was 982) although counts declined 19-percent from 1990-94 (from 1,123 animals to 915) (NMFS, 1995). The reasons for the historical decline in Steller sea lion total abundance and the current decline at southern locations in California is not known. Causal factors under investigation include changes in prey base, possible effects of anthropogenic contaminants and disease, disturbance, and competition with other pinniped populations that are increasing in abundance in California, e.g., California sea lions, elephant seals, northern fur seals.

Steller sea lion adult/juvenile counts at Oregon trend sites show a relatively large increase from 1990-94 (from 2,005 to 2,696) but this may be, at least partially, due to improved counting techniques (NMFS, 1995). Steller sea lion adult/juvenile counts in Southeast Alaska increased 15-percent from 1990 to 1994 (from 7,629 to 9,005), and pup counts increased by about 10-percent (from a mean of 2,568 in 1989-90 to a mean of 3,701 in 1993-94).

The British Columbia portion of the eastern population has also apparently been increasing slowly since the 1970s. Reports from aerial surveys conducted by the Canadian Department of Fisheries and Oceans indicate that adult/juvenile counts at rookeries and haulouts in British Columbia increased about 10 percent between 1992 and 1994 (from 7,376 to 8,091) (Olesiuk, pers. comm.).

Criteria for Threatened Status and Conclusions Concerning the Eastern Population

The overall trend of the eastern population segment of Steller sea lions since 1980 is stable to increasing although significant declines in the number of Steller sea lions occurring within California prior to 1980 have been documented. Population modeling to assess the viability of the eastern population segment has not been specifically conducted by NMFS. Since this population's trend has been stable to increasing, modelling, such as that conducted for the western population, would be expected to predict persistence of this population segment for the foreseeable future.

Prior to the decline, the proportion of the U.S. population of Steller sea lions that resided within the eastern population area was less than 10 percent (NMFS, 1995). Because of the western population's decline, the eastern population's numerical significance has increased. NMFS (1995) estimates that the total U.S. population of Steller sea lions has declined by 73 percent between the 1960s and 1994 (NMFS, 1995).

Thus, although for listing purposes the western and eastern population segments may be considered discrete, the substantial population decline that has occurred in the eastern Gulf of Alaska through the Aleutian Islands represents a threat to the continued existence of the entire species, including the eastern population. The vulnerability of the eastern population remains a serious concern as long as the cause of the decline of the western population remains undetermined. These populations, while separate, are not isolated, and factors causing the decline in Alaska could move eastward and pose a threat to the continued existence of the eastern population. In addition, the declining numbers of Steller sea lions in California, in the southern extremity of their range, is also of concern.

An analysis of the conservation status of the eastern population segment of the Steller sea lion in relationship to the standards for threatened status indicates that this population remains vulnerable (i.e., the above mentioned third criterion of the proposed population policy was satisfied), but in a manner and to an extent that differs from the vulnerability of the western population segment. Likewise, the available data and information concerning the status of this stock indicates that the eastern population should continue to be considered threatened.

NMFS proposed a separate listing for the eastern population of the Steller sea lion as a threatened species under the ESA. The eastern population

segment would consist of Steller sea lions from breeding colonies located east of 144° W. long.

Quotas on Incidental Takings

On April 30, 1994, the reauthorized and amended MMPA established a new regime to govern the take of marine mammals incidental to commercial fishing operations to replace the interim exemption program that was established by the 1988 amendments to the MMPA. Under the 1988 Interim Marine Mammal Exemption Program, up to 1,350 Steller sea lions were authorized to be taken annually incidental to commercial fisheries and emergency regulatory actions were required if more than 1,350 animals were incidentally killed in any year. The new MMPA management regime replaces the previous quota system and focuses on reducing the incidental mortality and serious injury of marine mammals from strategic stocks, i.e., those that are listed as endangered or threatened under the ESA, those that are listed as depleted under the MMPA, and those for which human-caused mortality exceeds the estimated potential biological removal (PBR) for the stock.

Under this new regime, section 101(a)(5) of the MMPA allows NMFS to authorize the take of threatened and endangered marine mammals incidental to commercial fishing operations only if, among other things, that take will have a "negligible impact" on the stock. In a separate action, NMFS has adopted the following definition of "negligible impact", found at 50 CFR 228.3, for the purposes of making this determination: when mortality and serious injury rates incidental to fishing operations are only a small portion (e.g., 10 percent or less) of the PBR, then the fisheries' take would be a negligible mortality factor for the affected stock or population.

With regard to the western population of Steller sea lions, NMFS has estimated that 41 animals per year (Small and DeMaster, 1995) are taken incidental to commercial fisheries operations. This estimate of commercial fishery annual incidental take from the western population is below 10 percent of the calculated PBR for this population (77 animals). Based on this it would be appropriate to conclude that taking incidental to commercial fisheries is having a negligible impact on the western population of Steller sea lions.

With regard to the eastern population of Steller sea lions, NMFS has estimated that approximately 4 animals per year are taken incidental to commercial fisheries operations. This estimate of commercial fishery annual incidental take from the eastern population is substantially below 10 percent of the calculated PBR for this population of 1,059 animals.

It is, thus, appropriate to conclude that taking incidental to commercial fisheries is having a negligible impact on the eastern population of Steller sea lions. Based on this negligible impact determination, and in light of the PBR determination and the overall continued declining trend in Steller sea lions, NMFS issued an Incidental Take Statement (on August 25, 1995) that authorizes, under Section 7(b)(4) of the ESA, the incidental mortality and serious injury in commercial fisheries of up to 77 Steller sea lions from the western population annually (west of 144° W. long.) and up to 106 Steller sea lions from the eastern population annually (east of 144° W. long.).

Removals from the Eastern Population Segment

Accurate data on incidental takes of Steller sea lions in other fisheries in Southeast Alaska, Oregon, and California are not available, but estimates from available sources are low. Alaska Native takes of Steller sea lions within the eastern population (Southeast Alaska) have been estimated at less than 10 animals annually (Wolfe and Mischler, 1993; 1994).

The calculated PBR for the eastern population of Steller sea lion is 706 animals, well above the current level of human-caused mortality.

Proposed Determinations

The best available information indicates that Steller sea lions should be managed as two discrete population segments and NMFS proposes separate listings of the

eastern and the western population segments of the Steller sea lion for the purposes of the ESA.

Available data on population trends indicate that the western population of Steller sea lions is in danger of extinction throughout all or a significant part of its range. This population had exhibited a precipitous, large population decline at the time that the Steller sea lion was listed as a threatened species in 1990, and has continued to decline since the listing. Although the precise cause(s) of the decline have not been determined, it is likely that the current condition is caused by a combination of the factors specified under section 4(a)(1) of the ESA. An endangered classification appears appropriate for the western population of Steller sea lions.

The eastern population segment was originally listed as a threatened species in 1990 when the entire species was listed. The eastern population has exhibited a stable to increasing population trend for the last 15 years; however, NMFS believes that the large decline within the overall U.S. population threatens the continued existence of the entire species. This is particularly true since the underlying causes of the decline remain unknown, and thus, unpredictable.

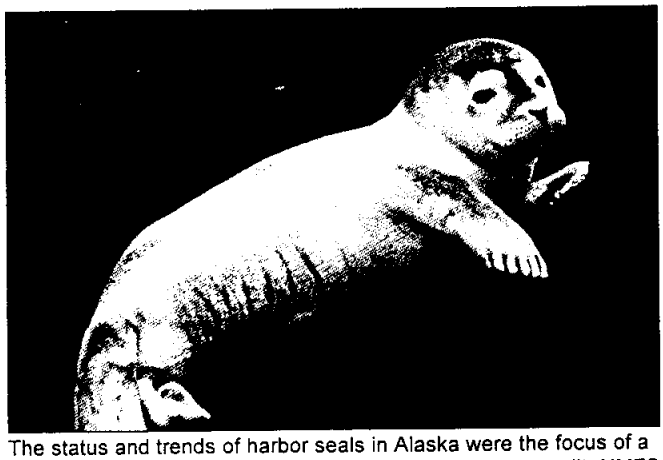
Therefore, despite the apparent stability of the eastern population segment, NMFS proposes to maintain a threatened listing for this portion of the geographic range. This proposed determination allows a differentiation between the two populations that acknowledges the different individual population trends, but does not lose sight of the overall trend for the species. NMFS, in conjunction with the Recovery Team, will develop appropriate delisting criteria for the eastern population segment.

Harbor Seals, *Phoca vitulina*

Workshop on Population Assessment of Harbor Seals in Alaska

A workshop was held November 14-16, 1995, in Fairbanks, Alaska to review population assessment research on harbor seals in Alaska and to assess their current population status. Overviews and input were sought from a panel of scientists to address the following basic question: What level of population change do we wish to detect over which geographic areas in how much time and with what level of certainty?

The following recommendations from the workshop were based on discussions on the following topics: stock structure and current status of seals in Alaska, survey design and correction factors, trend sites: molting vs. pupping, and Alaskan Native issues.



The status and trends of harbor seals in Alaska were the focus of a population assessment workshop held in 1995. *Photo credit: NMFS*

Summary And List of Recommendations

The general principles of survey design were presented and discussed, followed by examples from current research, in particular, from Prince William Sound (PWS). Overall, the current approach of conducting annual surveys with approximately 7 replicates was considered appropriate. However, more detailed analyses of existing count data outside of PWS are needed to determine if this survey design should be modified. The application of the Poisson regression model has provided insight on how to account for a substantial portion of the variance associated with trend counts; this statistical technique should be utilized whenever possible in future analyses. The establishment of new trend site surveys was recommended, with the Northeast Gulf of Alaska and

the Bering Sea the two areas of highest priority. A central database will be established at the NMML and data collection protocol will be standardized following NMFS and ADF&G formats. Additional correction factor estimates are needed, especially from glacial ice and rocky substrates in the Gulf of Alaska. Discussion with the Alaskan Native Community on issues related to harbor seal population assessment should continue through the Alaskan Native Harbor Seal Commission.

Specific recommendations were as follows:

1. Examine current survey routes to ensure trend sites within each route are stratified by haulout substrate and the number of seals at the haulout sites, and such that approximately the same percentage of seals are counted among the different survey routes. Explore the use of statistical models that do not assume independence among sites, such that an estimate of covariance among sites may be calculated and incorporated into the overall estimate of variance.

2. For the purpose of population assessment, discontinue pupping counts unless future analyses of existing pupping count data demonstrate they exhibit precision and statistical power comparable to molting counts.

3. To determine the quality of trend count data relative to the assessment of population trend, analyze all existing trend count data to account for variability due to environmental factors (e.g., date, tide, time) followed by a power analysis. Comparison of trends between different substrates, especially rocky vs. glacial ice, within the same survey route is needed. The completion of such analyses are required to determine if the current survey design should be modified, and will provide a better understanding of how well population trend has been assessed in the different geographic areas.

4. Until the analyses described in #3 are completed, trend counts surveys should be conducted annually, attempting to achieve 7 replicates, for at least 5 years to obtain acceptable levels of statistical power to assess population trends. Thereafter, biannual surveys should be considered to continue monitoring population trend.

5. Establish guidelines on how to quantify disturbance during aerial counts and incorporate such documentation into survey protocol; Kate Wynne will provide the draft outline based on her attempts to quantify disturbance during Kodiak trend count surveys. Such data should then be entered into analytical models as an environmental factor to determine if counts at some sites are significantly more variable due to disturbance.

6. Range-wide surveys should continue, as they provide information on population status outside of those areas monitored by trend count surveys.

7. When the analyses in #3 are completed, determine if the current survey design within specific geographic areas are providing a satisfactory level of statistical power to detect a minimally acceptable level of population change. Thereafter, modify survey design as appropriate, and then establish new trend routes when funding is available. Areas of highest priority for new trend routes are the Northeast Gulf of Alaska and the Bering Sea.

8. Establish a central database for harbor seal population assessment research at the National Marine Mammal Laboratory (NMML). Dave Withrow (NMML) will draft the data collection protocol(s) from existing NMFS and ADFG formats.

9. Pursue new techniques to capture seals on glacial ice to develop a correction factor for such substrates. Estimate a correction factor for rocky substrates in the Gulf of Alaska.

10. Compile a continuous, "clean" data set and historic chronology for Tugidak Island. Laurie Jemison is available to compile this database from field reports, interviews with local residents and researchers responsible for historic data and projects.

11. Continue to discuss issues related to harbor seal population assessment with the Alaskan native

community through the Alaskan Native Harbor Seal Commission, and pursue cooperative arrangements to integrate traditional environmental knowledge.

Conservation Plan

The Alaska Native Harbor Seal Commission has the draft harbor seal conservation plan for review and comment. This plan cannot progress without full Alaska Native participation and support. Fortunately, preliminary comments suggest that the document is of sufficient flexibility for Alaska Native concerns.

Research recommendations from the population assessment workshop are to be included in the Harbor Seal Conservation Plan, as well. The current draft of the Conservation Plan was distributed at the above-mentioned workshop and acknowledged as a mechanism for coordinating State and Federal research and management activities.

Bottlenose Dolphin, *Tursiops truncatus*

Assessment Surveys

Southeast U.S. Coast Aerial Surveys

The Southeast Fisheries Science Center (SEFSC) conducted aerial surveys in January-March to examine the distribution and estimate abundance of bottlenose dolphins in coastal waters between Cape Hatteras, North Carolina, and approximately Ft. Pierce, Florida. Line transects were flown orthogonally to the coastline to approximately 9 km past the average position of the Gulf Stream inner wall. Inclement weather throughout the survey area prevented completion of the original survey plan; each of the nine survey blocks was flown only once instead of the three replicate surveys originally planned. A total of 134 bottlenose dolphin herds were sighted and other species sighted included Atlantic spotted dolphins, striped dolphins, right whales, and humpback whales. The humpback and right whale sightings all occurred close to the shoreline. Analysis of the bottlenose dolphin perpendicular sighting data will be completed in 1996.

Caribbean Shipboard Survey

The SEFSC conducted a cetacean survey in the Caribbean Sea and adjacent North Atlantic aboard the NOAA Ship *Oregon II* during January-February, 1995 to estimate abundance and examine the distribution of cetaceans in the northern Caribbean Sea and adjacent Atlantic Ocean. Associated environmental data and skin and blubber biopsy samples were also collected. Surveys were conducted during daylight hours and 4,275 transect km were surveyed during the 44 day cruise.

The maximum number of cetacean groups sighted in one day was six and 70 groups were sighted during the entire cruise. Cetaceans were encountered throughout the area surveyed and nine species were identified. Humpback whales, sperm whales, pilot whales, Atlantic spotted dolphins, and pantropical spotted dolphins were the most commonly sighted species. Group sizes for humpback whales and sperm whales averaged 1.8 and 3.6 whales, respectively. Pilot whale group size (probably short-finned pilot whales) ranged from 8-43 animals. The largest group sighted was a group of 140 striped dolphins. Pilot whales and humpback whales were observed associated on two occasions. A biopsy sample was obtained from one individual in each of two groups of Atlantic spotted dolphins near Puerto Rico. Analysis of the abundance and distribution data will be completed in 1996 and the biopsy samples have been archived.

Mid-Atlantic Bight Aerial Surveys

The SEFSC conducted line transect aerial surveys over the coastal waters of the mid-Atlantic bight from Cape Hatteras, North Carolina, to Sandy Hook, New Jersey, during July 11 through August 14, 1995. Latitudinally-oriented transects were flown over the area from shore to the 25 m isobath to examine the distribution and estimate abundance of Atlantic bottlenose dolphins. The survey was designed to provide sufficient precision for monitoring population trends and 205 transects covering approximately 7,600 km were flown during the 34-day survey period.

One hundred forty bottlenose dolphin herds, totaling 2,490 dolphins, were sighted; also sighted were three herds of Atlantic spotted dolphins, totaling 93 dolphins. Preliminary analyses of the perpendicular sighting distance data produced an estimated average of 11,374 bottlenose dolphins in the survey area during the survey period (asymptotic 95% confidence interval = 7,523 < N < 17,198; coefficient of variation = 21.3%). The analysis assumed that all dolphin herds directly on the transect were observed [g(0) = 1]; thus, this may represent a negatively-biased estimate of average bottlenose dolphin abundance. The proportion of the estimated average abundance represented by the Atlantic coastal migratory bottlenose dolphin stock (listed as depleted under the MMPA) is unknown because neither the distribution of this stock nor that of the offshore stock is known, but their distributions are believed to overlap. It is also impossible to visually distinguish between the two stocks during aerial surveys because the stocks overlap in body size.

Bottlenose Dolphin Health Assessment: Field Report on Sampling near Beaufort, North Carolina, during July, 1995

The Southeast Fisheries Science Center (SEFSC) is conducting research to estimate and eventually monitor health assessment indices of local bottlenose dolphin stocks throughout the Southeast Region in order to assess the impact of human activities on specific bottlenose dolphin stocks. These health assessment indices will be used to refine estimates of human-induced mortality and other human-induced impacts, and combined with reproductive rate, age structure, and stock structure information will allow more accurate estimation of potential biological removal levels for a given population.

The health assessment studies require sampling of live bottlenose dolphins. The SEFSC has conducted live capture, sampling, and release exercises in specific areas of the coastal Southeast Region where anomalous mortalities of bottlenose dolphins have occurred. Reference samples collected at an unaffected site (Sarasota, FL) have been used, with those collected by the SEFSC, to develop and test a quantitative health assessment model (Wells, 1994; Sweeney et al., in review a and b). This model is still being refined, and when used with other information may provide a means of estimating the effects of some indirect, human-induced impacts, such as environmental contaminants, on dolphin stocks (e.g., Reif et al., in review), and for identifying stocks at relatively higher risk of mortality.

The SEFSC sampling has included bottlenose dolphins in an affected site, Matagorda Bay, Texas. Dolphins in this estuarine area were sampled during July, 1992, because of unusually high numbers of strandings there in 1990 and 1992. Bottlenose dolphins of the U.S. Atlantic coastal stock were classified depleted under the MMPA as a result of a mass dieoff during 1987-88. The bottlenose dolphins which occur in the estuarine system near Beaufort, NC, are believed to belong to this depleted stock.

Captures were conducted on 11 days during the period July 10-21, 1995. Dolphins were captured in various parts of the estuarine system, with most captures occurring in the Newport River and Bogue Sound. A total of 31 dolphins, 17 males and 14 females, was captured, sampled, and released. Two of these animals were recaptured; one was released quickly and the other was held until sampling not completed during the first capture was completed. Fourteen additional animals were encircled; two escaped, and the others were released without sampling.

Lengths were measured for all 31 animals sampled; lengths ranged from 197cm to 278cm. Complete morphometrics were obtained for 28 animals. Weights were measured for all except one younger animal (FB704) that was not removed from the water. Weights ranged from 84.6kg to 252.2kg. Blood samples were obtained from all 31 animals and hematology and blood chemistry analyses were conducted by two laboratories which were familiar with dolphin blood. A tooth was extracted from 28 animals. Skin and blubber biopsies were collected from all 31 animals. Milk samples were obtained from three lactating females. Fecal samples were collected from 28 animals, and urine samples from 27 animals. Bacterial

swab samples were taken from the blowhole of 29 animals. Blubber depth measurements (by ultrasound) were made on 30 animals. A diagnostic ultrasound exam was conducted on 26 animals. Colonic temperature measurements were made on 29 animals. All 31 animals were acoustically recorded. Thirty of the animals were freeze branded for permanent identification. Nine animals were fitted with roto-tag mounted VHF radio tags and four additional animals were outfitted with Trac-Pacs. The radio tracking and Trac-Pac studies are reported in Read et al. (1996, in press) and Townsend et al. (1996, in press), respectively. A roto-tag was mounted on the trailing edge of each of the 31 dolphins, four of the animals were outfitted with an additional roto-tag.

A photo-identification study of bottlenose dolphins has been conducted in the Beaufort, NC, area since 1985 and several hundred animals have been identified (Thayer and Rittmaster, 1995). The dolphins we captured were compared to the catalogue of identified animals, and 10 were dolphins previously observed in the study area but none prior to 1989. Seven of these had been seen on only one occasion, and three were seen two or more times. All of these dolphins were previously sighted only during summer months, with the exception of one (712), which was sighted only during winter months from 1991-1995. All of the known dolphins in this area have been considered "summer" or "winter" dolphins, with no intermixing documented (Thayer and Rittmaster, 1995). Dolphin 712 is the first dolphin known to frequent the estuarine area during both winter and summer months.

A technical memorandum providing a more detailed summary information on the 1995 sampling activities conducted on these dolphins will be published in 1996.

Northern Fur Seal, *Callorhinus ursinus*

Northern Fur Seal Stock Assessments

In 1994 the MMPA was amended to provide a new approach for managing interactions between marine mammals and fisheries. In part, it required that the NMFS prepare stock assessments for all marine mammal stocks in U.S. waters. NMFS completed final stock assessments in August 1995. It concluded that northern fur seals in U.S. waters consisted of two distinct stocks - an eastern Pacific stock composed of animals breeding on the Pribilof Islands and Bogoslof Island and a San Miguel Island stock in southem California. The estimated annual maximum recovery rate for both stocks of fur seals was 8.6 percent.

Eastern Pacific Stock

Based on fur seal census data collected in 1994, the final stock assessment for the eastem Pacific fur seal stock estimated its size to be 1,019,192 animals, including an estimated 5,173 animals on Bogoslof Island.

San Miguel Island Stock

The final stock assessment for the San Miguel Island stock of fur seals estimated its population size in 1994 to be 10,536 animals.

Northern Fur Seal Research Activities in 1995

San Miguel Island

Studies of the life history parameters of northern fur seals were conducted at San Miguel Island throughout June, July and August, 1995. The primary objective of these long-term studies, conducted in cooperation with the Channel Islands National Sanctuary Program and the National Park Service is 1) to estimate survival, recruitment, and natality of these species as a comprehensive assessment of the ecology of pinnipeds in the Channel Islands and 2) to assess the status and recovery of fur seals throughout the north Pacific ocean in accordance with the Fur Seal Conservation Plan.

Censuses of Adult Males on Pribilof Islands

Adult male northern fur seals were counted on St Paul and St. George Islands during July 1995. The "idle" bull counts on St. Paul for 1986 -1988 as compared to 1990-1995 showed an increase from 1,865-3,201 to

7,632-10,940. In 1995, however, there was a decrease when compared to both 1994 and 1993 from 9,301-10,014 (1993-1994) to 8,459 (1995). Through the early 1990s "harem" male counts also increased but may have stabilized between 5, 154 (1995) and 6,405 (1993). Such changes were expected effects of the terminated commercial harvest in 1984. On St. Paul, at least, this appears to have reached an endpoint.

Researchers weighing and measuring fur seal pups on St. George Island, Alaska. *Photo credit: NMFS/NMML.*

Pup Counts

Population counts are conducted every other year, and 1995 was a no-census year. however, pup counts were conducted on one rookery (South) on St. George in 1995. The purpose of this census was to assess biases associated with the shearing sample pup census method. Biases associated with the size of the pups sheared, time between shearing and resampling, and inter-observer variation were investigated.

Mortality Studies of Pups on St. Paul Island

Pup mortality studies were conducted on St. Paul Island from July 9-August 9, 1995. Dead pups were collected from several rookeries and necropsies performed.

Counts of Fur Seals on Bogoslof Island

The average of two counts on Bogoslof Island on September 25, 1996, was 1,272 pups. Dead pups were not counted. The estimated number of live pups was lower in 1995 compared to August 18, 1994, when 1,482 were counted. This may be due to the late date of the 1995 census. By the end of September, pups are highly mobile and readily enter the water for hours at a time, making them difficult to count.

Counts of Fur Seals on San Miguel Island

In July 1995, a fur seal pup census was conducted in Adams cove on San Miguel Island. a mean of 1,577 pups was counted, the highest number of pups counted since the colony was estabished in 1968. In August 1, 1995, a pup census was conducted on Castle Rock at San Miguel Island. A mean of 795 pups was counted.

Condition Indices of Northern Fur Seal Pups on St. Paul Island and St. George Island

Length and weight measurements were collected to evaluate the physical condition of 1,032 male and 848 female pups from St. Paul Island on August 25-29; and 359 male and 293 female pups from St. George Island on August 24-28, 1995. An additional 316 pups were measured on St. George during pup census activities on August 14, 1995. These data will be used as part of a long-term study of the trends in condition of pups during the first few months of life and relationship of trends to natural or anthropogenic changes in their environment.

Evaluation of Entanglement Rates

Surveys to assess the rate of entanglement of adult and juvenile male fur seals in marine debris were conducted in cooperation with the Aleut communities on both St. Paul and St. George Islands. On St. Paul, surveys were conducted from July 6 to August 5, 1995, both in conjunction with the subsistence harvest and independent of the harvest using roundups. On St. George surveys were conducted from June 29 to August 5, independent of the subsistence harvest. A total of

9,969 seals were rounded up independent of harvest of St. Paul. Including those counted during harvests, 26,883 seals were counted on St. Paul, of which 39 were entangled. On St. George, a total of 15,080 seals were rounded up independent of harvests, of which 26 were entangled.

During the course of all research activities, debris was removed from 93 entangled seals on St. Paul Island, and 26 were disentangled on St. George Island. Twenty-five of the disentangled males were tagged. Twenty females were disentangled during the course of the season, primarily during population censusing.

Investigate Movement of Pups and Patterns of Survival at San Miguel Island

Northern fur seal pups were double tagged to continue long-term studies on survival and reproductive succcess of the San Miguel Island population. In Adams Cove, 300 pups were tagged on October 5. The Northern fur seal tagging program on San Miguel Island began in 1975. Since that time efforts are made every breeding season to resight tagged animals to assess long-term survival and reproductive success. Since animals do not return to San Miguel until they are two or three years old, there is a lag time between tagging and first resighting of indivivuals.

Foraging Ecology

Approximately 851 scats (631 on St. Paul, 220 on St. George) were collected from female pupping areas and male haulout areas on St. Paul and St. George Islands during the course of other research.
Foraging cycles were monitored using a Time Wet Recorder (TWR) to record foraging cycles of female fur seals. On July 27, 3 seals were captured and TWRs were attached to their pelage. The 3 seals were then recaptured on August 25 -29, 1995.

Northern Right Whale, *Eubalaena glacialis*

Southeastern Implementation Team

On August 26, 1993, NMFS convened a meeting in Brunswick, Georgia, to discuss a monitoring program that needed to be in place to protect northern Atlantic right whales on their winter calving 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 in the Southeastern U.S.:

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. The actual speed reduction necessary is defined as the 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 for all Federal, state and local parties that might adversely affect the species.

The Southeastern Implementation Team met on April 21, 1995, to discuss the previous calving season and make recommendations prior to the 1995-1996 season. Topics of discussion at this meeting were the low number adult females and calves (n = 7 calves) reported during the 1994-1995 season; a description of NAVTEX and how this technology is being used as part of the Early Warning System (EWS); the sighting distribution from the surveys conducted by the Florida Department of Environmental Protection (it was apparent from this data given the limited effort that whales are spending considerable time outside and

south of the critical habitat zone in Florida waters); the 1994/1995 EWS Survey results followed by a discussion on how well the EWS is working; a Partnering Agreement between members of the Implementation Team; and an update on the ANPR proposal.

The Implementation Team discussed a set of recommended safe operating procedures for large vessels transiting the right whale calving grounds. The recommended measures offer non-binding advice on posting observers aboard transiting ships, communicating information to incoming and outgoing ships on right whale sightings, suggested actions for ships to take under alternative right whale sighting scenarios, and the reporting of right whale sightings by transiting ships. The recommended procedures are intended for use by port personnel participating under a voluntary partnership agreement among team members.

The Implementation Team also met on October 31, 1995, prior to the 1995-1996 calving season. The agenda included a discussion of recommended safe operating procedures for large vessels transiting the right whale calving area critical habitat, detectability of right whales from aircraft and recommendations for a monitoring program, and vessel traffic pattern information.

During the October meeting, the Implemention Team also discussed a draft letter to the NMFS recommending that they proceed with rulemaking to restrict the use of gillnets in Federal waters that poses a significant entanglement hazard to right whales during the calving season. The states of Georgia and Florida already prohibit gillnets in State waters eliminating potential entanglement threats from gillnets in those areas. The final recommendation by the Implementation Team was that team members pursue the proposal on their own and provide advice on the matter directly to the NMFS.

Early Warning System Surveys, 1994/1995

A final report by the New England Aquarium was completed on August 24, 1995, that described the results of the second year of the EWS aerial survey program. There were 92 surveys of the EWS area during this season. Thirty-seven right whale sightings were made, on 27 different days. These 37 sightings were composed of 6 cow/calf pairs, and about 9 unidentified other whales, for a total of 21 different animals.

It was generally agreed that the EWS has dramatically increased awareness of the presence of whales throughout the region. No mortalities or injuries have been observed as occuring within the EWS area during the past two seasons.

The surveys also provide information on the distribution and movements of whales in the area. It is apparent that the whales begin moving into the EWS area during the latter half of December, remain in high numbers throughout January and are sighted less frequently in February (until the end of February when there is an increase in sightings again). It was suggested at the meeting that the survey area be extended southward and that perhaps Savannah (northern end of the EWS) could be dropped since the whales are not in the area for any period of time (suggested as a transit area rather than a high-density calving area).

During the 1994-1995 calving season, NMFS provided funding to the Georgia Department of Natural Resources and the Florida Department of Environmental Protection to survey areas further offshore and to assess the sighting efficiency flights of the Early Warning System survey program. In addition, to improve information on small- scale movements of right whales on their calving grounds, NMFS contracted with the New England Aquarium, the Florida Department of Environmental Protection, and the Georgia Department of Natural Resources to satellite-tag and track at least four animals on the winter calving grounds.

Detectability of Right Whales in Southeastern U.S.A Preliminary Study

Research on detectablility of right whales is aimed at evaluating and improving the EWS to reduce ship strikes. During 1995 behavioral data were recorded on audio- and videotape using airships as research platforms. These sighting data (percent surface time, along with mean dive and surface time) were then used to calculate preliminary sighting probabilities at various distances from the trackline based on the view-field from a small aircraft used in the aerial monitoring program, for three categories of right whale sightings. The view-field from each side of the aircraft was the sector of a circle, with search time greatest at about 1 nmi from the trackline. When aircraft view-field characteristics were merged with whale behavior data, overall detection probabilities were highest for groups (94%), intermediate for mother/calf pairs (61%), and lowest for single juveniles (57%). These calculated values are considered theoretical maxima.

Results to date suggest that the probability (calculated maxima) of the aerial monitoring program sighting right whales on any given survey averages 50-60% for mother/calf pairs and single juveniles. The implication of this preliminary study is that because single juveniles are least likely to be sighted from both the monitoring aircraft as well as by transiting ships seeking to avoid them, the likelihood of vessel interaction is greatest for this population segment. Secondly, because juveniles have likely been undersampled, demographic descriptions may have been skewed.

Southeast Implementation Team Newsletter

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 (i.e., Bay of Fundy field season summaries) are also included in the newsletter. The first newsletter was published in August 1994 and subsequent newsletters have been published through December 1995. Information or questions regarding the newsletter should be forwarded to Hans Neuhauser, Georgia Land Trust Service Center, 640 Cobb Street, Athens, Georgia.

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 priortity of the northeastern team be the development of a monitoring program that monitors the cumulative effects of several dredge-disposal and sewer-discharge activities in Massachusetts Bay and Cape Cod Bay.

NMFS coordinated a meeting of all interested individuals, and representatives from state and Federal agencies, to discuss agencies responsibilities and the formation of a New England Implementation Team. The first meeting of this group was convened in Boston, Massachusetts on August 19, 1994.

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. Subgroups were established with the following foci: research needs, reduction of mortality due to shipstrikes and fishing activities, and habitat needs and monitoring.

The second meeting of this Implementation Team occurred on May 10, 1995, at Saugus, Massachusetts. Topics of discussion at that meeting included a summary of the October 1994 peer reviewed report on right whale research and recovery objectives of NMFS (the meeting was convened in Woods Hole, and a summary provided in the last MMPA Annual Report);

a discussion of contracted research with the New England Aquarium; an outreach/educational program being developed by the Stellwagen Bank National Marine Sanctuary Program; a summary of contaminant analysis being conducted on whale tissue samples from necropsies of stranded animals; several reports from state, Federal and private organizations represented on the Implementation Team.

The Vessel Interaction/Gear Conflict Subgroup met on April 26, 1995, and following comments from this meeting, provided a discussion of their meeting to the remainder of the Implementation Team. Topics of discussion from this subgroup were education and outreach (mariner/whale safety); a discussion of the shipping/vessel effects to whales in the region; and fisheries interactions in the northeast region and possible recommendations to the New England Fishery Management Council regarding the inclusion of right whale protection measures in fishery management plans.

The Implementation Team met again on June 8, 1995, at the Stellwagen Bank National Marine Sanctuary Office, Plymouth, Massachusetts, to review objectives of the Implementation Team; to discuss a Memorandum of Understanding between NMFS and the U.S. Coast Guard; whale watching issues; the possibility of an early warning network in areas of high density vessel traffic and whale concentrations; and a discussion of the Habitat Subgroup.

Summary of Interagency Collaboration with the Coast Guard

One issue identified by both researchers and the Northeast Implementation Team is that of unreported events and "lost data," particularly from human-impacted whales (ship strikes and net entanglements) and "floaters" in offshore areas.

The Coast Guard and NMFS have cooperated informally for many years. In late 1994, this arrangement began to be formalized through the drafting of a Memorandum of Agreement (MOA). As this MOA moves toward final signatures, a pilot effort since December 1993 has provided a number of reports, including 12 "floaters" (8 fin whales, 3 humpbacks, and 1 right whale). Photo and video documentation have provided valuable data.

The Coast Guard has also on several occasions provided logistical support: CG vessels have been made available to transport researchers and disentanglement teams to event sites, and vessels and aircraft have been deployed to photo-document floater events.

This effort also involves NMFS staff providing training and materials to Coast Guard vessel and aircraft personnel; as well as compilation of data and photographs. When fully established, this program will provide valuable information on events in the more offshore areas.

Disentanglement Response and Network

The Recovery Plan calls for the establishment of marine mammal disentanglement program. This emergency response to marine mammal entanglements involves:

a. multi-agency/institution/network to locate, monitor, and safely disentangle marine mammals.

b. development and maintainance of a database for entanglements, and provide data access to users, and periodic reports.

c. development of regional protocols and plans, including outreach to general public.

Because of the critical need for life history and human-impacts data on right whales and other species, and the limited opportunities to collect these data, information from stranded whales is essential. Networks and standardized protocols have been devloped to help insure that there are no "lost data." Likewise, when whales become entangled in fishing gear, judgements must be made as to the efficacy and merits of disentanglement. Experience has shown that disentanglement is best undertaken by trained and

experienced personnel, with appropriate protocols for the procedure as well as the associated data collection.

Disentanglement efforts during 1995 include the following:

1. Throughout 1995, the Center for Coastal Studies (CCS) maintained a ready disentanglement team of trained staff members, along with equipment and vessels needed to respond to entanglements of large whales in the waters of the Gulf of Maine. In all, ten reports were received (6 right whales, 3 humpbacks, and 1 minke whale). With collaboration from the New England Aquarium, the Coast Guard, and fishermen, 1 right whale, 3 humpbacks, and 1 minke whale were disentangled. One calf appeared to free itself. Reporting of, and response to, entangled whales in offshore areas presents additional challenges and will require additional protocols and efforts.

2. The New England Aquarium's Right Whale Research Project responded to five events during FY95. There were three entangled right whales; one was disentangled, one was partially disentangled, and the third was not resighted and an attempt was not possible. In December of 1994, an 11-month old male that had swam up into the Delaware River was successfully coaxed out into Delaware Bay; i's fate is presently unknown. Lastly, a stranded 13-year old male was necropsied in Newport, Rhode Island, in July. All five individuals were identified through the right whale catalog.

Recent Right Whale Injuries and Mortalities

On July 17, 1995, a juvenile male born in 1993 washed ashore on Second Beach in Middletown, Rhode Island. The animal was first seen entangled in 1993 as a calf about six months old and was resighted in August 1994 in Cape Cod Bay, still entangled. During the second sighting, an attempt to remove the gear was considered but, because human intervention can pose risks to both whales and people, was not attempted.

On 20 October 1995, a 40-foot long male right whale washed ashore on the Bay of Fundy coast in Nova Scotia, Canada. Researchers found crushed vertebra and, upon a closer laboratory examination, they concluded that the animal died as a result of a ship collision.

In March 1995, the Navy reported that a submarine leaving Moorhead City, North Carolina, struck a whale that was described as small, black without a dorsal fin. However, a positive species identification could not be made. No carcass was found and there is no further information to confirm either the species or the outcome of the collision.

In September, a right whale was observed in Canadian waters east of Grand Manan Island towing about 800 feet of gillnet anchor line. Researchers from the New England Aquarium removed about 700 feet of the rope; however, a considerable length of line remained entangled in the whales mouth.

Recovery Plan Research Program

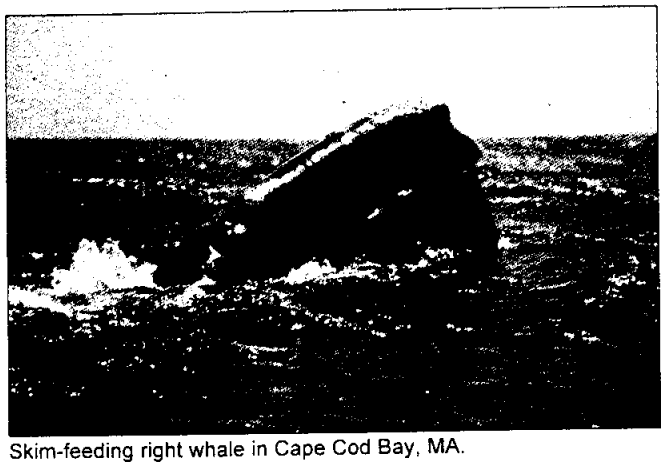
On October 3-7, 1994, the NMFS/Northeast Science Center convened a workshop to review the right whale research program in the eastern United States. Its purpose was to develop recommendations on future research priorities. Based on recommendations from this workshop, the research priorities were reviewed. A summary of contracted research supported by NMFS/Northeast Fisheries Science Center in 1995 include the following:

1. Satellite tagging, Year 2: The purpose of this study is to determine the location and characteristics of unknown wintering and summering grounds. Tagging in Cape Cod area is projected for spring 1996, northern GOM fall 1996.

2. Reduce ship strikes on right whales: This includes an assessment of shipping traffic relative to high risk areas; education and outreach programs; an evaluation of deterrents including sonar; and a follow-on to NEA/MIT ship modelling study to include a) shallow water, b) other vessel types, and c) the depth dimension.

3. Genetics: The priority is for working off the backlog of approximately 100 samples, DNA extraction and analysis. Also, gaps in the genetic database will be identified, analytical procedures reviewed, and a determination as to whether more robust or recently developed techniques may be available.

4. Stranding and human impacts response: Respond to right whale strandings, collaborate with NMFS, Coast Guard, and Center for Coastal Studies on human-impact events. On-site presence of experienced researchers, maximize data collection following standard protocols, submit reports including cause of death.



Skim-feeding right whale in Cape Cod Bay, MA.
Photo credit: H. Devaul

5. Foraging and habitat Studies in Cape Cod/Massachusetts Bays: The Center for Coastal Studies will undertake surveys of the bays system to document the development of conditions favorable to right whales. Emphasis will be on near-field conditions with detailed profiles of physical and biological conditions. Included will be patterns of habitat use by right whales. A data integration component will merge data from the bays system with that of the Great South Channel to develop a more comprehensive model of acceptable habitat.

6. Data compilation and review: Right whales in New England waters: Summarize, synthesize and update to present a comprehensive picture of right whales in New England waters. This will describe distribution and habitat of right whales by area and date, with central trends and outliers. Anomalies and habitat shifts, if any, will be addressed. Movements and connections between sub-areas will be included. Demographics and habitat partitioning. Data will be made available in GIS form.

7. Photo-identification catalog and associated data: The October 1994 Right Whale Review (NEFSC/NMFS) identified photo-identification, along with the associated mark-recapture techniques as the best way to monitor the North Atlantic right whale population and its trends. Maintenance of the catalog and associated expertise is therefore central to this and other management goals. Recommendations for directed and prioritized field collection of photo-ID and associated data will produce continued ability to monitor the population, its trends, and habitat use.

8. Maintenance of the computer database for the right whale in waters of the western North Atlantic, and associated analytical expertise: The long-term sighting and survey database will be maintained, and newly collected information will continue to be added on a timely basis. Data products and analyses will be provided to collaborating investigators. In 1996, emphasis will be on addition of missing data and "filling in the holes."

9. Stock Assessment: In August 1995, NMFS issued final MMPA stock assessments for all marine manunal stocks in U.S. waters. For the western North Atlantic stock, the minimum population estimate was 295 whales and the PBR level is considered less than one whale.

Gulf of Maine Harbor Porpoise, *Phocoena phocoena*

NMFS proposed to list the Gulf of Maine (GME) harbor porpoise population as threatened under the ESA on January 7, 1993. The proposal was considered necessary because (1) the rate of porpoise bycatch in commercial gillnet fisheries in the GME may reduce

this population to the point where it would become threatened throughout all or a portion of its range, and (2) because there were no regulatory measures in place at the time of the proposed listing to reduce this bycatch.

Bycatch Estimates for the Gulf of Maine

Under the 1988 amendments to the MMPA, the Gulf of Maine multispecies sink gillnet fishery was classified as Category I, a classification which denotes fisheries with "frequent incidental takes of marine mammals." Accordingly, the sink gillnet fleet has been subject to observer coverage since the Northeast Fisheries Science Center (NEFSC) Sea Sampling Observer Program was initiated in 1989.

Annual estimates of porpoise bycatch reflect seasonal distribution of the species and of sink gillnet fishing effort. Estimated annual bycatch for 1990 and 1991 were as follows: 2,900 in 1990 (CV=0.32); and 2,000 in 1991 (CV=0.35). The 1992 estimate of bycatch decreased from 1990-1991 levels to 1,200 (95% CI 800-1,700) individuals. The 1993 GME bycatch estimate of 1,400 (95% CI 1,000-2,000) was not statistically different from the 1992 estimate. Bycatch is believed as not to be sustainable over the long term given our best estimate of the population size.

On August 9, 1995, the NMFS/NEC completed a preliminary analysis of the 1994 bycatch rates in the southern GME gillnet fishery, and forwarded the analysis to the NEFMC. The mortality rate (kills/haul) of porpoise during Winter 1994 (January-May) was not significantly different that in earlier years. However, the bycatch rate during Fall 1994 (September-December) was about three times higher than in previous years (0.071 in 1994 vs. 0.022-0.024 in Fall 1991-1993). The 1994 Fall rate was based on a large sample size, and the difference between the 1994 Fall rate and those in 1991-1993 was too large to be a statistical artifact.

Landings data for 1994 were not available in 1995, therefore an estimate of total kills in the GME sink gillnet fishery could not be made for 1994. However, if landings and landings patterns during 1994 were similar to those in previous years (and if the distribution of harbor porpoise was similar to that in preceding years), the higher kill rate observed in Fall 1994 would raise the total annual bycatch in the 1994 fishery by about 50-60 percent relative to the 1991-1993 bycatch levels. The preliminary analysis indicated that the harbor porpoise bycatch in the GME in 1994 was be greater than in previous years.

The 1995 Stock Assessment and Minimum Abundance Estimate

The 1991-1992 population abundance estimate was 47,200 animals (95% CI 39,500 to 70,600). The most recent scientific information on marine mammal stock assessments (NOAA Technical Memorandum NMFS-SEFSC-363, U.S. Atlantic and Gulf of Mexico Marine Mammal Stock Assessments) provided a minimum population estimate (N_{min}) for the Gulf of Maine and Bay of Fundy of 40,297 animals, based on abundance surveys completed in 1991 and 1992. (Specifically, N_{min} is based on the lower 20th percentile of the 1991 and 1992 log-normal distribution of the average 1991-1992 porpoise population estimate.)

NMFS conducted a third assessment survey in 1995 and the results are expected in Spring 1996.

Bycatch Estimates for the Bay of Fundy

In addition to the harbor porpoise bycatch in the GME, recent information from Canada indicates the total bycatch estimate for the 1993 summer period was 424 porpoise in the western Bay of Fundy. The 1994 estimate was 101 (95%CI=80-122) animals. The estimated bycatch in 1995 is not yet available. However, it is expected to be even lower as the gillnet fishery was closed from July 21 to September 2, the period of greatest bycatch in the Bay of Fundy, for reasons relevant to the conservation of groundfish.

Bycatch Estimates for the Mid-Atlantic Region of the United States

Previous evidence from stranded animals has possible takes in some mid-Atlantic coastal net fisheries. Porpoise takes were observed in 1995, but bycatch estimates are not yet available.

Potential Biological Removal

The proposed PBR for the GME harbor porpoise population is the product of the estimated minimum population size (N_{MIN}) of 40,297, one-half of the maximum rate of increase (0.5 R_{MAX}) = (0.02), and a recovery factor (F_R) = (0.50), or 403 animals, or approximately 22% to 24% of the current estimated bycatch. Thus, the U.S. bycatch of harbor porpoise in commercial fishing operations should be reduced to 403 animals by April 1, 1997.

Bycatch Reduction Measures Implemented by the New England Fishery Management Council

Amendment 5 to the Northeast Multispecies FMP

Following a May 1992 harbor porpoise assessment workshop (NMFS, 1992), NMFS requested that the New England Fishery Management Council (NEFMC) introduce measures in Amendment 5 to the FMP that would reduce porpoise mortality to acceptable levels.

Amendment 5 to the NEFMC's Northeast Multispecies Fishery Management Plan (FMP) became effective in March, 1994. In addition to implementing conservation measures to eliminate the overfished condition of several multispecies finfish stocks, one of the principal management objectives was to reduce the bycatch of harbor porpoise in the Gulf of Maine (GME) sink gillnet fishery. The NEFMC agreed to develop a management strategy to reduce porpoise mortality by integrating a plan with fishery management measures.

The NEFMC initially developed a measure requiring removal of all gillnets from GME waters for specified 4-day blocks. The final rule implementing Amendment 5 made these gillnet 4-day out provisions effective on April 15, 1994 (59 FR 9872, March 1, 1994).

Time-Area Closures

NEFMC supported use of the 4-day time block measure as an interim protective measure. However, because of the imprecise nature of the 4-day time block, NEFMC began developing a time/area closure management plan based on the location and analyses of the porpoise bycatch data.

A framework adjustment mechanism included in Amendment 5 allows additional or alternate porpoise protective measures to be implemented at any time. Results of time-area analyses were first brought before the NEFMC on September 14, 1993.

Framework Adjustment 4

The first adjustment, implemented through Framework 4, occurred in 1994, included three 30-day closures and were aimed at reducing bycatch 50 percent over the next 4 years. The NEFMC program calls for a 20-percent reduction in the porpoise bycatch in each of the first 3 years of plan implementation. 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 3 years, the program will shift that portion of the reduction not met to the target for the next year (New England Fisheries Management Council, 1994).

The fourth year target was not specified because of anticipated MMPA requirements (the Act was reauthorized later in 1994) that would, and subsequently have, affected the Council's actions. As amended, the MMPA now requires the development, review and implementation of Take Reduction Plans

for strategic stocks (of which harbor porpoise is one) in about 12 months from the present time.

Through Framework 4, the NEFMC adopted a four year phased-in time/area closure program designed to meet the objective of reducing the bycatch to a level not to exceed 2% of the population based on estimates of abundance and bycatch. This objective assumes a maximum bycatch level that should not exceed the product of 50 percent of the maximum recruitment rate and a conservative estimate of abundance.

The time/area closures for Framework 4 were based on a Northeast Fisheries Science Center (NEFSC) analysis of harbor porpoise bycatch using the NMFS weighout database and sea sampling program, information on the distribution of sink gillnet activity and the seasonal and spatial distribution of harbor porpoise in the GME. The three areas: the Northeast (from Penobscot Bay to Eastport, Maine), Mid-coast (from Cape Ann to Penobscot Bay) and Massachusetts Bay (from Cape Cod to Cape Ann). corresponded to periods when porpoise bycatch would most likely occur.

Recommendations of the Harbor Porpoise Review Team

To monitor progress toward its bycatch reduction goals, the NEFMC appointed a Harbor Porpoise Review Team (HPRT). The team was charged with evaluating the effectiveness of the Council's mitigation measures and, if necessary, recommending changes at least annually, based on the Framework 4 goals.

The HPRT met on September 8, 1995, to review the success of Framework 4 at reducing porpoise bycatch in 1994. Based on that review, and data from NMFS/NEC that indicated that the 1994 bycatch rate in the Mid-Coast area increased significantly in 1994 over previous years, the HPRT offered several recommendations that relate to framework now under consideration:

a. The time and area closures, as configured, were neither large enough nor long enough to achieve the Council's bycatch reduction goals. The group agreed that the first year goals were not met and that the porpoise bycatch was very likely higher in 1994 than in 1993. The HPRT was unable to evaluate the degree of effectiveness of the individual closures chiefly due to the lack of data on the fine-scale spatial distribution of fishing effort.

b. There is substantial between-year variability in the timing of peak bycatch, with less variation in the areas in which bycatch occurs. In any given year, the inter-annual variability could exceed the Council's 20% reduction goal. This may partly explain the 1994 results. The advice of the HPRT, therefore, was to expand the timing of the closures to achieve bycatch reductions, and secondarily, to expand areas spatially to include locations which have historically accounted for bycatch, but were not included in the first year closures.

c. For the Mid-coast Area in 1996, the HPRT recommended the Council adjust and expand the time frame of the closure as indicated by further analyses and define an area in which fishing activity would be allowed if nets were deployed with pingers. Because the Mid-coast accounts for the porpoise bycatch, the HPRT suggested pinger use for the Jeffreys Ledge/Z-Band or other limited areas in which studies could be conducted to answer questions about habituation and exclusion of animals, but in a manner that would not jeopardize the Council's bycatch reduction goals.

d. For the Mass Bay Area, the HPRT recommended the Council adjust the time frame as indicated by more refined analyses of the data and allow gillnet vessels to fish within the entire closure area if nets are outfitted with pingers and deployed according to defined protocols. This closure would allow an evaluation of operational characteristics of acoustic devices in a commercial fisheries environment. This recommendation is, in part, based on the low bycatch rates for this area (i.e. if pingers do not perform according to expectations and more porpoises are caught, the impact on total bycatch should be relatively small).

e. A more detailed analysis of the area south of Cape Cod to determine the possible need for a closure.

Based on the HPRT recommendations, the NEFMC/Marine Mammal Committee met, and on September 11, 1995, forwarded the recommendatioons to the NEFMC. The NEFMC proposed implementation of a spring closure in the Mid-coast Area and establishment of an additional closure area in southern New England. This action was considered necessary in order to make further progress toward the bycatch reduction goals for year two (1995-1996) of the program. The target adopted by the NEFMC was a 40% reduction in the bycatch or approximately 780 animals. Because of the increase in bycatch in the Mid-coast region, the preliminary estimates for 1994 indicated that the incidental take of harbor porpoise in the Gulf of Maine still exceeded 1,500 animals.

Framework Adjustment 12

Framework 12, implemented in November, 1995, expanded the size of the Mid-coast Closure Area to include the Jeffreys Ledge or "Z-band" west of 69° 30'W, but excluded an area defined as Tillies Bank. The action also extended the duration of the closure, initially November 1-30, through November and December, 1995. The area was closed to fishing with sink gillnets during that two month period.

Acoustic Deterrent Devices (Pingers)

NMFS convened a scientific review panel (Panel) on June 9-10, 1994, to review the results of past experiments, to assess whether the use of these acoustic devices reduced porpoise entanglement rates and to recommend, as appropriate, future research to address this issue. The Panel believed that there may be some potential for acoustic devices to contribute to bycatch reduction. The Panel recommended that 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. The Panel further recommended 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 bycatch.

As a result of Panel recommendations, NMFS approved a large-scale pinger experiment in the GME from mid-October through mid-December 1994 in the Mid-coast area. The experiment was designed to determine the effectiveness of these "pingers" at reducing bycatch in the U.S. gillnet fishery. The survey design incorporated recommendations from the Panel and other reviewers, including the MMC. Rresults of the study were provided to NMFS on April 20, 1995.

The results were highly significant. Twenty five porpoises were taken in 421 control strings (without pingers) and only two porpoises were taken in 423 active strings (with pingers), indicating that alarms were effective in reducing the entanglement rate of harbor porpoises in this area. Largely as a result of this study, NMFS has authorized further use of pingers in a series of experimental fisheries in the GME. It is expected that the Take Reduction Plan for reducing harbor porpoise bycatch in the GME sink gillnet fishery will, at least in part, be based on the use of pingers in that fishery.

Experimental Fishery

On October 13, 1995, an experimental fishery was approved that would allow use of "pingers" in a portion of the former "Z-Band" during November and December 1995, an area otherwise closed due to NEFMC framework measures under Amendment 5. The New Hampshire Gillnet Fishermans Association took a lead role in this experimental fishery. The primary objective of the fishery was to test operational aspects of pinger use, which had been successfully tested during a 1994 experiment in the same area.

Observers were instructed to perform their normal duties and not have anything to do with the operational aspects of the pingers. This is in contrast to the observer efforts in the Fall 1994 experiment where the observers played an active role in handling the pingers. This experimental fishery was allowed so

as to provide insights on pinger use, their durability under commercial fisheries conditions and their effectiveness in mitigating bycatch.

Proposed Action Under Framework 14

The following actions are proposed under the framework for rulemaking procedure established by Amendment 5 to the Northeast Multispecies FMP. This framework adjustment was initiated at the December 13, 1995, NEFMC meeting. The final meeting is scheduled for January 25, 1996.

To reduce the bycatch of harbor porpoise in the GME sink gillnet fishery, the NEFMC recommended initiation of a framework adjustment to close the Mid-coast and Jeffreys Ledge Areas, west of 69°30' from March 25 through April 25 inclusive; the area known as Tillies Bank, described in Framework 12 to the Multispecies FMP, shall be exempt from this closure. During this period the area would be closed to fishing with sink gillnets.

For the same purpose, the NEFMC also recommended closure of an area to sink gillnets south of Cape Cod (referred to from this point as the Southern New England Closure Area) from March 1 through March 30. The boundary extends from the Massachusetts shore south along 70°30'W, west on 40°40'N and north on 71°45'W to the Rhode Island coast.

The proposed Southern New England Closure was based on sea sampling data for 1993 and 1994. While it was formerly assumed that takes there were infrequent, analyses indicate that bycatch rates are somewhat higher than in Massachusetts Bay where a closure was implemented in 1995. This became apparent during discussions of a preliminary analysis of NEC information. The issue also was identified in the HPRT's recommendations. The boundaries defined for the area enclose most of sampled effort and should ensure a significant reduction in the bycatch.

The Massachusetts Bay gillnet fishery accounts for approximately 4 to 5 percent of the total GME porpoise bycatch. It is closed from March 1 to March 30. The pattern and level of bycatch in 1994 was not very different from previous years - sporadic during February and March and highly variable in January and April. The NEC recommended no change to this closure. An expansion of time or area would be disproportionate in relation to the level of takes relative to the other areas. Massachusetts Bay was closed initially in 1995 and will be closed during the month of March each year.

These recommendations were based on information, views and comments at a meeting of its Marine Mammal Committee held in Saugus, Massachusetts on November 28, 1995, at an informal meeting between NEFMC staff and southern New England gillnet fishermen in Tiverton, Rhode Island on December 7, 1995 and at a full Council meeting held in Danvers, Massachusetts on December 13, 1995. A decision on whether to finalize this framework adjustment is expected the January 1996 NEFMC meeting.

Amendment 7 to the Multispecies Groundfish FMP

The NEFMC is currently formulating Amendment 7 to the Northeast Multispecies FMP (a replacement for Amendment 5) to accelerate the goal of reducing fisheries mortality for New England groundfish. Although it has not yet been finalized, Amendment 7 to the Multispecies FMP will include a revised objective for harbor porpoise that reflects the changes required by the reauthorization. At its December, 1995 meeting, the NEFMC approved the following for inclusion in the draft amendment: to reduce proportionately, consistent with the Magnuson Fishery Conservation and Management Act and the MMPA guidelines, the incidental mortality and serious injury of harbor porpoise in the GME sink gillnet fishery to the PBR level identified for this stock through the process described in Section 117 of the MMPA by April 1, 1997, the date required for compliance with Section 118(f)(5)(A) of the MMPA.

The MMPA goal for harbor porpoise is very similar to the one that has been adopted by the NEFMC, to

reduce the bycatch to levels that are less than the PBR level specified for the stock.

Bycatch Reduction Measures Being Taken in the Bay of Fundy

A Canadian gillnet fishery in the western Bay of Fundy (BOF), Nova Scotia, also takes porpoise from this population. Neither Amendment 5 restrictions nor the MMPA address this bycatch. On October 7, 1994, NMFS received from the Department of Fisheries and Oceans-Canada (DFO) a Harbour Porpoise Conservation Strategy (HPCS) for the BOF for comment. During the 1995 season in the BOF, DFO placed observers in the gillnet fishery to monitor bycatch. However, during July 21 - September 1 (peak bycatch months), the fishery was closed to protect stocks of groundfish effectively reducing the bycatch to zero during this critical period.

Experimentation with acoustic deterrent devices, or pingers, was conducted in 1995. In December 1995, the Department of Fisheries and Oceans-Canada (DFO) completed their HPCS, and in this document, issued a mitigation measure to the effect that once an estimated 110 porpoise had been killed by Canadian gillnet fishers, the fishery would be closed in areas deemed most responsible for the incidental take. Closure will be implemented on receipt of information from the Observer Program indicating high incidental catches and will come into force within 24 hours of the problem being identified. Only fisheries in the area of the problem will be affected.

The DFO is also taking part in the TRT for this species, and is continuing to consider measures to further reduce bycatch in the BOF gillnet fishery.

The Development of Protected Species Measures to Reduce Bycatch in coastal Atlantic States

Section 118 of the MMPA requires NMFS to develop TRTs for any "strategic" stock whose members shall include, among others, a representative from each coastal state which has fisheries which interact with the species or stock. GME porpoise are taken incidental to coastal gillnet fisheries under state jurisdiction south to, at least, Virginia.

On September 18, 1994, NMFS met with the Management and Science Committee, Atlantic States Marine Fisheries Committee (ASMFC), to discuss recommendations that state fishery management plans that would include a standard that conservation programs and management measures should protect, to the maximum extent possible, those species protected under state and Federal legislation. At that meeting the committee recommended that a Protected Species Subcommittee be formed and that this subcommittee work with NMFS to convene a 2-day workshop on protected species conservation and management issues in state waters.

On July 17-19, ASMFC convened a workshop in Richmond, Virginia, on the management of protected species in state waters. Recommendations from this workshop were to be forwarded to the full Commission for their consideration at their fall meeting in Charleston, South Carolina. Final recommendations from this workshop are being reviewed by the Management and Science Committee of ASMFC at this time. Draft recommendations discussed at the workshop, and those that were forwarded to the Commission from the MSC, include the following: amend the ISFMP Charter so that protected species/fisheries interactions are addressed in the Commissions fisheries management planning process; include NMFS and USFWS protected species representatives on technical committees and plan development and review teams; charge the MSC with overall responsibility for coordination of Commission activities regarding protected species; and address protected species issues on a plan basis, beginning with the Shad/River herring Interstate Fishery Management Plan as a model.

The ASMFC meeting took place October 29-31, 1995, in Charleston, South Carolina. The Management and Science Committee presented their recommendations to the Commission which were adopted without change.

The Proposed Listing of the Gulf of Maine Harbor Porpoise under the ESA

A final determination on whether or not to list the GME harbor porpoise population at threatened under the ESA depends on the successful reduction of bycatch of that species to sustainable levels as stated within the MMPA. Since the proposed listing, several mitigative measures have been taken which should result in a significant reduction of bycatch. However, it is not known at this time whether these measures will be successful at reducing bycatch to below PBR. Further evaluations will be needed prior to a final determination of the proposed listing. Following a review of these measures for reducing bycatch, NMFS will further evaluate the proposed listing of GME harbor porpoise as threatened under the ESA.

Hawaiian Monk Seal, *Monachus schauinslandi*

Research and Recovery Program Reviews

In 1993 a three-year Hawaiian Monk Seal Work Plan was developed to guide monk seal research and recovery efforts conducted by NMFS, Southwest Fisheries Science Center, Honolulu Laboratory, through 1996. In developing this work plan, consideration was given to the priority assigned to specific research and recovery tasks in the Recovery Plan for the Hawaiian Monk Seal, and the recommendations of the Hawaiian Monk Seal Recovery Team at its 1992 and 1993 annual meetings. The 1994-1996 work plan addressed five major concerns of NMFS and the Recovery Team: 1) monitoring of the five major breeding populations and Midway; 2) resolution of the mobbing problem at Laysan and Lisianski Islands; 3) implementation of the research and management planfor the French Frigate Shoals population; 4) continuing activities to enhance recovery of the western island populations; and 5) continuing emphasis on data analysis and publication of research findings.

On November 30, 1994, the Marine Mammal Commission forwarded their recommendations on recovery actions taken to date to the Assistant Administrator. The MMC recommendations to NMFS were similar to those recommended to NMFS by the Recovery Team following their annual meeting, December 6-7, 1994. At the Recovery Team annual meeting, research and management priorities for the 1995 field season were discussed. One of the recommendations from that meeting was that the Recovery Team develop a three-year recovery action plan, 1996-1998, be prepared.

Marine Mammal Commission Hawaiian Monk Seal Program Review

On April 11-13, 1995, the MMC, in cooperation with NMFS/Honolulu Laboratory, covened a panel to review the status of efforts to encourage the recovery of the monk seal. Panel members reviewed research reports and findings presented by NMFS staff at the review, and summarized the following major findings:

1. The panel believed that funding and logistic support levels planned by NMFS for FY1995 are appropriate to carry out NMFS' role in encouraging the recovery of the Hawaiian monk seal, and recommended that this level be maintained for at least the next three years.

2. The population assessment and monitoring at major breeding colonies be continued and accorded a high priority.

3. Population assessment needs for each island after 1996 should be re-evaluated.

4. The panel believed that rehabilitation and release efforts at Midway are warranted but that, given the high cost of rehabilitation, the low number of seals surviving to reproductive age,and the need for stronger criteria guiding this work, the panel was concerned that the contribution of rehabilitation work to recovery may be small. The panel, therefore, agreed that criteria be developed to guide future rehabilitation work.

5. Because of the importance of restoring the Midway seal colony to the recovery program, the panel

endorses transfer of the Midway Islands to USFWS. The MMC and the Recovery Team recommend that NMFS work closely with the Navy on plans and funding proposals to restore Midway's seal colony.

6. The review panel recommended that NMFS test a testosterone-suppressing drug to reduce male aggressive behavior on captive monk seals.

7. The review panel recommended that work on prey analysis and at-sea tracking be expanded. This included the collection of scat samples, the use of research techniques to identify isotopic and fatty-acid prey species.

8. The panel recommended that efforts to re-open the lobster fishery in the northwestern Hawaiian islands exclude French Frigate Shoals unless and until information is adequate to assess whether or not lobster is important in the diet of young seals.

The panel recognized the importance of the airfield at Tern Island in French Frigate Shoals, and recommended that everything possible be done to maintain the airfield.

Long-term field camps were established in 1995 at six of the main breeding islands for Hawaiian monk seals to assess survival of mother and pups.

Hawaiian Monk Seal Workplan, 1996-1998

On September 12, 1995, a second three year research and recovery action plan for Hawaiian monk seals (1996-1998) was drafted by the Recovery Team as Amendment #1 to the Recovery Plan. The tasks identified in this plan were again based on priority assignments in the Recovery Plan and recent recommendations of the Recovery Team, and a 1995 Marine Mammal Commission review of the monk seal program, following evaluations of those items completed in the 1994-1996 work plan. Generally, these tasks are a continuation or augmentation of high priority activities currently being conducted by NMFS. The highest priority needs in this amendment to the Recovery Plan are 1) recover the western populations; 2) mitigate losses of females due to mobbing; 3) mitigate losses due to high juvenile mortality at French Frigate Shoals; 4) conduct food habits and foraging pattern research; 5) mitigate fishery interactions; and 6) increase emphasis on data analysis and development of models.

Preliminary Results of the 1995 Hawaiian Monk Seal Field Season

During 1995, long-term field camps were established at the six main breeding islands of the Hawaiian monk seal--Kure Atoll, Midway Atoll, Pearl and Hermes Reef, Lisianski Island, Laysan Island, and French Frigate Shoals. Primary activities at the camps included assessment of population abundance, survival and reproduction; tagging of pups; collection, rehabilitation, and translocation of undersized or injured seals; collection, documentation, and destruction of marine debris on the island beaches; disentanglement of entangled animals; collection of scats for prey species determination; and monitoring for evidence of fisheries interactions. The main indicators of the status of these populations are the number of pups born and the mean beach counts. The mean beach counts for the five major breeding sites totaled 383, and the total number of births was 175. Brief highlights of field activities are provided below.

Kure Atoll

A field camp was established at Kure Atoll from May 14 to July 13, under the supervision of Lucy Keith, cooperating scientist, Joint Institute of Marine and

Atmospheric Research (JIMAR), University of Hawaii. In addition to population assessment, activities included release and monitoring of seven yearling seals that had been collected as underdeveloped pups in 1994, and identification and enumeration of the 102 individuals (assumed to approximate the entire local population) by applied bleach marks, tags, and distinctive scars. Twelve atoll-wide counts were conducted, resulting in a mean (±S.D.) of 42.3 (±4.4) seals (excluding pups). Eleven pups were born (six male, five female).

Two seals were observed entangled in marine debris: a weaned pup was released from a shard of net, and a nursing pup which had become entangled in the debris freed itself unaided. Potentially hazardous debris items totaling 313 pieces were inventoried and destroyed. Fifty-seven scat and spew samples were collected.

Midway Atoll

Field studies were conducted at Midway Atoll from March 31 to April 28 under the direction of Dr. Lee Eberhardt, contractor to the Marine Mammal Research Program, and from August 4 to August 18 under the direction of William Gilmartin, wildlife biologist. Activities at Midway focused on tagging of pups and other untagged seals and identification of all seals in the population. Six pups were born, the highest documented total from Midway in nearly four decades. All pups were tagged (2 were tagged by USFWS personnel), as were an additional 10 seals. A preliminary population estimate for the number of seals at Midway is approximately 45 individuals.

In June 1995, the U.S. Navy provided funding to NMFS for monk seal recovery efforts at Midway Atoll. The Navy funding was used to obtain hardware necessary to monitor survival and haul-out patterns of rehabilitated female pups that are relocated to Midway Atoll.

Pearl and Hermes Reef

Field studies were conducted at Pearl and Hermes Reef from July 16 to August 31 under the direction of John Henderson, fishery biologist. Camps were established at Southeast and North Islands, ensuring coverage of the entire atoll. Research objectives included identifying the entire population by applied bleach marks or known scar profiles of individual seals. Ten censuses of all islets in the atoll were conducted. The mean beach count (excluding pups) was 81.7 seals (±S.D. 13. Twenty-seven pups were born (16 male, 11 female), which is the highest recorded for the past 15 years. Twenty-three juveniles were newly tagged, and tags were replaced on 13 other seals. A preliminary population estimate for seals at Pearl and Hermes Reef in 1995 is 225, representing an increase of about 50 animals from the last population estimate in 1991.

One seal was disentangled from marine debris, and entanglement scars had appeared on two seals since the previous field camp in 1993. Bones from two seals were found, one of which had been entangled in marine debris. Hazardous debris (678 items) was inventoried and destroyed. Sixty-four scat and spew samples were collected for identification of prey items.

Lisianski Island

Field studies of the Hawaiian monk seal at Lisianski Island were conducted from April 19 to July 14 under the direction of Joy Seymour, cooperating scientist, JIMAR. Research objectives specific to this population included identification of all seals, and documentation of adult male behavior. Fourteen censuses were conducted, and the mean (±S.D.) count (excluding pups) was 66.7 (±7.0).

Because Lisianski Island was visited for only a single day in 1994, beach count and population composition data were not obtained for comparison with the current year. However, mean beach counts from 1995 were similar to mean counts recorded in 1992 and 1993 (70.5 and 64.0, respectively). A total of 218 seals were identified. The male-to-female sex ratio was 1.6:1.0, continuing the downward trend of recent years (2.0:1.0 in 1992 and 1.7:1.0 in 1993). Twenty-two pups were born (10 females, 10 males, 2 unknown), compared with 23 and 17 pups in 1992 and 1993, respectively). Two emaciated juvenile seals (males) were found dead,

as was a nursing pup that died of unknown causes. Another emaciated juvenile male died after it was injured by a shark, and a small weaned pup disappeared. Also, one small weaned pup was in deteriorating condition at the end of the field season, and probably did not survive. Although mobbing events were not observed, one adult female sustained a severe mobbing-related injury. Six seals were entangled: two adult females escaped by themselves, and four pups (three weaned females and a nursing male) were released by observers. The remains of a subadult seal and two pups that had died of unknown causes since the 1994 field season were also found.

Laysan Island

Field studies were conducted from April 21 to July 18 under the direction of Brenda Becker, wildlife biologist. Research activities were directed at identifying the entire population and monitoring behavior of adult seals as part of continuing research on the occurrence of mobbing. The mean of 13 beach counts (±S.D.) was 69.5 (±10.0), excluding pups, which is similar to totals of the past 5 years. The total number of animals in the population (excluding pups) was 209, 11 fewer than counted in 1994. This decrease in number was largely due to the translocation of 21 adult males to the main Hawaiian Islands in 1994; none of these males were resighted in the Northwestern Hawaiian Islands in 1995. The total Laysan population included 68 adult males and 70 adult females (ca. 1.0:1.0).

Forty-three pups were born (23 female, 18 male, 2 unknown), the third highest number of births recorded since 1977. The birth rate was 61% for adult-sized females. Thirty-seven of the pups were tagged; one was still nursing at the end of the season. Five neonate pups (two male, two female, one unknown) seals were known to have died of unknown causes; two yearling females disappeared and are assumed dead, one had received injuries from a mobbing event, and the other was severely emaciated.

Two seals were entangled in marine debris; one disentangled itself, and the other was released uninjured by field staff. All marine debris capable of entangling an animal was inventoried and destroyed. Of 17 seals that had been oiled from a spill in 1993, 12 were sighted in 1995. Of the five not sighted, one was not seen in 1994, and one (adult male) had been translocated to the main Hawaiian Islands from Laysan Island in 1994.

French Frigate Shoals

Field camps were established from May 8 to September 3 and from October 25 to November 18 under the direction of Mitchell Craig, JIMAR cooperating scientist. In addition to population assessment, activities included collection of underdeveloped pups for rehabilitation at facilities on Oahu and instrumentation of seals with satellite transmitters, time-depth recorders, and video cameras. Ten atoll-wide censuses were conducted, resulting in a mean spring-summer beach count (±S.D.) of 123.9 (±14.3) seals, excluding pups, approximately 35 fewer than in 1994. Seventy-three pups were born, 38 fewer than in 1994. Seventeen pups died or disappeared before weaning. Of the 56 pups that survived to weaning, 55 were tagged. Tags were replaced on 103 seals which had lost or broken tags. Twelve undersized female weaned pups were collected for rehabilitation and subsequent release. Twenty-four seals were found dead, 12 of which were small weaned pups or stillborn fetuses. Three male seals were instrumented with both satellite and radio transmitters in November and were tracked for three weeks to determine the satellite tag position error.

Eight other male seals were instrumented with video cameras supplied by the National Geographic Society for 2 to 18 days during October and November. These "crittercams" were used to assess the seals' foraging strategy, and were set to record images and sounds at periodic intervals (for example, 3 minutes every 30 minutes) during the time the instrumented seal was at sea. A depth profile of the seal's movements was recorded continuously throughout the deployment.

Preliminary examination of the resulting videotape and depth data indicated that the seals foraged at depths ranging from 10 to 90 meters but always targeted prey

associated with the bottom. Identified prey items included reef fish and octopus. Foraging activity included opportunistic searching of the shallow bottom as the seals moved between haulout sites and periods of intense diving and searching of 60- to 90-meter habitat on the slopes of the atoll. Some of this deep habitat contained numerous rocks that one seal was observed to routinely flip over in search of prey hiding underneath. Supplementary information, such as aggression between adult and juvenile seals, was also observed in the videotapes.

These preliminary results provide researchers with unique insights into the foraging strategies of adult monk seals and has distinguished National Geographic's crittercam as a valuable tool for studying foraging behavior.

Humpback Whale, *Megaptera novaeangliae*

North Pacific

Review of Research and Management Priorities of the Humpback Whale Recovery Plan and Hawaiian Island National Marine Sanctuary Management Plan

On December 1991, NMFS completed the Final Recovery Plan for the Humpback Whale (Recovery Plan) (NMFS, 1991). The objectives of the Recovery Plan were compatible with those of the draft Hawaiian Islands Humpback Whale National Marine Sanctuary Management Plan and include maintaining and enhancing humpback whale habitat(s); reducing human-related mortality, injury and disturbance; measuring and monitoring key population parameters; and promoting a state/Federal partnership for administration and implementation of the Recovery Plan.

The Hawaiian Island Humpback Whale National Marine Sanctuary includes: (1) the marine area out to the 100-fathom isobath adjoining the islands of Lanai, Maui, and Molokai, including Penguin Bank, but not the waters within three nautical miles of Kahoolawe Island; (2) the deep water area of Pailolo Channel from Cape Halawa, Molokai, to Nakalele Point, Maui, and southward; and (3) the marine area out to the 100-fathom isobath adjacent to the Kilauea National Wildlife Refuge on the Island of Kauai.

The primary objectives of the sanctuary are to protect the humpback whales and their habitat in the waters around the main Hawaiian Islands, to educate and interpret for the public the relationship of the humpback whale and the Hawaiian marine environment, to manage human uses of the Sanctuary consistent with the Act, and to identify other marine resources and ecosystems of national significance for possible inclusion in the Sanctuary.

In order to facilitate the development of a Sanctuary Management Plan, resource managers from NOAA, Sanctuaries and Reserves Division (SRD), and NMFS, convened a workshop to assess research and other needs and opportunities related to humpback whale management in the Hawaiian Islands on April 26-28, 1995, at Kaanapali, Maui, Hawaii, to bring together representatives of county, state and Federal agencies, representatives of non-government agencies and organizations, resource managers, and researchers to participate in developing research and management objectives for the Sanctuary. The workshop was to initiate the development of a Management Plan for the Sanctuary, and implement those items listed within the Recovery Plan considered necessary for the recovery of the humpback whale in the North Pacific.

Workshop participants were: (1) to identify information and uncertainties that should be considered in developing a long-term research plan that meets the management and recovery objectives of the Sanctuary and the Recovery Plan; (2) to describe the research and long-term monitoring programs that would be required to characterize the present population status and to detect and monitor trends in life-history parameters of the humpback whale population in the North Pacific (with focus on the Hawaiian Islands); (3) to describe the essential components of humpback whale habitat(s) in the Hawaiian Islands; and (4) identify the county, state and Federal agencies that would participate in the

implementation of Recovery Plan and the Final Management Plan for the Sanctuary.

A workshop report providing a summary of the information that was contributed to the workshop by these participants will be completed in 1996.

Review of Research and Management Priorities of the Humpback Whale Recovery Plan in the North Pacific

On September 20-21, 1995, a small working group convened a meeting at NMFS/Marine Mammal Laboratory in Seattle, to review the Humpback Whale Recovery Plan relative to completed tasks identified for the North Pacific, to review the discussion from the NOAA/NMFS and SRD meeting held in Hawaii the previous May, and to develop a draft implementation plan for North Pacific humpback whale recovery, for FY 96-FY 98

The working group discussed the overall objective of population assessment and monitoring of humpback whales in the North Pacific relative to the management needs of NMFS. There was general agreement that recommendations should focus on information needed to evaluate the status and recovery of humpback whale populations in the North Pacific.

The following activities were considered essential to evaluating the status and recovery of humpback whales in the North Pacific.

1. Maintain the North Pacific Fluke Collection (NPFC): Having a single photo-identification facility that curates photographs of individual humpback whales from an entire ocean basin facilitates communication among researchers and allows quality control of data. Maintenance of the collection will include incorporating photographs submitted during the past four years, cross matching within the photographic collection to create a working catalog of unique individuals and updating the video disc used for the matching and archiving of photographs.

2. Study exchange rates of humpback whales within and between geographic regions: Using movement patterns of photographically identified individual humpback whales to estimate exchange rates between putative stocks was considered the primary information source for determining stock structure.

3. Estimate North Pacific basin-wide humpback whale abundance: The primary objective of this study was to estimate the size of the entire humpback whale population in the North Pacific. Independent researchers have conducted photo-identification studies which now include all known wintering areas and many different feeding areas. Using capture-recapture analyses, these data may be sufficient to provide a more precise estimate of humpback whale abundance in the North Pacific than is currently available.

4. Conduct capture-recapture studies off California, Oregon and Washington: The humpback whale population which feeds off the coasts of California and Oregon was estimated by capture-recapture techniques to include approximately 600 (CV = 0.07) individuals in 1993. The resumption of intensive photo-identification studies of humpback whales off California, Oregon and Washington during 1997 and 1998 will allow for an update of this estimate and an evaluation of trends in population size.

5. Conduct aerial surveys in Hawaiian waters: Aerial surveys of abundance of humpback whales in Hawaiian waters have been conducted intermittently for the past decade with the most extensive surveys conducted in 1993 and 1995. Aerial surveys provide an efficient means of obtaining abundance and distribution of whales at a particular point in time. The aerial surveys are being proposed for FY97, following the development of an aerial survey correction factor in FY96. This will coincide with the first year of a proposed capture-recapture study, allowing for a more comprehensive, comparative population survey.

6. Develop a correction factor for aerial survey estimates: Aerial survey correction factors need to be developed to estimate the proportion of whales not at the surface. Age, sex and group size-specific respiration and dive data, which have been collected from

shore-based observations, need to be analyzed and examined for intra- and inter-annual variation.

7. Conduct capture-recapture surveys in Hawaiian waters: Coordinated photo-identification surveys throughout the Hawaiian Islands were conducted at weekly intervals during the winter season in 1995. The objectives of this study were to: 1) estimate the abundance of humpback whales which visit Hawaii during a single year and 2) provide information on residency and the extent of within season inter-island movements of individuals.

8. Summarize existing information and expand surveys in Southeastern Alaska to study distribution, survivorship and reproductive success: Expanded systematic sampling in southeastern Alaska should provide information on the distribution of adults including mothers with calves, and return of known-age animals (i.e., those first photographed as calves), and will provide data for capture-recapture estimates of abundance. Documenting the return of known-age animals to feeding areas will allow the estimation of recruitment and/or recovery rates.

9. Convene second workshop to estimate calf mortality: In 1991, the first stage of a two-part workshop was convened to begin the process of synthesizing data needed to estimate calf mortality of humpback whales based on sightings of females with calves (and the same females subsequently without calves) on the winter and feeding grounds. The second workshop has been tentatively scheduled for the spring/summer of 1996. Based on the database of sightings of females with and without calves, calf mortality rates during the first six months of life will be estimated.

10. Convene workshop on adult mortality: At the first calf mortality workshop, participants suggested that the next life history parameter to measure should be adult mortality. This will be based on longitudinal studies of several individuals over a number of years.

11. Monitor anthropogenic noise on the wintering grounds using acoustic tags: Anthropogenic noise poses a potential threat to the quality of the habitat used by females to nurse dependent calves in Hawaiian waters. At this time, the technology to adequately monitor the response of humpback whales to anthropogenic noise does not exist. However, based on research supported by the ATOC program, a satellite linked transmitter capable of recording received sound levels, depth of dive information, and position should be commercially available by FY 98. Therefore, a pilot study is recommended to determine the feasibility of attaching such transmitters to 2-5 adult females with calves and 2-5 females without calves on the wintering grounds. The information obtained by such an experiment would be used to design a study that could test the hypothesis as to whether anthropogenic noise could potentially degrade habitat critical to the recovery of humpback whales.

12. Develop a GIS database of whale sightings data, based on aerial surveys: At present, information on the distribution of humpback whales in Hawaiian waters is available, but it has not been synthesized into a single database. The objective of this activity would be to develop a GIS database, which would then be combined with information on the physical environment, reproductive success and survival of humpbacks, and human-related disturbance patterns to evaluate whether particular areas are more important than others.

13. Summarize information on physical and biological oceanographic factors that affect the distribution of humpback whales: More accurate characterization of humpback whale habitats and their use will contribute to effective management of this stock. Factors to be evaluated more precisely include depth, bottom type and topography, water temperature, turbidity, acoustic characteristics, and current speed and direction. Features offering protection from currents or storms need to be identified, particularly on the wintering grounds.

14. Summarize information on calf distribution in and around the Hawaiian Islands: Anecdotal information on distribution of humpback whale mothers and calves implies some geographic stratification and certain

preferred areas. Systematic data should be collected to delineate distribution around the Hawaiian Islands.

15. Examine prey biomass and oceanographic data from fisheries surveys: Data on prey biomass and associated data on physical and biological oceanographic features (bathymetry, salinity, temperature, plankton, etc.) are collected systematically in a number of areas throughout the North Pacific as part of other survey projects (e.g., fisheries and other surveys, etc). A review of existing state and federal fisheries data collected in areas of interest in the North Pacific was recommended to evaluate whether integration of these data sets with whale sightings data would help provide information relating to habitat and prey studies. Concurrent collection of marine mammal sightings and prey and oceanographic data was deemed most valuable and the placement of marine mammal observers aboard fisheries survey vessels was recommended.

16. Develop quantitative criteria for delisting North Pacific large whales under the ESA: Section 4(c)(2) of the ESA requires that, at least once every 5 years, a review of the species on the Endangered Species List be conducted to determine whether any species should be 1) removed from the List, 2) changed in status from an endangered species to a threatened species, or 3) changed in status from a threatened species to an endangered species. NMFS completed its first 5-year review on the status of endangered whales in 1984. In January 1990, NMFS announced that it was conducting status reviews on certain listed species under its jurisdiction. The status review was completed and made available in June 1991 (56 FR 29471).

One of the problems with the current process for amending the status of listed species is that there are no objective criteria for classifying large whales as threatened or endangered. That is, how does one quantify what it means for there to be a significant risk that a species will become extinct over a major portion of its range?

In FY95, a contract was let to the University of Washington to support a student to initiate the development of criteria that are 1) quantifiable and 2) applicable to populations of large whales. The initial approach was to take advantage of recent work by the IUCN (see IUCN Red List Categories, 30 November 1994) in quantifying criteria used to classify stocks in various categories of being threatened (i.e., extinct, extinct in the wild, critically endangered, endangered, and vulnerable). The goal of the project is to associate the two classifications under the ESA with specific categories of threatened under the IUCN classification scheme and then use or revise the quantitative criteria for classifying under the IUCN scheme for classifying large whales under the ESA.

Objective listing and delisting criteria for the following stocks will be developed over the next two years: North Pacific humpback whale, North Pacific fin whale, North Pacific right whale, and possibly sperm whales and bowhead whales. The performance of the proposed criteria will be evaluated by simulation trials. Population projections will be made using computer simulations which incorporate the effects of demographic, environmental, and catastrophic stochasticity and changes in meta-population dynamics. In addition, existing PVA software will be used to determine the applicability of such software in determining the extinction probability of large whale stocks, where data on trends in abundance and abundance are either imprecise or unavailable.

A workshop report providing a summary of the information that was contributed to the workshop by these participants will be completed in early 1996.

Atlantic Ocean

Humpback Whale Yonah Program. Since 1992-1993, NMFS has participated in the Years of the North Atlantic Humpback (YONAH) project. YONAH is a large-scale international effort that uses photographic identification and molecular genetics to study humpback whales across their entire known North Atlantic range. The intention is to obtain as large a sample as possible of individual identifications and skin biopsies to provide reliable answers to questions on

size, structure, and migratory movements, vital rates and mating systems of this population.

During 1995, much of the research effort was dedicated to maintaining the humpback whale catalog, and YONAH photo-ID and database tasks, through a contract with the College of the Atlantic. FY95 funds were directed to:

Task 1. Final data quality review and update for YONAH catalog and database;

Much of the analyses have been, and continue to be released, through peer-review journals and presentations at professional conferences and meetings.

Task 2. Archival of YONAH catalog photographs and database.

Eastern North Pacific Stock of Gray Whales, *Eschrichtius robustus*

In June 1994, the eastern North Pacific stock of gray whale was removed from the list of Endangered and Threatened Wildlife. The ESA requires that stocks/species removed from the list be monitored for a minimum period of 5 years and its status reassessed at the end of that period of time. Therefore, as part of the delisting process, NMFS developed a 5-year monitoring and research plan for eastern gray whales and initiated this program in 1994.

As part of this 5-year plan, counts of southward migrating gray whales were conducted in January 1995 and in December 1995 to February 1996 as they passed the Granite Canyon research station in central California. The project was directed by NMML with assistance from the SWFSC. During the January 1995 study, an experiment was conducted using 25-power binoculars and a thermal sensor to determine the onshore-offshore distribution of migrating gray whales. In the 1995/1996 study, the research was directed at determining total abundance. The abundance estimate of approximately 22,600 animals was based on the number of whales observed during the daytime watch and a series of correction factors to account for whales that were not counted. This estimate of total abundance was similar in value to an estimate based on data collected during the winter of 1993/1994. Support for this research was provided by the NMFS Office of Protected Resource's Marine Mammal Assessment Program.

During the 1995 meeting of the Scientific Committee of the IWC several papers prepared by NMML and SWFSC staff regarding gray whales were discussed. A paper by Shelden et al. (SC/47/AS4) reported a substantial increase in the number and proportion of calves observed during the southward migration, which may possibly be a response to the increase status of gray whales relative to their carrying capacity. Shelden et al. further noted that since the mid-1980s and the mid-1990s, the median date of the southward migration past the counting site in central California has been delayed 5 and 9 days, respectively. Perryman et al. (SC/47/AS1) reported on the results from the 1994 northward migration to enumerate the number of gray whale calves in the population. This survey was conducted from Piedras Blancas, CA. Total calf production was estimated at 1,001 calves (SE 92), which represents 4.3% of the best estimate of abundance. This survey was done in response to concerns raised over a possible reduction in calf production and indicates that calf production is currently at a reasonable level.

It was also noted during the 1995 SC meeting that 44 gray whales from the eastern North Pacific stock were harvested by Russian subsistence hunters in 1994. The SC noted that this level of take was extremely unlikely to adversely affect this population. Catch limits for the eastern stock of gray whales in the North Pacific for 1995, 1996, and 1997 have been set by the IWC at 140 animals per year, but only when the meat and products of such whales are to be used exclusively for local consumption by the aborigines.

Chapter VII. Ecosystem Activities

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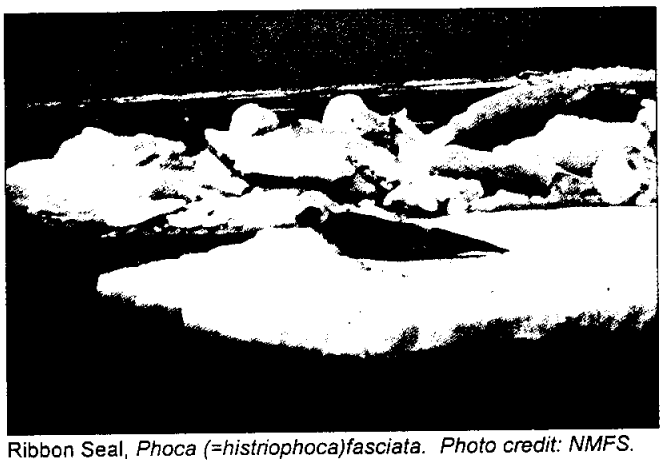
Bering Sea Ecosystem Study

The MMPA 1994 Amendments require NMFS to undertake a scientific research program to resolve uncertainties concerning the causes of population declines in marine mammals, sea birds and other living resources of the ecosystem. The amendments also require that the study consider the research recommendations developed by previous workshops on the Bering Sea and that it include research on subsistence use of resources and ways to provide for the continued use of these resources. An important component of the study will be the involvement of native Alaskan groups in the work, and the use of traditional local knowledge in the conduct of Bering Sea research.

NMFS and numerous other federal and state agencies and academic institutions already conduct research in the Bering Sea which contributes to an understanding of the ecosystem and potential declines in living marine resource populations. However, the various research efforts are not coordinated from an ecosystem perspective. NMFS' objective in undertaking this research program is not to duplicate research already ongoing, but to coordinate among these programs and supplement this work as required.

As a first step, NMFS is developing a comprehensive ecosystem study plan to define research, monitoring and assessment priorities. The plan is being developed through a series of steps involving NMFS, other federal agencies, the State of Alaska and Alaska native groups. NMFS completed the first draft of the plan in early 1995. During this phase, recommendations of previous Bering Sea workshops and symposia were reviewed and incorporated into the plan as appropriate. The plan was circulated to the MMC, State of Alaska, FWS, NBS, Alaska native organizations and others for review and comment, and revised.

In November 1995, NMFS sponsored a workshop in Anchorage to review current Bering Sea research efforts, determine gaps in current research efforts, finalize the study plan, and determine how the research would be conducted. The workshop was attended by over 90 participants from NOAA, the above-mentioned agencies and organizations, and the general public, and was successful in reviewing current research efforts and research gaps. Alaska Native organizations at the workshop focused on the role of traditional environmental knowledge (TEK) in the study, but were unable to provide specific recommendations on how to incorporate TEK into the research efforts. NMFS will continue development of the scientific plan, and will incorporate and Alaska Native input on TEK once it is available. The study plan will be finalized in 1996.



Ribbon Seal, *Phoca (=histriophoca)fasciata. Photo credit: NMFS.*

Gulf of Maine Ecosystem Workshop

On September 18, 1995, NMFS convened the Gulf of Maine Ecosystem Workshop at Dartmouth University. The workshop objectives were to: 1. assess the human-caused factors affecting the affecting the health and stability of the Gulf of Maine ecosystem; and 2. identify research and management options to restore and/or maintain the environmental quality of the ecosystem. Over 70 participants from state and federal government, academic institutions, environmental NGOs and fishing groups as well as private citizens gathered to discuss the status of the ecosystem.

The workshop consisted of plenary presentations and a public comment forum, followed by focused working groups, and synthesis and drafting sessions. Plenary subjects included the Gulf of Maine physical environment, water column processes, benthic environments, fisheries resources, protected species, and sources, fates and effects of contaminants. The three working groups were anthropogenic impacts, fisheries harvesting and protected species/marine mammals. In each working group, the status of knowledge for that topic was surveyed, individual ecosystem stressors (direct and indirect) were identified, and research and management recommendations were then developed for each. Habitat, biodiversity, and ecosystem function were emphasized as cross-cutting themes in each working group.

The following were identified as the major factors affecting the health and stability of the system:

- Overfishing, and related impacts,
- Contaminant introduction,
- Physical alteration and loss of critical habitat,
- Impacts of human-activities and development on endangered/threatened species,
- Factors external to the Gulf which affect seasonally resident and indigenous populations (global warming, mortality to migratory populations while outside the Gulf).

Based on these priority impacts, the workshop made the following recommendations with regard to research and management:

Research

- Identify critical linkages between ecosystem components and subsystems, and their sensitivity to cumulative and individual stressors;

- Implement additional interdisciplinary research approaches;

- Evaluate the resilience of the Gulf of Maine ecosystem and its components known to be affected by stressors;

- Develop criteria to assess sensitivity of coastal embayments and estuaries from an interdisciplinary perspective of habitat change, contaminant introduction, fisheries harvesting and physical and biological processes.

Management

- Seek cost-effective solutions through increased integration of rigorous scientific assessment of the problems and potential management options;

- Develop and implement integrated management strategies encompassing the key or sensitive components of both the Gulf of Maine *per se* and its watersheds;

- Strengthen existing water quality criteria and enforcement activities in the Gulf of Maine;

- Adopt a *precautionary approach* in the face of uncertainty or insufficient information.

The Executive Summary report of the workshop, as well as a NMFS report including major conclusions and recommendations on research, management and legislation, was forwarded to Congress on January 23, 1996. The final workshop proceedings will be available in early May 1996.

Regionwide Pinniped-Fishery Interactions Study

NMFS has been given the authority to 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. However, this investigation will not be conducted until appropriations have been allocated.

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

NMFS is to investigate 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.

To assist in gathering data for the investigation, NMFS established a working group comprised of biologists familiar with pinniped and salmonid issues in the Pacific Northwest. The working group met twice in 1995, and produced a draft report in October 1995. The report is scheduled for completion in May 1996 at which time NMFS will enter into consultation with the Pacific States Marine Fisheries Commission (PSMFC), which will act on behalf of the states. NMFS and the PSMFC will make joint recommendations to Congress on how to mitigate any impacts identified through the investigation.

Gulf of Maine Pinniped-Fishery Interaction Task Force

The 1994 MMPA Amendments require NMFS to convene a task force to provide advice on issues or problems regarding pinnipeds interacting in a dangerous or damaging manner with aquaculture resources in the Gulf of Maine. The task force, appointed in January 1995, was comprised of salmon growers, a state resource manager, representatives of environmental organizations, and a pinniped biologist from the academic research community. Three task force meetings were held in the Eastport, ME area and one was held in Portland, ME. All meetings of the task force were open to the public.

On February 7, 1996, the task force submitted its final report to NMFS. Among the recommendations to mitigate pinniped-aquaculture interactions were:

- NMFS should review regulations, permit processes and all restrictions on currently held permits, and revisit those measures which limit a grower's ability to control seal predation through non-lethal measures.
- NMFS should increase transboundary cooperation with Canadian authorities and work to endure that Canadian growers do not have a production or marketing advantage due to less restrictive regulations.
- NMFS should halt the importation of salmon from nations that allow use of lethal measures to control predation at salmon pen-sites.
- NMFS, Maine DMR and the Maine Aquaculture Innovation Center should investigate innovative net pen designs.
- NMFS should support research on the effects of acoustic deterrence devices.
- NMFS and Maine DMR should conduct studies of seal life history to better understand the causes underlying interactions with aquaculture operations.
- The salmon aquaculture industry should increase efforts to document losses from predator impacts.
- Salmon growers and Maine aquaculture associations should work with federal and state agencies, academic institutions and NGOs to make predation control measures more effective and affordable.
- NMFS should offer subsidized loans and an insurance program to assist growers to implement predation-control measures and to withstand losses from predators when they occur.

NMFS will use the task force report as the basis of a report to Congress, which will include recommendations on how to mitigate the pinniped-aquaculture interactions. That report is scheduled for submission in September 1996.

Chapter VIII. Alaska Native Take of Marine Mammals

P. Michael Payne
Major Contributors: Doug Demaster, Tom Loughlin, R.V. Miller, Sue Mello, Ron Morris, David Withrow

MMPA Section 101(b) provides an exemption to the moratorium against taking marine mammals for Alaskan Indians, Aleuts, or Eskimos if the taking is for subsistence purposes or for purposes of creating and selling authentic native articles of handicrafts and clothing. These takes, however, may be limited by quota and, in some cases, other regulations. Two of the five subsistence takes listed below, bowhead whales in the Beaufort and Chukchi Seas and the northern fur seals on the Pribilof Islands, are subject to such limitations. The remainder are undergoing harvest level assessments.

Bowhead Whales

Subsistence Program Management

NMFS works cooperatively with the Alaska Eskimo Whaling Commission 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 1993, 1994, and 1995 is presented in Box 7. At the 1994 IWC Annual Meeting, a new 4-year quota 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 that any unused portion of the yearly quota may be carried over and added to the subsequent year's strike quota, provided that no more than 10 strikes is added to the strike quota for any one year.

Research on Bowhead Whales

No field studies were conducted on bowhead whales by the staff at NMML in 1995. However, several analyses and reports were either undertaken or completed using existing data. For example, three papers were completed that related to the development of a regime for IWC's management of aboriginal subsistence whaling (ASW). The papers will be presented at the Scientific Committee meetings of the IWC in 1996. In addition, NMML staff collaborated with researchers from the University of Washington and LGL Inc. on a report on the utility of photoidentification in estimating the annual survival rate of adult bowhead whales. This paper will also be submitted to the Scientific Committee of the IWC for consideration at its June 1996 meeting.

Finally, NMML staff in cooperation with other AFSC staff continued their studies on the utility of radio-isotope aging of bowhead whale ear bones. The initial studies have used gray whale earbones, but upon completion of the calibration phase, bowhead whale ear bones will be aged based on changes in the ratio of lead and radium isotopes in the calcium matrix of the bone.

BOX 7 - - Take of Bowhead Whales in 1993, 1994 and 1995

Year	Landed	Lost	Strikes
1993	41	11	52
1994	34	12	46
1995	43	14	57

To date, researchers have not been able to develop reliable methods for determining the age of a bowhead whale. It is likely that a combination of approaches will have to be used to cover the full range of the age structure of this species, such as also using carbon-isotope ratios and eye lens protein racemerization.

Steller Sea Lions and Harbor Seals

Alaska Native Subsistence Harvest of Steller Sea Lions

Although Steller sea lions and harbor seals have been a traditional subsistence resource for Alaska Natives in many areas of the State, information on harvest levels prior to the 1990s is limited. Therefore, beginning in 1992, NMFS provided funds to the Alaska Department of Fish and Game to gather information on the subsistence use of harbor seals (and Steller sea lions) in Alaska. From surveys with hunters and Native households in coastal villages throughout the State, details of the subsistence take, including an estimate of total take (i.e., landings plus animals struck but lost), have been developed for the years 1992 to 1994.

The estimated total Native subsistence take of Steller sea lions in Alaska for those years was 549 in 1992 (370 killed, 179 struck and lost), 487 in 1993 (348 killed, 139 struck and lost), and 416 in 1994 (336 killed, 80 struck and lost).

Almost the entire subsistence take of Steller sea lions has been in the range of the western U.S. stock, and more than three-fourths of that take occurred on the Pribilof and Aleutian Islands. The highest annual take from the eastern U.S. stock between 1992 and 1994 was estimate at six animals in 1992.

In light of concern about the decline of Steller sea lions and their importance as a subsistence resource, Native residents in the Pribilof and Aleutian Islands established an Alaska Native Steller Sea Lion Commission (ANSSLC) to develop a system of self-regulation and to explore co-management arrangements with Federal and State resource managers. The ANSSLC membership was discussed among Native village representatives, but a meeting was not convened in 1995.

Steller Sea Lion Subsistence Project

In September 1995, NMFS Alaska Region began, under contract, a Steller sea lion tissue sampling and education project in 3 Alaska Native communities that have a high subsistence harvest (St. Paul Island, St. George Island, and Unalaska). Sampling focuses on obtaining tissue to determine the age, sex, and genetic makeup of harvested animals, as well as their physical condition, reproductive history, and exposure to anthropogenic contaminants.

A second major emphasis of the contract is to increase awareness of the plight of the Steller sea lion and to encourage local management of the subsistence harvest. The contractor, in association with NMFS Alaska Region, will hold community workshops to discuss Steller sea lion recovery efforts and to inform hunters of the tissue collection project. In future years, NMFS hopes to expand this program to include other Alaska Native communities that harvest Steller sea lions, and to increase its emphasis on conservation through improved hunting practices and local management of harvest. The project will be continued in 1996, and a first year project report will be available in fall of 1996.

Subsistence Harvests

Under section 10(e) of the ESA, prohibitions on the taking of threatened and endangered species normally do not apply to takings by native Alaskans if such taking is primarily for subsistence purposes. To date, no action has been taken to regulate, or otherwise manage, the subsistence harvest of Steller sea lions by Alaska native groups. If subsistence takings materially and negatively affect the species, regulations or restrictions may be imposed only after a hearing and a decision is finalized.

Section 119 of the MMPA allows the Secretary of Commerce to enter into cooperative agreements with Alaska Native organizations to conserve marine mammals and provide co-management of subsistence uses. In 1994, an interim Alaska Native Steller Sea Lion Commission consisting of representatives from Alaska communities that take Steller sea lions for

subsistence needs was formed to improve communication among indigenous communities that use sea lions, to advocate for conservation of Steller sea lions, to advocate for protection of customary and traditional rights of indigenous peoples with regard to access and use of sea lions, and to serve as the focal point for development of co-management agreements with NMFS. Through co-management agreements between NMFS and the Alaska Native Sea Lion Commission or tribal entities, self-management and regulation of the subsistence harvest by Alaska Native tribes, communities, or the Commission will be achieved. NMFS is not considering regulation of the subsistence harvest at this time but hopes to work with Alaska Native communities and representatives to ensure that subsistence harvest does not adversely affect the Steller sea lion population.

Alaska Native subsistence hunters have been estimated to take about 500 Steller sea lions annually in recent years; virtually all of the subsistence harvest in Alaska occurs within the range of the western population segment (Wolfe and Mischler, 1993; 1994). These removals have an impact on the population although the magnitude of estimates in comparison to the reported declines indicate that subsistence harvest has not been a significant factor in the decline. However, should the western population segment continue to decline and the subsistence harvest continue at the same level, it may become significant.

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Research on Harbor Seals

In Alaska, harbor seals range throughout southern Alaska waters, the Gulf of Alaska, Aleutian Islands and along the north side of the Alaska Peninsula and Bristol Bay (to about 59° N). Once, harbor seals were considered abundant in all parts of their Alaskan range until surveys by ADFG researchers in the 1980's indicated declining trends in some areas. The NMML has conducted surveys in Alaska intermittently since 1976 and yearly since 1991 to obtain a minimum population estimate for the state.

The state of Alaska was arbitrarily sub-divided into 4 regions for census purposes. These regions roughly follow the estimated stock separations, but logistical considerations were the primary factor used for this delineation. NMML, with funding from the NMFS Office of Protected Resource's Marine Mammal Assessment Program, has censused each of these 4 regions over the last 4 years (Loughlin 1992 [Bristol Bay, Prince William Sound, and Copper River Delta], Loughlin 1993 [Gulf of Alaska and Prince William Sound], Loughlin 1994 [Southeastern Alaska], and Withrow and Loughlin 1995 [Aleutian Islands]).

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In 1995, the NMML began phase II, a re-census and evaluation of each of the 4 regions in order to provide current population figures and estimates of trend, especially in areas of decline and neighboring locations. Survey areas included the north side of the Alaska Peninsula and Bristol Bay. Although data are still in the analysis process, tentative mean estimates for the north side of the Alaska Peninsula are 7783 seals with a CV = 4.4%. This represents a difference of -745 seals (-9.5%) compared with our 1991 surveys.

In 1995 NMML also continued a study to determine the proportion of animals missed during our molt census aerial surveys. These surveys miss an unknown number of animals that are at sea or that move between haulout sites. Also, the number of animals hauled out is influenced by tidal state at many locations, but tide may not influence haulout patterns at others. In 1994 NMML initiated the first phase of this study on rocky substrate in Southeast Alaska just prior to the molt census surveys. The mean percent number of tagged seals hauled out each day was 57.5%. A correction factor of 1.74 was computed with the CV of the mean equal to 0.068. In 1995, we worked in Prince William Sound on sandy substrate. Twenty-five seals (13 males and 12 females) were captured and equipped with radio transmitters. Nineteen were adults, 5 were sub-adults and 1 was a pup of the year. Data for this study are still undergoing analysis and results will be reported later.

Northern Fur Seal Subsistence Harvest

In 1994 NMFS estimated that the subsistence needs for 1994, 1995, and 1996 could be met by annual harvests of between 281 and 500 fur seals on St. George Island and between 1,645 and 2,000 fur seals on St. Paul Island.

In 1995 the total subsistence harvest was 1,525 fur seals, including 260 animals on St. George and 1,265 animals on St. Paul. Subsistence harvesting of fur seals was conducted on St. Paul Island on 22 days between July 1, 1995 and August 8, 1995, and on St. George Island on 13 days between June 30, 1995, and August 7, 1995. A total of 1,265 seals were harvested on St. Paul Island during the 1995 season and 260 seals were harvested this year on St. George Island.

By agreement, the Tribal Government of St. Paul eliminated the butterfly field butchering cut and all but 30 animals were taken as whole carcasses from the field. Therefore, the past procedure of sampling and weighing seals for percent use determinations was not employed this year. Of the 30 animals field dressed as butterfly cuts, 11 were the result of broken gall bladders and potential spoilage of part of the meat by bile. The remaining 19 seals were field dressed as butterfly cuts for elders who are physically unable to butcher whole animals.

As in the past, all seals harvested on St. George were field dressed and taken from the field as whole animals. Through a cooperative effort between NMFS and the tribal governments of both islands, a total of 85 seals were disentangled from marine debris during the harvest period.

Ice Seals are a major component of the diet of Native Alaskans in the Arctic.

Beluga Whales

Subsistence Program

The Alaska Beluga Committee (ABC) was formed in 1988. Since that date, the ABC 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 1994, approximately 218 animals were taken in the beluga harvest. In 1995, 135 animals were taken in the beluga harvest by areas as follows: Cook Inlet-42, Bristol Bay-6, Norton Sound-50, Chukchi Sea-34 and the Beaufort Sea-1. In 1995 the Cook Inlet Marine Mammal Council (CIMMC) representing Cook Inlet beluga hunters and cooperating with NMFS prepared the harvest report for their area. Based on CIMMC verbal accounts, previously reported harvest information for the Cook Inlet stock has been under reported by at least 50 percent.

Research on Beluga Whales

Aerial surveys and dive behavior studies of the beluga whales in Cook Inlet Alaska were conducted in July/August 1995 by NMML staff. The aerial surveys were flown to determine the distribution of beluga groups in the inlet, standardize counts of groups and collect aerial video tape of the groups during the counts. Dive behavior studies were conducted using a VHF radio tag attached to the whales by a suction cup. A second study using satellite linked dive recorders was unsuccessful in capturing whales for tag attachment. Using the aerial counts and correction factors developed from analyzing the dive data and the video tape the abundance in the inlet was estimated at 750 whales; however, methods to determine the variance and bias associated with this estimate are still being developed. At present, NMFS has followed the recommendations of the Alaska Scientific Review Group regarding the abundance of beluga whales in Cook Inlet, which is to use an estimate of abundance of 1251 (see Small and DeMaster 1995), but is intending to work cooperatively with Native organizations in establishing a PBR for this stock. As noted above, the removal level in 1995 associated with native hunting was 68 animals, which represents a removal rate of approximately 5% of the population. An aerial survey of the Cook Inlet belugas is planned for June, 1996 and tentatively planned for even numbered years there after to monitor trends in the population. The tagging studies and aerial surveys have been conducted with the cooperation of the Alaska Region Office in Anchorage, the Cook Inlet Marine Mammal Council and the Alaska Beluga Whale Committee.

Aerial surveys to determine minimum abundance of beluga whales in Norton Sound were flown by scientists from the Alaska Department of Fish and Game in cooperation with NMML. While the complete area could not be surveyed during the study period because of fog over the Yukon Delta, the minimum estimate of abundance for this stock was approximately 8,000 animals. The PBR for this population will likely be approximately 160 animals, assuming an FR of 1.0 for this stock, which is greater than the average harvest level in Norton Sound over the last five years (i.e., 147 animals per year). In addition, research on the stock identification of beluga whales in Alaska was undertaken in 1995 by staff from the Marine Mammal Division, SWFSC. The results of the genetic studies are consistent with the recommendation by NMFS to manage beluga whales in Alaska as five separate stocks: Cook Inlet, Bristol Bay, Norton Sound, Eastern Bering Sea, and Beaufort Sea stocks. That is, unique genetic differences were found for each of these stocks, which implies that rates of immigration or emigration between stocks is likely to be negligible.

Support for the NMFS portion of these studies was provided by the NMFS Office of Protected Resource's Marine Mammal Assessment Program. Support for the rest of this research was provided for by the Alaska Beluga Whale Committee.

Chapter IX. Permit Programs

Gary Barone, Jeannie Drevenak, Ruth Johnson, Trevor Spradlin

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 1994 amendments to the MMPA also authorize the issuance of permits for a new category, photography.

Between January 1, 1995 and December 31, 1995, NMFS reviewed 33 permit applications. Of these, 20 permits were issued for scientific research and three were issued for public display. Four applications were returned or withdrawn, and six applications were awaiting final action at the end of December 1995.

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, 90 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 final regulations incorporating public comments as well as provisions of the new amendments are expected to be published in early 1996, as well as proposed regulations for public display and photography permits.

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 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 criteria (cited above) without any additional permit or authorization.

4. 15-days' advance notification of any transportation, sale, purchase, or export of a marine mammal for public display, scientific research, or enhancement purposes is required.

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.

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

9. NMFS and the U.S. Fish and Wildlife Service 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 identify 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 submitting a list of such standards with each application.

The American Zoo and Aquarium Association (AZA) and the Alliance of Marine Mammal Parks and Aquaria (Alliance), together representing approximately 60% of U.S. facilities that currently hold marine mammals, have submitted, for reference 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 an unreleasable 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 public display 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 or to retain a releasable marine mammals for purpose of public display in lieu of a capture. Proposed regulations implementing these provisions will be ready for publication in 1996.

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 public display 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 others registered 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 enable that foreign government to enforce requirements equivalent to the requirements of the U.S. MMPA and AWA and that the government will enforce such requirements; 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 progeny of such marine mammals, and the recovery of expenses for such seizure or other disposition.

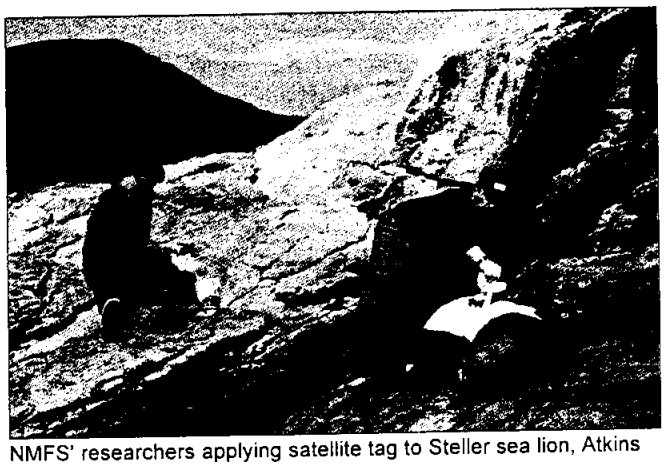
The amendments also provide specifically for the export of marine mammals for purposes of public display without further permit or authorization. Although no such specific provision was included for scientific research or enhancement activities, a general provision was included allowing exports that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

The following exports of live marine mammals occurred in 1995:

- Four (4) Atlantic bottlenose dolphins (*Tursiops truncatus*) from the Chicago Zoological Society to the Lisbon Zoo in Portugal (2 females and 2 males);
- Six (6) California sea lions (*Zalophus californianus*) from Sea World to Folks Land Aka Amusement & Picnic Resort in India (3 females; 3 males);
- Two (2) California sea lions (*Zalophus californianus*) from Oklahoma City Zoological Park to Folks Land Aka Amusement & Picnic Resort in India (1 female and 1 male);
- One (1) Northern elephant seal (*Mirounga angustirostris*) from the Marine Mammal Care Center at Fort MacArthur to Mundo Aquatico in Portugal (1 female); and
- One (1) Northern elephant seal (*Mirounga angustirostris*) from the Marine Mammal Center to Marineland Cote D'Azur in France (1 male).

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 any act of pursuit, torment, or annoyance which has the potential to injure, will require a scientific research permit. If the proposed research includes marine mammals listed under the ESA, a permit for such activities must be issued pursuant to the ESA. The holder of a valid ESA permit that authorizes such activities, may conduct



NMFS' researchers applying satellite tag to Steller sea lion, Atkins Island, Alaska.

Level B harassment on listed marine mammals without submission of a separate letter of intent pursuant to the MMPA General Authorization.

An interim final rule which establishes a streamlined permitting process was published in the *Federal Register* on October 3, 1994. This rule: establishes a general authorization for *bona fide* scientific research projects that do not exceed Level B harassment on species or stocks not listed under the ESA; describes the research activities most likely to be included under the general authorization; and identifies submission requirements for the letter of intent. Not later than 30 days after submission of a letter of intent, NMFS must issue a letter to the applicant either: confirming that the General Authorization applies; informing the applicant that all or part of the research may result in taking other than Level B harassment and that a scientific research permit is required; or, informing the applicant that the letter of intent lacked sufficient information or that the research is not *bona fide* as defined in the MMPA (Pub. L. 103-238, § 216.3). The General Authorization includes specific research and monitoring conditions and reporting requirements. Public comments were received and are being considered in the development of the final rule.

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. From November 1994 through December 31, 1995, NMFS received 27 letters of intent to conduct Level B harassment on marine mammal species or stocks for scientific research purposes; 19 were issued and eight were returned either for insufficient information or because they included listed species, involved level A harassment, or did not meet the *bona fide* research requirements.

Photography Permits

The amendments added 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 of non-endangered marine mammals and require that the photographic products be made available to the public. Two applications were accepted in 1995 as pilot applications for the development of implementing regulations.

Captive Swim-With-The-Dolphin (SWTD) Programs

The 1994 Amendments to the MMPA eliminated NMFS authority to regulate the care of captive marine mammals held in public display facilities. However,

NMFS continued to receive inquiries from members of the public and the media about captive Swim-With-The-Dolphin (SWTD) programs. In response, NMFS provided to interested parties copies of the 1990 Final Environmental Impact Statement on SWTD programs prepared by NMFS, and the 1994 Final Report of the NMFS-sponsored behavioral study of dolphins involved in SWTD programs entitled "Quantitative Behavioral Study of Bottlenose Dolphins in Swim-With-The-Dolphin Programs." All inquirers were informed that captive SWTD programs are now under the sole jurisdiction of U.S. Department of Agriculture (USDA)/Animal and Plant Health Inspection Service (APHIS) to regulate under the AWA.

The results of the NMFS-sponsored behavioral study were subsequently published in October 1995 (Samuels, A. and T.R. Spradlin. Quantitative behavioral study of bottlenose dolphins in Swim-With-Dolphin programs in the United States. *Marine Mammal Science*, 11(4):520-544.)

Notable Permit and Authorization Requests

Reintroduction of Dolphins

In February 1995, the NMFS Permit Division returned the application submitted by The Dolphin Alliance to release two captive female Atlantic bottlenose dolphins (*Tursiops truncatus*) to the wild, and requested additional information. A revised application had not been received as of December 31, 1995.

During 1995, there was an increase in public and media interest in releasing captive marine mammals, such as "Keiko" and "Lolita", to the wild and in release projects like the Sugarloaf Dolphin Sanctuary and the "Bogie and Bacall Project." However, NMFS consistently stated, in both press releases and responses to letters of inquiry, that the release of captive marine mammals into the wild may result in a "take" as defined in the MMPA, and, therefore, can occur only after a scientific research permit has been issued. Since established protocols do not currently exist for rehabilitating and releasing captive marine mammals back into the wild, it is the intention of NMFS to develop scientifically sound protocols through the permit process which affords the opportunity for both scientific and public review.

NMFS has repeatedly stated that the purpose of the MMPA is to protect individuals, stocks, and populations of marine mammals. Congress has entrusted NMFS with the authority to implement the MMPA by enforcing a moratorium against "taking" marine mammals, unless authorized under a permit issued for various purposes, including scientific research and enhancement, photography, and public display. In the case of releasing captive marine mammals, both the animals to be released and any population of wild marine mammals that could come into contact with the released animals could be vulnerable to a take. Issues of concern include: disease transmission between released animals and wild marine mammals; unwanted genetic exchanges between introduced and endemic stocks/populations; the ability of the released dolphins to adequately forage and defend themselves from predators; and any behavioral patterns developed in captivity which could prove detrimental to the social structure of local populations as well as the social assimilation of the released animal.

The sparse history of rehabilitated and released captive dolphins has provided limited documentation with questionable results. Such concerns, and the need to prevent them with respect to potential releases of captive marine mammals, was recently acknowledged by Congress in the Conference report accompanying H.R. 4650, enacted as Public Law 103-335, which included provisions for the transfer of dolphins from Navy facilities:

> *"The conferees are informed that there are no scientifically established or accepted protocols for such releases. Moreover, documented success of previous attempts to reintroduce captive marine mammals to the wild is sparse. Accordingly, the conferees believe that any attempts at releasing Navy marine mammals to the wild should be pursued cautiously and on an experimental basis until scientifically sound protocols have been developed and reintroductions have proven successful. The conferees recognize that the Department of Defense does nothave the authority to allow the return of once-captive Navy Marine mammals into the wild. This authority rests with the Department of Commerce, through the NMFS. Accordingly, the conferees direct the Navy to cooperate with the Secretary of*

Commerce and the Marine Mammal Commission in developing rigorous scientific protocols for experimental releases. Given the potential for "takes" under the [MMPA] or the Endangered Species Act, the conferees direct that in no case shall any release be attempted unless authorized by a scientific research permit issued by the Secretary of Commerce under the appropriate statutory authority."

ATOC Off the Coasts of California and Hawaii

Applications were submitted 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)), one to be located 14 km north of Kaihu Point, Kauai, HI (850 m depth) and the second on Pioneer Seamount, CA (980 m depth). 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. Notice of receipt of these applications was published in the *Federal Register*, with the public comment period for the California application opening on May 17, 1995, and the Hawaii application opening on May 31, 1995.

Environmental Impact Statements (EISs) were prepared for both projects which contained the analyses constituting the basis for the biological assessments required by the Section 7 consultation process. The Final EISs were made available to the public on May 5, 1996 for California and May 26, 1995 for Hawaii.

The Advanced Research Projects Agency (ARPA) requested initiation of consultation under Section 7 of the ESA with NMFS for both the Hawaii and California projects. Section 7 Consultations were provided on July 13, 1995 for the California Project and on September 28, 1995 for the Hawaiian Project. The permits were issued on July 13, 1995 and October 5, 1995, respectively.

In November 1995, engineering tests were conducted at the Pioneer Seamount site in preparation for the Marine Mammal Research Protocol (MMRP) operations. Due to some misunderstanding of the permit requirements this testing was done without the involvement of the MMRP researchers or prior notification of the Region. A modification to the permit was issued which made explicit that all future engineering tests were subject to the same conditions as the operational tests and limited the maximum decibel level to 195 dB (re 1 μPa at 1 m).

Concerns arose because at the time of the engineering tests, three dead humpback whales were observed proximal to the test area. One washed ashore at Stinson Beach, CA, and two others were seen floating in the Gulf of the Farallones. The cause of the deaths could not be determined conclusively although it appears that they were not related to the tests.

After consultations with the Marine Mammal Commission and the MMRP Advisory Board, the permit was modified as described above and the operational testing was authorized.

Public Interaction with Marine Mammals in the Wild

The 1994 Amendments to the MMPA eliminated NMFS authority over marine mammal care issues *in captivity*, including captive SWTD programs. This authority now lies solely with USDA/APHIS. However, NMFS has retained the authority to enforce against harassment of marine mammals *in the wild*. Based on the current statutory definition of harassment (see above) and implementing regulations, people who harass marine mammals in the wild can be subject to civil or criminal prosecution under the MMPA.

In recent years, the public has been seeking close encounters with wild marine mammals at an alarming rate. There is a growing trend amongst eco-tourist operators and critics of public display facilities to promote human encounters with wild animals (such as feeding or swim-with activities) as a "better" way to

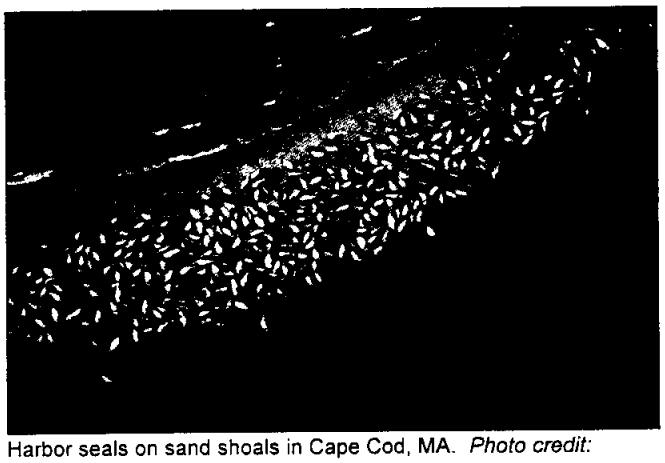
experience the animals since they are in their natural habitat. However, NMFS and the scientific community are concerned about the health and well-being of wild marine mammals that become habituated to humans. Human activities that injure or harass marine mammals are illegal under the MMPA.

Despite the feeding ban, members of the public continue to feed wild marine mammals. Although illegal and dangerous, these practices continue to be promoted by commercial operators, recreational boaters and fishers, and tourists. Dangers to wild marine mammals include injury or death from: development of unnatural behaviors such as begging; dependence on human provisioning; vessel strikes; intentional human abuse; ingestion of harmful items; and exploitation and encroachment of critical habitats. In addition, there are increasing reports of people being severely injured from aggressive encounters with provisioned marine mammals. NMFS is particularly concerned about the growing public perception that provisioned marine mammals are becoming "nuisance animals." The two species of marine mammals currently most affected by feeding activities are Atlantic bottlenose dolphins (*Tursiops truncatus*) in the southeast, and California sea lions (*Zalophus californianus*) on the west coast.

Swim-With and Other Recreational Activities

Public interaction with marine mammals in the wild (*e.g.*, swim-with, jet-skiing, kayaking, touching, petting) are causing problems similar to those associated with feeding. Of primary concern to NMFS are the potential negative impacts of exploitation and encroachment of critical habitats on the behavior, health and well-being of wild marine mammals. NMFS has received reports of people harassing Hawaiian spinner dolphins (*Stenella longirostris*), Atlantic bottlenose dolphins (*Tursiops truncatus*), killer whales (*Orcinus orca*), Humpback whales (*Megaptera novaeangliae*), Gray whales (*Eschrichtius robustus*), California sea lions (*Zalophus californianus*), Northern elephant seals (*Mirounga angustirostris*), and harbor seals (*Phoca vitulina*).

The 1994 Amendments to the MMPA defined harassment (see above) and now clearly prohibit individuals from pursuing, annoying, or tormenting wild marine mammals. The discovery of marine mammal resting/breeding/feeding areas, and the increased accessibility of ways to approach the animals (jet-skis, kayaks) has led to marine mammals being harassed.



Harbor seals on sand shoals in Cape Cod, MA. *Photo credit: NMFS/FPR.*

Education Efforts

Continuing problems with members of the public interacting with marine mammals in the wild resulted in the development of an education/media campaign on the illegality of harassing cetaceans and pinnipeds in the wild and the harm it causes. A press release was distributed to cities in Florida (Panama City, Ft. Walton Beach, Sarasota, Destin and the Keys) and Texas (Corpus Christi) where there are known problems. Staff from NMFS' Office of Protected Resources gave presentations at the Biennial Conference on the Biology of Marine Mammal and the International Marine Animal Trainers Association requesting assistance from the scientific and public display communities to help educate the public to not interact (feed, swim-with, touch) with marine mammals in the wild. NMFS had Federal Warning signs printed and distributed to its regional enforcement offices for

posting in locations where problems are known to occur.

The text of the signs is as follows:

WARNING

HELP PROTECT OUR WILDLIFE
DON'T FEED, TOUCH, OR DISTURB
MARINE MAMMALS
IT'S HARMFUL AND ILLEGAL

PERSONS FEEDING, TOUCHING, OR DISTURBING
MARINE MAMMALS
IN THE WILD COULD BE SUBJECT TO
CIVIL OR CRIMINAL PENALTIES UNDER PROVISIONS
OF
THE MARINE MAMMAL PROTECTION ACT.

REPORT VIOLATIONS TO THE NMFS ENFORCEMENT
HOTLINE: 1-800-853-1964

NATIONAL MARINE FISHERIES SERVICE

NMFS encourages people to appreciate marine mammals in the wild by observing them from a safe distance. People should not attempt to feed, approach, or touch marine mammals in the wild.

Chapter X. Marine Mammal Health and Stranding Response Program

Teri Rowles and Dean Wilkinson

Background

In 1992, the United States Congress enacted the Marine Mammal Health and Stranding Response Act (MMHSRA) (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 Act, NMFS has instituted the Marine Mammal Health and Stranding Response Program (MMHSRP) with the following components: stranding networks, response to unusual mortality events, monitoring, the National Marine Mammal Tissue Bank, quality assurance and information management. A discussion of the accomplishments in each of these areas follows.

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 pinnipeds and cetaceans. The volunteers do not receive monetary compensation for their efforts. They 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 and for educational purposes.

In 1995, Network members reported 898 cetacean strandings and 1973 pinniped strandings. Table E-1 in Appendix E provides detailed information on strandings by species and Region. The total number of reported strandings was the lowest of any year since 1990. Among the interesting trends is a continuing increase in the number of arctic seals stranding in the Northeast Region. As Table E-1 shows, the numbers of harbor seal strandings have remained relatively constant, but the number of arctic seals--particularly harp seals has risen markedly. This increase may reflect an expansion of range for some seal species previously seen only occasionally in U.S. waters.

As part of the effort to generate data on mortalities caused by human interactions, NMFS has emphasized the importance of checking for human interactions on stranded animals. Human interactions include such things as entanglements, animals shot, and animals struck by vessels. In 1995, Stranding Network members reported 78 stranded cetaceans with human interactions and 136 stranded pinnipeds with human interactions. As part of the effort to enhance the capabilities of Stranding Network members to detect human interactions, NMFS has contracted for a detailed manual of human interactions.

Regional Stranding Networks

Northeast Region Stranding Network

In 1995, 144 cetacean and 271 pinniped strandings were reported in the Northeast Region. In addition to the pinniped data presented in Box 8 and Appendix E, the most commonly stranded cetacean species in 1995 were harbor porpoise (66) and bottlenose dolphins (38). Of the harbor porpoise strandings, 8 involved confirmed human interactions; and of the bottlenose dolphin strandings, 12 involved human interactions.

BOX 8 - - Pinniped Strandings in Northeast--1990-1995

Species	1990	1991	1992	1993	1994	1995
Harbor seal	129	237	157	166	148	166
Gray seal	24	11	19	21	17	6
Harp seal	7	13	19	35	55	78
Hooded seal	10	11	5	15	30	14
Ringed seal	4	3	3	-	1	-
Unident. pinniped	-	1	5	4	9	6

Southeast Region Stranding Network

There are 30 institutions 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 250 individuals from these groups contribute to the network's efforts.

In 1995, there were 568 documented marine mammal strandings. Bottlenose dolphins comprised 80 percent of the total and 20 species comprised the remainder including 5 harbor seals and 8 harbor porpoises. A total of 51 marine mammals stranded live in the Southeast during 1995. Nineteen of these animals were taken to rehabilitation facilities and 12 were released to the wild.

A mass stranding of *Stenella clymene*, a total of 17 animals with 13 alive, occurred on June 15 in Tarpon Springs, FL. Of the thirteen live animals, seven were taken to a local rehabilitation facility. The six left at the site were stabilized by stranding network members. One of the six dolphins died within hours, but the remaining five had normal hematology results and were tagged and released offshore in the Gulf of Mexico. The six animals taken to the rehabilitation facility died within a few days despite medical treatment.

On August 6, 1995 a mass stranding of 14 short-finned pilot whales (*Globicephala macrorhynchus*) occurred on the Gulf side of the Florida Keys. Four of the 14 animals were alive and transported to a rehabilitation facility in the Keys. An adult female and a juvenile male survived. The female had titers for cetacean morbillivirus, but PCR testing determined the virus was not active. Marine mammal veterinarians considered the two whales healthy and releaseable. After consultation with the Unusual Mortality Working Group, NMFS deemed both pilot whales releasable and both were tagged and released offshore on October 13, 1995.

Texas had a total of six single live strandings, four *Tursiops truncatus*, one *Stenella frontalis*, and one *Stenella attenuata* during 1995. All six were taken to rehabilitation facilities. One *Tursiops* and the *Stenella attenuata* died, one *Tursiops* calf was deemed unreleaseable, and the remaining three dolphins were tagged with satellite transmitters and released.

Southwest Region Stranding Network

A total of 110 cetacean strandings and 1557 pinniped strandings were reported to the Southwest Region in

1995. The most commonly reported pinnipeds were California sea lions (791), harbor seals (327), and northern elephant seals (303). Strandings of depleted, threatened, or endangered pinniped species included seven Steller sea lions, eight northern fur seals, two Guadalupe fur seals, and one Hawaiian monk seal. The most commonly stranded species of cetaceans were common dolphins, harbor porpoises, and gray whales with 35, 16, and 13 reports respectively. Other strandings of interest included five northern right whale dolphins, a right whale, and six humpback whales.

The right whale stranding was that of a skull found found under a beach wall that had been eroded by storms near Crescent City, California. The beach wall had been originally constructed in the 1960s. It is believed that the whale originally stranded and was buried prior to the construction of the beach wall. A review of the scientific literature and historical stranding records has revealed that this stranding had not been previously documented.

Northwest Region Stranding Network

The Northwest Region received reports of 18 stranded cetaceans (1 minke whale, 1 humpback whale, 4 gray whales, 1 killer whale, 2 Dall's porpoise and 9 harbor porpoise) and 107 stranded pinnipeds (2 elephant seals, 11 California sea lions, 70 harbor seals and 24 unidentified seals or sea lions) in 1995. The most commonly stranded pinniped species was harbor seal with 70 reported. The most commonly stranded cetacean species was harbor porpoise with nine reports.

Alaska Region Stranding Network

In 1995, the Alaska Region Stranding Network investigated 19 cetacean strandings and 35 pinniped strandings. Harbor seals were the most commonly reported with 26 reports from the central and southeastern coasts. Four of the reports involved live animals. A gray whale entangled with a buoy off Ketchikan was disentangled by helicopter. A humpback whale entangled with a buoy was reported from southeast Alaska. An unidentified large whale was seen alive on a beach in southeast Alaska. Four harbor seal pups, including a male from Dutch Harbor, a male from Kenai, a female from Cordova, and a female from Ketchikan, were rehabilitated by the Alaska Region Stranding Network.

Unusual Mortality Events

Section 304 of the MMHSRA establishes a Working Group on Unusual Marine Mammal Mortality Events. It includes individuals from a range of scientific disciplines including veterinary medicine, pathology, epidemiology, toxicology, and marine mammal science. The Working Group is consulted when an unusual mortality event is suspected, determines whether a mortality event is actually occurring and provides advice as to specific actions to respond to an event. During 1995, no unusual mortality events involving marine mammals were observed in the United States.

The MMHSRA 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 assisting in determining the cause of an unusual mortality event; (2) a list of analyses that may be necessary to assist in diagnosis of causes; (3) mobilization and training procedures; and (4) provisions to minimize the deaths of marine mammals. The contingency plan was completed in 1995, and will be published in 1996.

Monitoring

The MMHSRP monitoring program consists of: 1) real time evaluation of specimens for contaminants and health, 2) method development and validation, and 3) research on problem characterization and correlation of contaminants and health. One main goal of the monitoring component is to provide baseline information on contaminant loads and diseases in populations of marine mammals. The effort is focussed

on two main areas: contaminant monitoring and health monitoring.

Contaminant Monitoring

The Environmental Conservation Division of the Northwest Fisheries Science Center (NWFSC) is the lead NMFS laboratory in activities associated with the monitoring and quality assurance components of the MMHSRP and collaborates with the National Institute of Standards and Technology (NIST) in the archival of tissues. The primary purpose of the National Marine Mammal Tissue Bank is archiving marine mammal samples for future retrospective studies using these samples.

In 1995, over 420 tissue samples (e.g., blubber, liver, kidney, brain, heart, muscle, melon, mandible fat, blood, milk and stomach contents) from the following species were either acquired or analyzed for chlorinated hydrocarbons (CHs). These include samples from bearded seal (*Erignathus barbatus*), beluga whale (*Delphinapterus leucas*), bottlenose dolphin (*Tursiops truncatus*), California sea lion (*Zalophus californianus*), Dall's porpoise (*Phocoenoides dalli*), gray whale (*Eschrichtius robustus*), harbor porpoise (*Phocoena phocoena*), killer whale (*Orcinus orca*), Northern fur seal (*Callorhinus ursinus*), pygmy sperm whale (*Kogia breviceps*), ringed seal (*Phoca hispida*), short- (*Delphinus delphis*) and long-beaked (*Delphinus capensis*) common dolphin, sperm whale (*Physeter catodon*), spotted dolphin (*Stenella* spp.), and Steller sea lion (*Eumetopias jubatus*). These samples were collected for a variety of projects: 1) ongoing monitoring of contaminants in samples collected during subsistence hunts (e.g., bearded seal, ringed seal), 2) collection of tissues for the Tissue Bank (e.g., beluga whale), 3) analysis of tissues from cetacean and pinniped species that stranded (e.g., pygmy sperm whale), and 4) continued investigation of relationships between contaminant exposure and neoplasia in California sea lions that have neoplasia (i.e., metastatic transitional cell carcinoma) and those that died from trauma.

As part of the monitoring component of the MMHSRP, blubber samples provided by the SWFSC of short-beaked common dolphins incidentally caught in fishery interactions off the northern and southern coasts of California and northern coast of Mexico were analyzed for chlorinated hydrocarbons (CHs) and for the more toxic dioxin-like PCB congeners. In addition, blubber samples from common dolphins that stranded along the California coast were also analyzed, providing an preliminary assessment of CHs between stranded and an apparently healthy (i.e., fishery interaction) sub- group of dolphins. Initial results showed possible regional differences in the body burden of CHs in dolphins caught in fishery interactions; relatively high concentrations of certain organochlorine pesticides, particularly p,p'-DDE, were found in blubber of dolphins from southern California and northern Mexico. This study will be expanded with a larger subset of samples to confirm these apparent regional differences and also to account for selected life history parameters (i.e., sex, age). Additionally, the initial findings will be confirmed using comprehensive analyses of selected samples. Comparison of concentrations of CHs between the stranded and fishery interaction dolphins showed no marked differences in the level of bioaccumulation of PCBs or DDTs, suggesting that there was no direct cause-and-effect connection with this specific stranding event. Overall, high concentrations of CHs were found in common dolphin that were stranded or caught in fishery interactions. The role of significant body burden of PCBs and DDTs in cetaceans potentially could be having a negative effect on key physiological functions which may contribute to decreased health in the general dolphin population.

In collaboration with the Marine Mammal Center in Sausilito, California, blubber samples from stranded California sea lions were analyzed to assess the relationship between contaminant exposure and disease. The highest prevalence of neoplasia in a pinniped population to date was reported for California sea lions. Previous studies have suggested that exposure to chemical carcinogens is strongly associated with neoplasia in several other marine species.

Exposure to CHs and aromatic compounds (ACs) was determined in a sub-group of sea lions diagnosed with metastatic carcinoma, as well as in sea lions that had died from a traumatic incident. The initial analyses showed that sea lions with metastatic carcinoma had significantly higher (> 3-fold) mean concentrations of both PCBs and DDTs in blubber than did sea lions that died from trauma. The increased concentrations of DDTs and PCBs in sea lions exhibiting carcinoma were partially explained by disease, sex, and condition (as assessed by blubber thickness). Exposure to ACs, as measured by biliary fluorescent aromatic compounds and hepatic DNA adducts, appeared to be minimal in both groups of sea lions. The etiology of this metastatic carcinoma in California sea lions cannot be determined from the current findings. However, the relatively high prevalence of the carcinoma in this population, the induction of the carcinoma by chemical carcinogens in laboratory rodents, and the apparent increased concentrations of CHs in diseased sea lions warrants further investigation of a possible role of environmental contaminants in the induction or progression of this neoplastic disease. Additional chemical analyses of sea lions with carcinoma are currently underway to further investigate a possible causal relationship between high tissue concentrations of CHs and the etiology of this common neoplasia.

The condition of tissues (i.e., possible autolysis or degradation of tissues) collected for chemical analysis, for both the Tissue Bank and monitoring purposes, may affect the quality of data determined for certain contaminants. To address this issue, the relationships among alterations in physical parameters of tissues from bottlenose dolphins and the measurements of CHs and elements in tissues are being determined by repeated sampling of whole animals that are allowed to naturally decompose over a period of time on a beach. The collection of tissue samples is underway along with monitoring and recording the environmental conditions and physical parameters of the status of the carcasses. Blubber and liver samples will be analyzed for CHs and the dry weights of the tissues will be determined; liver samples will also be analyzed for selected elements.

In 1995, approximately 200 samples from 9 different marine mammal species were analyzed for toxic and essential elements. Liver tissues from 20 bowhead whales (*Balaena mysticetus*) from the Chukchi sea were analyzed and resulted in expanding our database on these animals. Similar to our previous results for pilot whales (*Globicephala melaena*) and bottlenose dolphins, the concentrations of mercury and selenium in the livers of bowhead whales were strongly correlated. However, the concentrations of these elements were much lower in the bowhead whales. The concentration of hepatic cadmium in bowhead whales was relatively high and comparable to our previous results for pilot whales. Bowhead whales feed at lower trophic levels and, thus, would be expected to contain relatively lower concentrations of cadmium. These elevated cadmium concentrations warrant further investigation, since they approach the levels reported by other investigators in northern fur seals from the Pribilof Islands and in walrus from the Bering and Chukchi seas.

To advance the ability to assess the impact of contaminants on marine mammals, development of new analytical methodologies is essential. For example, PCBs and DDT are slowly metabolized and certain methyl sulfone metabolites that have been linked with toxicity can bioaccumulate in mammals. Potentially, the methyl sulfones could represent an important class of toxic CHs in tissues of marine mammals. Relatively little is known about the presence and effects of these compounds in a wide range of marine mammals, in part, because of the complex and time-consuming analytical techniques currently used. In 1995, NWFSC initiated method development for determining methyl sulfones in marine mammal tissues. To date, the measurement of selected methyl sulfone metabolites in marine mammal tissues by GC/mass spectrometry (MS) is being evaluated. Additionally, the NWFSC also initiated projects to improve our current analytical method of measuring dioxin-like PCB congeners in tissues of marine mammals. Certain CHs, such as the dioxins and dioxin-like PCBs, are among the most toxic and environmentally persistent contaminants. Recent results suggest that these dioxin-like PCBs may be the

major contributors to dioxin-like toxicity in marine biota. In 1995, substantial progress was made in increasing the sensitivity of our rapid technique for measuring selected CHs, particularly the highly toxic dioxin-like PCBs, through use of a dialysis technique to replace our standard cleanup using silica-based column chromatography. Initial results indicate that dialysis provides a simple and effective means of removing much of the interfering lipid components from the analytes of interest in the analysis of blubber tissue for CHs.

Aromatic compounds are also widely distributed in the marine environment, especially in urban embayments, and have been associated with carcinogenesis in mammals and marine species. Unlike the slow metabolism of methyl sulfones, ACs are rapidly metabolized and do not bioaccumulate in tissues of vertebrate species. Many ACs, however, can exert their toxicity by reacting with cellular macromolecules, such as DNA during metabolism. This interaction with cellular macromolecules is believed to be a critical step in inducing several toxic responses. NWFSC has developed a method to measure AC-DNA adducts in tissues of marine mammals. This method is routinely used to analyze selected liver samples collected for monitoring and the Tissue Bank and, in 1995, a number of samples of marine mammals were analyzed for levels of DNA adducts.

Monitoring studies to assess contaminant exposure with biopsy tissue samples will increase the current database on levels of chemical contaminants in apparently healthy animals for comparison to those that stranded or died of disease. Our screening method for measuring PCBs in biological tissues has now been proven effective for analyzing the small tissue sizes acquired through biopsy monitoring studies with marine mammals. In 1995, analyses for CHs in blubber biopsy samples from free-ranging gray whales along the coast of California and killer whales resident to Alaska were completed. For example, the mean concentrations of PCB congener 153 and the sum of DDTs in the biopsy samples from the killer whales were approximately 840 and 5,800 ng/g wet weight, respectively. As a means of comparison to other cetaceans where there were data in our marine mammal database, the mean concentrations of PCB congener 153 and the sum of DDTs in blubber samples from gray whales that stranded in Alaska were 40 and 170 ng/g wet weight, respectively, 41 and 170 ng/g wet weight, respectively, in bowhead whales from Alaska, and 1,600 and 7,000 ng/g wet weight, respectively, in pilot whales that stranded on the east coast of the US.

Health Monitoring

In 1995, NMFS and the Armed Forces Institute of Pathology signed a memorandum of agreement to study the diseases of marine mammals using stranded and incidentally caught animals. Additional pathology support was contracted through the Southeast Region with the University of Miami. Examinations included histopathology and PCR evaluations of tissues for morbillivirus. AFIP examined tissues from 149 animals including 35 pinnipeds and 114 cetaceans. Blocks and tissues are archived for future examinations.

Serology testing for disease was contracted through the University of Miami and USDA, National Veterinary Services Laboratory. Blood tests on two common dolphins that stranded live in California showed antibodies to morbillivirus. Morbillivirus was implicated in cetacean mortality events in the Mediterranean, off of the Atlantic coast, and in the Gulf of Mexico. This is the first report of this pathogen from any cetacean species in the Pacific Ocean.

Blood tests on a free ranging population of harbor seals in southern Puget Sound showed positive antibody titers to *Brucella* sp. Twelve of 62 animals tested positive for antibodies using three different techniques. No clinical symptoms were observed in animals with positive antibodies to the disease. This finding is of concern because various species of *Brucella* can cause spontaneous abortion in domestic livestock and Malta fever in humans. Blood samples were sent to the Department of Agriculture's National Veterinary Services Laboratories to see if the pathogen could be

isolated and identified as to species. The effort was unsuccesful. Additional tests will be conducted to determine how common antibodies are in northwest pinnipeds and to identify the particular species of *Brucella*.

National Marine Mammal Tissue Bank

In 1987, the Minerals Management Service (MMS) provided funds to NOAA, OAD to establish and conduct the Alaska Marine Mammal Tissue Archival Program (AMMTAP) for the collection and long-term storage of tissues from Alaska marine mammals for future chemical analyses. In 1994, the administration of AMMTAP was transferred from MMS to the U.S. National Biological Service (NBS) and the project continues to be conducted as a part of the MMHSRP National Marine Mammal Tissue bank involving the collaboration of NBS, NIST, NMFS and AFIP. In addition to archiving the samples the NMMTB also provides some real time analyses of the samples. Table 4 shows the specimens contained in the NMMTB. In addition, the table indicates which analyses have been performed on these samples. The program also provides training for personnel.

Training

Several organizations are collaborating to collect tissue samples from marine mammals. Workshops are held periodically to train individuals or to review and update protocols. On April 25, 1995, a workshop on sampling and sample handling procedures for the AMMTAP and contaminant monitoring component of the MMHSRP was held at the U.S. Fish and Wildlife Service Marine Mammal Laboratory, Anchorage, Alaska. The workshop involved laboratory demonstration of sample processing and handling procedures using beluga liver and blubber collected the previous day from subsistence hunters in Cook Inlet. The workshop was conducted by personnel from NIST, NMFS- Western Alaska office, and NMFS- Northwest Fishery Science Center, Seattle. The workshop also addressed protocols for sampling and archiving specimens from walrus, polar bears, and sea otters.

Sample collections for 1995

Sample collections for the AMMTAP were coordinated by the NMFS, Western Alaska Field Office. In collaboration with the Cook Inlet Marine Mammal Commission and local Alaska native hunters, 10 beluga whales were sampled in Cook Inlet. In collaboration with the North Slope Borough Department of Wildlife Management, 3 ringed seals were sampled in Barrow Alaska. Collections for subsistence taken walrus were provided by the USFWS, Anchorage, Alaska. These walrus samples were collected from the St. Lawrence Island harvest in the northern Bering Sea. Coordination of supplies and sample shipments were provided by personnel from NMFS, Western Alaska Field Office.

Sample Analyses

During 1995, analyses from 6 pinnipeds (4 ringed seals and 2 bearded seals) from Norton Sound and from 13 Beluga whales from Cook Inlet were performed by NIST, Gaithersburg, Md. For the pinnipeds, only the total mercury analyses have been completed to date. In total, 115 samples have been analyzed for contaminants. These include 47 for organics (CHs, primarily blubber) and 68 for inorganics (trace elements (TE), mostly liver) from pilot whales (2+11), harbor porpoise (2+6), white-sided dolphin (0+4), northern fur seals (8+6), ringed seals (10+18), spotted seals (0+1), bearded seals (0+3), bowhead whales (0+3), and belugas (25+16). The following is a brief description of the results of the beluga analyses.

Blubber samples from 13 belugas (7 adult males, 5 adult females and 1 female fetus) were analyzed for 32 PCB congeners and 9 pesticides (hexachlorobenzene, a-hexachlorocyclohexane, mirex, heptachlor epoxide, trans-chlordane, cis-chlordane, trans-nonachlor, cis-nonachlor, dieldrin, DDT and DDT metabolites). Subsamples of the same tissues were also sent Dr. Derek Muir, DFO Canada, for additional analyses for chlordane, toxaphene, and other pesticides.

Table 4. Inventory of Marine Mammal Species Sampled

Species	Date	Location	Number of animals	Analytical data (n)
Bowhead Whale	1992-94	Barrow	26	CH(10);TE(3)
Beluga Whale	1989	Pt Hope	4	CH(2);TE(4)
	1990	Pt Lay	10	CH(10);TE(10)
	1992,94-95	Cook Inlet	14	TE(6)
Harbor Porpoise	1990, 91, 92	Maine	7	CH(6); TE(6)
	1992	New Hampshire	1	
	1993	Seattle	1	
Atlantic White-sided Dolphin	1993, 1994	Massachusetts	5	TE(4)
Pilot whale	1990, 1991	Massachusetts	9	CH(7); TE(9)
Ringed seal	88,91,94,95	Barrow	29	CH(2);TE(2)
	89,91,93,94	Nome	16	CH(2);TE(12)
Bearded seal	1989	Barrow	2	
	1989,93,94	Nome	7	TE(3)
California Sea Lion	1993	California	2	
Spotted seal	1991	Nome	1	TE(1)
Northern fur seal	1987,90	St Paul Is.	15	CH(2);TE(2)
Harbor seal	1990	Prince Wm Sound	3	
	1994	Cook Inlet	1	
Steller sea lion	1990	Cook Inlet	1	
Walrus	1993-94	Nome	5	
	1995	St Lawrence Is.	7	

CH=chlorinated hydrocarbon; TE=trace elements

The concentrations of PCBs and pesticides that are being measured in the blubber of the belugas from Cook Inlet are basically the same as what have been found in the animals sampled at point Hope and somewhat lower than what has been measured in the animals from Point Lay. However, the animals sampled for Point Hope were younger than those from Point Lay and all of them have been females. PCBs and chlorinated pesticides tend to accumulate with age and females typically have lower levels than males. In order to provide an adequate comparison of the Cook Inlet animals with other populations of belugas, ages of the animals have to be determined. The teeth from these animals are currently being evaluated by personnel at the NMFS, Western Alaska Field Office, Anchorage. In addition, the histopathology of the kidney and livers of these animals is currently being evaluated by the Armed Forces Institute of Pathology.

Liver samples from 6 animals (3 adult males, 2 adult females, and 1 female fetus) were analyzed for methyl mercury by NIST. Other analyses for total mercury, cadmium, and other metals are currently underway.

As is the case for PCBs and chlorinated pesticides, methyl mercury tends to accumulate with age in liver tissue. Marine mammals have the ability to demethylate mercury to less toxic forms and store these in the liver. This ability appears not to be present to a great extent in young animals, therefore the percentage and actual methyl mercury levels in young animals are higher relative to the overall concentrations of mercury.

Methyl mercury concentrations in the liver tissue of the adult Cook Inlet belugas ranged from 0.34 to 2.11 ppm wet weight, which is comparable to the levels determined for the belugas from Point Lay and Point Hope (0.37 - 2.01 ppm). The concentration of methyl mercury in the beluga fetus was 0.09 ppm. Total mercury concentrations are pending.

Workshop on Environmental Monitoring of Subsistence Species in Alaska

Personnel from NMFS, NIST, and NBS participated in workshops sponsored by the Alaska Department of Health and social Services. The DHSS is gathering published and unpublished contaminant data on subsistence food resources and is developing a human health risk assessment program to address the issue of potential effects to human consumers of anthropogenic contaminants in fish and wildlife. The MMHSRP is providing data on the contaminant loads of marine mammal tissues to the DHSS for human risk assessments.

Quality Assurance

The Office of Protected Resources initiated the quality assurance program (QA) in 1992 in response to a legislative mandate to improve the quality and comparability of chemical contaminant data on marine mammals. The QA program is coordinated by NIST with the NWFSC as the designated lead NMFS laboratory. The goal is to assess the accuracy, precision, level of detection and comparability of results among laboratories analyzing marine mammal tissues. The program has been developed as a performance-based evaluation system. In addition to the laboratory intercomparisons, NIST is also developing Standard Reference Materials (SRMs) for marine mammal tissues. These SRMs can be used for calibration of instrumentation or as controls and are certified to contain specific amounts of contaminants such as chlorinated hydrocarbons (pesticides, PCBs, dioxins and others) and trace elements (elements such as lead, mercury, cadmium, zinc and others). To date a blubber standard reference material (SRM-1945) has been developed, certified for 27 PCB congeners and 15 chlorinated pesticides, and is available for use. This SRM -1945 can be ordered from NIST, Gaithersburg, Md. Approximately 20 samples were distributed in 1995. Development and certification of a liver standard reference material will begin in 1996.

In 1995, NWFSC and NIST began a collaborative effort to improve the comparability of results of concentrations of CHs in tissues of marine mammals. In the 1994 Marine Mammal Intercomparison Exercise, differences in CH results done by both laboratories were observed in two of the six samples analyzed. The analyses of blubber samples are particularly complex due to their high lipid content. The NWFSC re-analyzed the original sample extracts by an additional instrumental method and found that the differences in the results were not due to interfering lipid compounds. Consequently, the blubber samples which contained extremely high concentrations of CHs were re-analyzed by both laboratories. Preliminary results showed that comparison of the re-analyzed samples improved considerably but some differences remained. These differences could be attributed to variation in each laboratory's methods for instrument calibration, suggesting the importance of using a standard protocol for calibration of analytical equipment in inter-laboratory exercises.

Chapter XI. International Programs and Activities

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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 1995.

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 incidental mortality of Antarctic marine living resources.

The Commission held its Fourteenth Annual Meeting in 1995 and reported and/or took the actions described in the sections which follow.

Antarctic Pack Ice Seal Program

Recognizing the need for a better understanding of the Antarctic pack ice seals and the role that they play in the Antarctic marine ecosystems, the Antarctic Pack Ice Seal Program (APIS) was initiated in 1990. Under the guidance of the Scientific Committee on Antarctic Research (SCAR) Group of Specialists on Seals, this five-year program is intended to provide an intellectual and logistic focus for pinniped researchers in the Antarctic pack ice zone. By encouraging scientists from various national programs to share logistic resources, to collaborate on multi-disciplinary projects, and to identify and utilize centers of specialized analytical expertise, the APIS Program seeks to build a cooperative, multi-national science effort that is not only efficient and cost-effective, but when taken as a whole, will produce scientific opportunities and results that are far greater than the sum of its parts.

A planning meeting for the APIS program, partially funded by CCAMLR this year, was held at the Alaska Fisheries Science Center's National Marine Mammal Laboratory, June 7-9. 1995. With the broad aspects of science and logistics having been addressed in previous meetings, this planning meeting was convened to further the process of coordinating the operational details of the program, and to ensure the commencement of the program's first field season during the 1995/1996 austral summer.

A wide variety of research is being planned for the Antarctic pack ice seals (crabeater seal, leopard seal, Ross seal and Weddell seals). The Chairman of the Scientific Committee (CCAMLR) will write to the Convener of the SCAR Group of Specialists on Seals requesting that the group consider the collection and analysis of data relevant to the aims of CCAMLR and its Ecosystem Monitoring Program CEMP, in particular. Proposed research on crabeater seals, a CEMP species selected for monitoring, will address topics of direct relevance to CCAMLR. The CCAMLR Chairman will also write to SCAR and to the Scientific Committee of the International Whaling Commission (IWC) to request reports on the status of Antarctic seals and whales, respectively, for review at the 1996 meeting of the Scientific Committee.

APIS intends to produce recommended standard methods for crabeater seal research. The Chairman of the Scientific Committee will write to the Convener of the Scientific Committee on Antarctic Science (SCAR) Group of Specialists on Seals requesting that the group consider the collection and analysis of data relevant to the aims of CCAMLR and the CEMP program in particular. The Scientific Committee will continue close liaison with SCAR in planning and implementing the APIS Program.

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

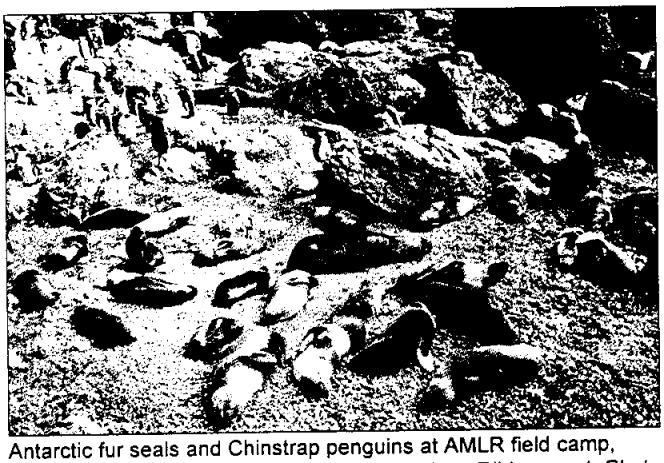
The Commission congratulated the Scientific Committee on the considerable progress it made on monitoring methods and data acquisition for the CCAMLR Ecosystem Monitoring Program (CEMP) and endorsed its data requirements. It also endorsed the Committee's decision to establish a subgroup on the further development of monitoring methods and a subgroup on statistics in order to be able to cope with the increasing workload relating to the development of new methods and the potential revision of all methods, and to improve analysis, interpretation and presentation of CEMP indices. Text for new CEMP methods on Antarctic fur seal (*Arctocephalus gazella*) will be provided to members of the CCAMLR Scientific Committee intercessionally for comment.

The U.S. shore-based operations at the Seal Island CEMP site will be discontinued because the location of the field station has been considered unsafe due to geologic instability. Research on Antarctic fur seals has been conducted by the U.S. at this site in each of the past 10 years. A new site is being sought in the Antarctic Peninsula so that the land-based work can continue.

Data have been submitted for the CEMP database by Argentina, Australia, Brazil, Chile, Italy, the United Kingdom and the United States from CEMP sites. The United States informed WG-EMM of long-term data from Anvers Island and Admiralty Bay, King George Island.

Assessment and Avoidance of Mortality Incidental to Fishery Operations

Reports on the assessment and avoidance of incidental mortality in the Convention Area for the 1994/95 season were received from seven Member countries, including the United States. Separate reports on surveys of beached marine debris were received from two members. The Commission noted with concern that current survey data do not suggest any reduction in the amount of marine debris in the Convention Area and do indicate that fishing vessels are probably still an important source of this type of pollution. Members were reminded of the importance of complying with ANNEX V of MARPOL 73/78 in the prevention of pollution by garbage from ships. The Commission reminded Members that, consistent with a CCAMLR conservation measure, the use on fishing vessels of plastic packaging bands to secure bait boxes will be prohibited after the 1995/96 season.



Antarctic fur seals and Chinstrap penguins at AMLR field camp, Seal Island, South Shetland Islands, Antarctica. Ribbon seal, *Photo credit: Lisa Hiniki.*

The Commission noted that reports by the United Kingdom on entanglement indicate a trend to continuing reduction in the entanglement of Antarctic fur seals at South Georgia. However, the coincidence of the higher entanglement rates with the start of local longline fisheries also indicated that fishing vessels need to exercise greater care in disposal of waste at sea.

The Scientific Committee reaffirmed its recommendation that, whenever possible, two scientific observers should be used to collect data on incidental mortality necessary for appropriate assessments by CCAMLR. The Scientific Committee endorsed the need for further intercessional analysis of data on interactions with marine mammals.

Cooperation with the International Whaling Commission

CCAMLR is involved in a number of current and planned projects with the IWC. These include scientific participation in a steering group meeting on research related to the conservation of large baleen whales in the Southern Ocean; a symposium and workshop on the effects of climate change on cetaceans to be held in March 1996; and CCAMLR's request for information on interactions between cetaceans and fisheries, and for updated estimates of whale stock sizes. A four-week cruise for blue whales will take place off Australia, between Fremantle and Hobart and down to 45°S, in December/January 1995/96, supported jointly by IWC and Japan. The major aim is to provide scientifically-based criteria for distinguishing "true" from "pygmy" blue whales in the field, to allow more accurate estimates of "true" blue whale numbers on future surveys. Passive acoustics, photo-identification, photogrammetry and tissue biopsy will be employed. Secondary target species will be the southern right whales and humpback whales.

Large-Scale High Seas Driftnet Fishing

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

As of December 31, 1995, the United Nations (UN) global moratorium on large-scale high seas driftnet fishing, pursuant to UN General Assembly (UNGA) Resolution 46/215, has been in effect for three years. International implementation of the moratorium in the world's oceans and enclosed and semi-enclosed seas has been generally successful.

North Pacific Ocean

No unauthorized driftnet fishing activities in the North Pacific Ocean by vessels of Japan, Taiwan, the Republic of Korea, or the People's Republic of China (PRC) were detected by the United States, or reported by the fisheries enforcement authorities of those countries, in 1995.

Japan's 1995 driftnet fishery enforcement efforts consisted of the deployment in the North Pacific Ocean of one dedicated patrol vessel for a total of 47 ship days at sea from May through July 1995.

Taiwan's 5-year vessel buy-back program ended in June 1995. The purpose of the program was twofold: (1) to eliminate Taiwan's high seas driftnet fishing fleet in compliance with the UN driftnet moratorium and (2) to upgrade Taiwan's fishing fleet by scrapping older vessels. Over the duration of the program, the Kaohsiung Fisheries Administration spent approximately $37 million to purchase and dispose of 635 fishing vessels. These vessels were either destroyed or sunk to create artificial reefs. NMFS has no specific information on how many of the 635 vessels were high seas driftnet vessels.

North Atlantic Ocean

The United States did not detect, or receive any reports of, large-scale high seas driftnet fishing in the North Atlantic Ocean in violation of the UN driftnet moratorium in 1995. The European Union (EU) played a stronger role in monitoring compliance with the driftnet moratorium. The EU Fisheries Commission's 1995 driftnet enforcement plans included the chartering of a vessel to support France's enforcement of EU driftnet regulations in the Bay of Biscay albacore tuna fishery beginning in June 1995. The vessel was then scheduled to move to the Mediterranean Sea to monitor Italian enforcement of the summer swordfish driftnet fishery.

A number of confrontations occurred between French and Spanish fishermen in the Northeast Atlantic albacore tuna fishery in 1994, when Spanish fishermen tried to seize French driftnets they claimed were longer than the 2.5 kilometers allowed under EU regulations. Increased enforcement efforts by the French Government directed at its driftnet fleet eventually resolved the dispute. To prevent a recurrence of the 1994 Bay of Biscay conflict in 1995, France instituted a program to inspect 100 percent of the French tuna driftnet fleet upon departure from and return to port, to verify driftnet lengths. In addition, vessels were no

longer allowed to carry backup driftnets, i.e., only one net per vessel was permitted.

Mediterranean Sea

On May 3, 1995, a suit was filed against the Secretary of Commerce and the Secretary of State in the U.S. Court of International Trade, under the High Seas Driftnet Fisheries Enforcement Act, 16 U.S.C. 1826a-1826c. Plaintiffs are the Humane Society of the United States, the Humane Society International, Defenders of Wildlife, the Royal Society for the Prevention of Cruelty to Animals, the Whale and Dolphin Conservation Society, and Earth Island Institute. Plaintiffs seek an order directing the Secretary of Commerce to identify Italy as a country whose nationals or vessels are conducting large-scale driftnet fishing on the high seas, as a result of reports of Italian fishing vessels employing large-scale driftnets in the Mediterranean swordfish fishery in violation of the 1995 United Nations driftnet moratorium. As of December 31, 1995, the Court had not ruled on the case. For further information on this case, see the discussion of *Humane Society of the United States v. Brown* in chapter XII of this report.

United States Driftnet Actions

1995 Driftnet Enforcement Efforts

To monitor compliance with the driftnet moratorium in 1995, 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 93 vessel days at sea and Coast Guard aircraft flew 294 hours of surveillance patrols in the 1995 driftnet monitoring program. An additional 212 cutter days were available for response to specific information. Canadian Pacific Maritime Forces aircraft contributed 6 one-week patrols to the effort. A NMFS Special Agent accompanied each of these flights.

All Coast Guard operations were planned and executed in cooperation with enforcement officials of Japan, Canada, and Russia. In addition, direct lines of communication have been established between the Coast Guard and the Russian Border Guard to facilitate sharing of sighting information.

In June 1995, a Canadian Forces CP-140 aircraft on surveillance patrol observed one suspected high-seas driftnet vessel in transit in the North Pacific. The vessel's nationality was concealed and it was not flying a flag. However, driftnet retrieval equipment was visible on the afterdeck. In July 1995, a second suspected high seas driftnet vessel was sighted by a Canadian forces aircraft. This vessel had also concealed all traces of its identity. Both vessels were photographed and the position, course and speed of each recorded. Flights and surface patrols on subsequent days failed to relocate the vessels.

On July 10, 1995, in response to information received from U.S. albacore fishermen operating northwest of Midway Island, U.S. Coast Guard C-130 aircraft located and filmed a high seas driftnet vessel with nets deployed. The vessel was subsequently tracked by Coast Guard aircraft while a Coast Guard high endurance cutter was vectored to intercept. Following a 5-day chase, in which the vessel refused various Coast Guard signals and actions to stop, Coast Guard crews successfully fouled the fishing vessel's propeller with line. The Coast Guard on July 20, 1995, boarded, seized, and began towing the vessel to Guam where it was turned over to NMFS Enforcement officials for investigation and prosecution under the Federal judicial system. Coast Guard operations in this case were supported by U.S. Navy aircraft and a Navy oiler. The seizure resulted in the vessel master, a Taiwan citizen, being charged under the Magnuson Act for refusing to allow authorized officers to board his vessel for inspection. On September 22, 1995, he was sentenced to six months in jail and received an $8,000 fine. In addition, forfeiture action is pending against the vessel.

Because the vessel master, first mate, and engineer of the stateless vessel were Taiwan nationals, Taiwan fisheries authorities and Taiwan's Ministry of Justice Investigation Bureau have undertaken an interagency investigation of the incident. Taiwan authorities have

assured the United States that they intend to prosecute the case in order to deter other potential violators of Taiwan's ban on large-scale driftnet fishing. As a first step, they revoked the working licenses of the three officers on August 14, 1995.

PRC Ship Rider Program

During 1995, the PRC provided three fisheries officers to accompany U.S. Coast Guard cutters during high-seas driftnet patrols in the North Pacific Ocean. The first PRC ship rider accompanied the cutter RUSH and the other two riders accompanied the cutter HAMILTON.

Other Reports of Unauthorized Driftnet Fishing

NMFS has continued to work with the Coast Guard and the Departments of Defense and State to monitor the Northeastern Atlantic Ocean and the Mediterranean Sea for unauthorized high-seas driftnet fishing activity. In fact, NMFS provided several briefings for U.S. Naval commands in England, Italy, and Spain during 1995. These commands deploy to the Mediterranean and eastern North Atlantic for patrol operations.

Fisheries Enforcement Memorandum of Understanding (MOU)

On October 11, 1993, the Secretaries of Transportation, Commerce, and Defense entered into an MOU to more effectively enforce domestic laws and international agreements that conserve and manage the living marine resources of the United States. The MOU, required under Section 202 of Public Law 102-582, the High Seas Driftnet Fisheries Enforcement Act, establishes a mechanism for the use of the surveillance capabilities of the Department of Defense (DOD) for locating and identifying vessels violating U.S. marine conservation laws and international agreements, including UNGA Resolution 46/215. The MOU also sets formal procedures for communicating vessel locations to the Secretary of Commerce and the U.S. Coast Guard. A copy of the MOU was attached to the 1993 Driftnet Report to the Congress.

The U.S. Coast Guard has used DOD surveillance information in previous years' high seas driftnet patrol efforts and will continue to do so under the provisions of the MOU. NMFS is already working with the Department of the Navy's Space and Naval Warfare Systems Command, Undersea Warfare Programs Office, on a project to detect any possible large-scale driftnet fishing vessels in the North Pacific Ocean using the Integrated Undersea Surveillance System (IUSS). A very successful test of IUSS assets in detecting and tracking driftnet vessels was conducted in 1992. Efforts continued through 1994 to refine the use of this system into a primary surveillance tool regarding possible driftnet fishing activity in the North Pacific. NMFS and the Coast Guard will continue to explore other possible uses of DOD surveillance assets for the monitoring of driftnet fishing vessels and fishing activity.

UN Driftnet Reports

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 resolutions and decisions, including UNGA Resolution 50/25 adopted on December 5, 1995, requesting that the UN Secretary-General submit to the General Assembly annual reports on developments relevant to the implementation of the UN driftnet moratorium.

In order to execute the reporting requirements of UNGA Decision 49/436, i.e., the call for "all members of the international community, intergovernmental organizations, regional economic integration organizations, and appropriate non-governmental organizations to provide the Secretary-General with information relevant to the implementation of resolution 46/215", the United States submitted to the Secretary-General in June 1995 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 1995. It was integrated into the Secretary-General's report entitled "Large-scale

pelagic drift-net fishing and its impact on the living marine resources of the world's oceans and seas," A/50/553, October 12, 1995.

International Whaling Commission

Preparations for 1995 Annual Meeting

A Working Group of the International Whaling Commission (IWC) met in Reine, Norway, January 9-13, to discuss a system of supervision and control of commercial whaling operations. The new system, once complete, will be part of the Revised Management Scheme being developed to manage commercial whaling. The meeting identified the key factors which countries felt should be part of a system of supervision and control, but no progress was made in resolving differences on these factors. Most countries felt that there should be an international observer on every vessel licensed to take whales, and that this program should be paid for by the whalers as a cost of doing business. These countries also sought increased IWC oversight of whaling operations, including the establishment of a panel to review observers' reports and other relevant material, the establishment of some form of DNA testing or real time reporting to the IWC by observers, etc. Pro-whaling nations felt that the current systems of national enforcement were sufficient and that the additional costs imposed by the IWC should be borne by all member nations, especially those who demanded them.

1995 Annual Meeting

The 47th annual meeting of the International Whaling Commission (IWC) took place in Dublin, Ireland (8 May-20 May: Scientific Committee Meeting; 29 May-2 June: Commissioner's Meeting). The most notable result was the failure of the Scientific Committee members to agree on a new abundance estimate for the North Atlantic Minke whale, the stock which is currently the subject of Norway's commercial whale hunt. An earlier abundance estimate from 1992 was considered invalid.

In response to the scientific ambiguity, the Commission passed a resolution calling for Norway to halt its whaling activities immediately and to withdraw its legal objection to the moratorium on commercial whaling. In addition, the Commission agreed to hold two intersessional workshops to work on providing recommendations on a new estimate of abundance. Norway offered to host an intersessional meeting of the Scientific Committee to ensure that an estimate of abundance would be approved prior to Norway's 1996 commercial hunt, which is scheduled to start before the 1996 Annual Meeting of the IWC.

On a related matter, the Commission agreed that the Scientific Committee would not use population estimates in the implementation of the RMP unless the data were obtained in accordance with the relevant guidelines, and called for IWC oversight by foreign nationals of surveys conducted by contracting governments.

Other significant events included:

- the passage of a resolution calling for countries to improve mechanisms to prevent illegal trade in whale meat;
- the passage of a resolution calling for contracting governments to refrain from issuing special permits for lethal research whaling in the Southern Ocean Sanctuary; and,
- the decision to maintain the moratorium on commercial whaling.

The Working Group on Supervision and Control met for a full day. Little progress was made, however, in resolving outstanding differences.

During the Scientific Committee meeting, additional details were presented by scientists from Russia on the former Soviet Union's massive under-reporting of post World War II whale catches in the Southern hemisphere. Russia tried to delete all references to those data on the basis that its government had never officially approved the data submission, and Russia

refused to accept the report of the Scientific Committee because it contained references to this situation.

France introduced a resolution to establish an agenda item addressing the effects of environmental changes and threats upon Arctic whale stocks. The Commission agreed to refer this item to the Scientific Committee for advice and to consider it at next year's meeting.

The Scientific Committee agreed to have an intensive review of Japan's lethal research program in the Antarctic, a 16-year program of which eight years have been completed. It was determined that there should be an intersessional meeting on this subject. The Scientific Committee proposed that this meeting be held in FY 1995/96, but it was postponed one year for financial reasons.

The Commission reviewed its criteria for conducting lethal research on whales. In 1986 and 1987, the Commission adopted recommended criteria for lethal whale research programs. This year, the Commission updated those criteria by adopting a resolution recommending that scientific research to assist the comprehensive assessment of whale stocks should be done by non-lethal means and that scientific research involving the killing of cetaceans should be permitted only in exceptional circumstances.

This year, the Commission again denied Japan's request for an "interim relief allocation" of 50 minke whales for four traditional whaling communities. The majority of delegations considered the request inconsistent with the moratorium on commercial whaling, as the sale of meat would still be allowed in some guest houses. The IWC did recognize that the proposal submitted by Japan contained constructive management elements in accordance with IWC regulations.

The U.S. indicated that the Makah Indian Tribe of Washington State had expressed an interest in taking up to five gray whales for ceremonial and subsistence purposes and that it may wish to submit a formal proposal at a future date.

Russia stated that they would request a quota for five bowhead whales in 1996 for subsistence purposes, indicating that they would be willing to reduce their gray whale quota by five animals accordingly.

Workshop on Whale Killing Methods

A Workshop on Whale Killing Methods met from 23-25 May 1995. The Alaska Eskimo Whaling Commission (AEWC) presented information on its weapons improvement program and offered data on the U.S. bowhead whale hunt. This information was welcomed and commended by the Workshop.

The main focus of the Workshop was on the electric lance, used by Japan as a method to kill whales that are not killed instantaneously when harpooned. The Workshop noted that alternative secondary killing methods are available, such as using a second harpoon or a rifle, but no conclusion was reached regarding what the best alternative is. Japan informed the Workshop that the use of a rifle to kill whales was contrary to its domestic laws. IWC agreed to consider banning the electric lance next year and urged Japan to suspend the use of the electric lance as a method for killing whales in the meantime.

Events Since the IWC Annual Meeting

Norway issued itself a quota of 232 minke whales for commercial purposes; 215 whales were taken. Norway also completed an extensive scientific survey of minke whales in the northeastern North Atlantic this summer. Several American scientists took part in this survey.

This summer, Japan took all 100 minke whales under its special permit for scientific whaling in the North Pacific. The research whaling fleet left Japan in early November for the Antarctic, where it is expected to take up to 440 minke whales in 1996 for research purposes in the southern ocean whale sanctuary.

As a result of its continuing concern about the expansion of research whaling, the Commerce Department certified Japan under the Pelly

Amendment to the Fishermen's Protective Act of 1967 (22 U.S.C. 1978) on December 11, 1995.

The certification of the Secretary of Commerce was based on the issuance by the Government of Japan of permits to its nationals allowing the killing of North Pacific minke whales for research purposes and an expansion of the research whaling in the southern ocean whale sanctuary. Secretary Brown conveyed his concerns not only over the whales that have been killed in this program but also over the possibility of further expansion of lethal research, particularly in the Southern Hemisphere which, since December 6, 1994, has been an IWC whale sanctuary, an area intended to be free of whaling, the creation of which was strongly supported by the United States.

The AEWC struck a total of 57 bowhead whales out of a strike limit of 68. Of those 57 whales, 45 were landed. This is an efficiency rate of 79 percent, a rate above the IWC target for this year.

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

The Marine Mammal Project, 02.05-61, is one of eight projects in Area V of the US-Russia Agreement on Cooperation in the Field of Environmental Protection. The goal of this Project is to conduct cooperative research on the biology, ecology and population dynamics of marine mammal species shared by both countries, leading to the development of methods for the rational management and protection of these animals.

During 1995, a total of eleven exchanges involving 27 American and 29 Russian scientists took place. Joint research activities began in April with a U.S. scientist traveling to the Laptev, Kara and Barents Seas in the western Russian Arctic to work with colleagues on capture and satellite tracking of polar bears to obtain data on movements, migrations, and distribution patterns. That work included a workshop in Moscow with Russian and Norwegian scientists to develop a cooperative program to determine radionuclide levels in polar bears throughout their range. Polar bear studies continued in July 1995 with 2 Russian scientists visiting Alaska to work on analyses of survey data and to prepare manuscripts for publication.

Joint efforts continued in August 1995 with cetacean studies that involved 3 NMFS scientists working with Russian colleagues on surveys and biological studies of bowhead and gray whales in the Sea of Okhotsk off the east coast of northern Sakhalin Island. Also in August, 2 Russian scientists visited the U.S. to work on pinnipeds in Alaska. One scientist from KamchatNIRO (the Kamchatka Research Institute for Fisheries and Oceanography) spent 3 weeks on the Pribilof Islands working with NMFS scientists from NMML on population studies of northern fur seals and to learn new radio tagging and tracking techniques. The other scientist, from the Kamchatka Fisheries Inspection Service (KamchatRybVod) worked with NMML researchers on Alaska harbor seal biological studies designed to determine appropriate correction factors for population assessments.

In September 1995, three major conferences were held in Kamchatka. The first was the Fifth Biennial Sea Otter Workshop that included 7 American and 16 Russian specialists reviewing past work and planning future studies on sea otter biology and population dynamics. The second conference included 12 American specialists meeting to review and agree on principles for joint conservation and management of the Alaska-Chukotka polar bear population, and to carry out preliminary planning for a joint agreement on management of the Bering-Chukchi walrus population. The last conference was the 13th Meeting of the Marine Mammal Project, and included 6 American specialists and over 20 Russian participants. Joint and cooperative research activities conducted during the previous 20 months were reviewed, and the group developed a comprehensive plan for research over the next two years. Proposed activities include: 5 joint studies on gray, bowhead, and beluga whales; 9 studies on walrus biology, harvest monitoring, data synthesis and analysis, and continuation of work toward a joint agreement; 13 cooperative activities on sea otters,

ranging from examination of past harvest records to genetic analyses for stock determination to benthic community studies; and 12 proposed studies on pinnipeds, including 7 on harbor and ice dwelling seals involving work on aerial survey methodology, foraging ecology, analyses of satellite tag data, and reproductive ecology and behavior. Finally, there are also 6 proposed activities on Steller sea lion biology and assessment to take place across almost the entire range of the species, from the Gulf of Alaska to the Kurile Islands and Kamchatka, and 2 studies on northern fur seals to take place on the Pribilof Islands.

Additionally, in November a Russian Academy of Sciences researcher visited the U.S. to work with American scientists to assess the effects of accumulated radiation doses on long-lived mammals of the Russian Arctic, and in December another Russian scientist visited Alaska to work on data analyses of spotted seals and develop a multi-agency cooperative study on harbor seals in both Alaska and Kamchatka. Finally, a National Biological Service (NBS) scientist visited Magadan, Russia to help plan and establish a Pacific Walrus International Database with the Institute for Study of Biological Problems of the North.

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

NMFS continues to be active in implementation of CITES for marine species.

Significant Trade Reviews

International trade for commercial purposes is prohibited for species listed in Appendix I of the Convention on International Trade in Endangered Species (CITES), except for countries which have taken reservations under the treaty. Species listed in Appendix II of CITES may be traded, provided that the country of export has granted a permit for the shipment. Countries issuing permits must make a finding that the export will not be detrimental to the survival of the species concerned, and that the specimens were legally obtained. Issuance of permits must be monitored and if necessary, limited, "in order to maintain that species throughout its range at a level consistent with its role in the ecosystems in which it occurs and well above the level at which that species might become eligible for inclusion in Appendix I."

In order to determine whether such limitation is necessary, the Animals Committee of CITES undertakes reviews of species for which there are significant amounts of international trade. Such a study was done this year, with input from range States, for narwhal (*Monodon monoceros*). The Animals Committee will make recommendations for the conservation of this species during 1996.

Illegal Trade in Whale Meat

At the Ninth meeting of the Conference of the CITES Parties, in November 1994, a resolution was passed to address continuing illegal international trade in whales, in spite of their listing in Appendix I of the treaty. The resolution recognizes the work of the International Whaling Commission (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. NMFS has met on several occasions with Japanese government officials to facilitate exchange of information about ways to stop illegal trade in whales.

Withdrawal of Russian Reservations on Whale Species

Under the CITES treaty, Contracting Parties may take reservations to any species listed under the Convention. The taking of a reservation indicates the Parties intention of non-compliance with the treaty. During 1995, the government of Russia announced the withdrawal of their reservations to species of great whales listed in Appendix I of the Convention. The

United States commended this step on behalf of worldwide whale conservation.

Chapter XII. Litigation

Karl Gleaves

Ongoing Legal Actions

American Tunaboat Association v. Brown

[67 F.3d 1404 (9th Cir. 1995), aff'g No. 94-0736 (N.D. Cal. Jul. 6, 1994) (mem. opinion and order granting partial summary judgment), dismissed by stipulation Nov. 6, 1995] The American Tunaboat Association (ATA) sought to enjoin the enforcement of a notice of closure issued by NMFS to ban purse seine tuna fishing in the eastern tropical Pacific Ocean (ETP). The district court denied the application for preliminary injunction and granted partial summary judgment in favor of NMFS. ATA appealed and the Circuit Court of Appeals for the Ninth Circuit affirmed the lower court decision. The parties agreed to a joint stipulation for dismissal.

On February 7, 1994, NMFS notified U.S. tuna fishing fleet members that all tuna fishing involving the setting of purse seine nets on dolphins in the ETP was prohibited for the remainder of the year because the fleet had reached the annual quota of dolphin mortalities specified in section 306(a)(4) of the MMPA. On February 25, 1994, ATA filed a complaint in the District Court for Southern District of California seeking injunctive and declaratory relief from the closure notice issued by NMFS. Because of the existence of related litigation, Earth Island Institute v. Brown, No. C88-1380 (N.D. Cal.), the case was transferred to the Northern District of California.

ATA claimed NMFS 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 based its determination on section 306(a)(4) of the MMPA, which specifies that the U.S. fleet-caused dolphin mortality, for every year after 1992, may not exceed the number of mortalities for the preceding year. In addition, this section requires total dolphin mortalities occurring under the ATA general permit continue to decline each year by statistically significant amounts. 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 already had occurred and that the fleet would reach and exceed the entire quota of 114 dolphins for 1994 by the end of the day on February 7, 1994.

The plaintiffs claimed that the correct quota was 800 dolphins for the period January 1, 1993, to February 28, 1994, under section 306(a)(1) of the MMPA, and that the phrase "each year after 1992" used in section 306(a)(4) should be construed to mean any consecutive 12 month period, not a calendar year. Finally, ATA alleged that the form of the notice of closure was improper because ATA was notified directly rather than by publication of a notice in the *Federal Register* as specified in NMFS' regulations. On April 15, 1994, the district court denied ATA's motion for a temporary restraining order. On July 6, 1994, the court granted partial summary judgment to the government on the substantive issue of whether NMFS had applied the correct quota in 1994, and denied ATA's motion for a preliminary injunction.

ATA filed an appeal with the Court of Appeals for the Ninth Circuit alleging that district court's decision to deny the preliminary injunction was an abuse of discretion. The circuit court determined that the appeal was not moot and affirmed the district court's grant of summary judgment, with Judge Rymer concurring in part and dissenting in part. The circuit court upheld NMFS' interpretation of the annual reduction provision and of the terms "year" and "preceding year." The court recognized that an agency's interpretation of a statute it administers is entitled to deference, that Congress, in all likelihood, did not anticipate a situation in which dolphin mortality in the first few weeks of 1994 threatened to outstrip the number of dolphin mortalities in 1993, that Congress clearly did not intend for such a situation to occur, and that NMFS' interpretation effectuated the underlying

purposes of section 306(a)(1) and (4)(A) of the MMPA. The circuit court also agreed with the district court's denial of ATA's application for a preliminary injunction, finding that ATA was likely to prevail on the issue of proper notice, but that ATA failed to show the likelihood of irreparable injury. On October 31, 1995, the parties agreed to a joint stipulation for dismissal, and on November 6, 1995, the district court approved the stipulation and dismissed the case.

Strahan v. Linnon

[No. 94-11128 (D. Mass. order issued May 2, 1995)] In the past four years U.S. Coast Guard vessels struck and killed two northern right whales. On June 7, 1994, the plaintiff in this case filed a complaint alleging that such takings of right whales were illegal and that the Coast Guard violated the MMPA, the ESA, the National Environmental Policy Act and the Whaling Convention Act. The complaint asserted that the Coast Guard violated the ESA by failing to consult with NMFS and by failing to ensure that its actions were unlikely to jeopardize the continued existence of endangered species. The complaint also alleged that the Coast Guard did not comply with the National Environmental Policy Act because it had not prepared an environmental assessment on the effects of its operations. The plaintiff claimed that takings of right whales are illegal and sought to enjoin certain Coast Guard activities, including the issuance of vessel documentation certificates. In addition to other relief, Mr. Strahan asked the court to order the Coast Guard to prohibit its own vessels and other vessels from approaching within 500 yards of a northern right whale or within 100 yards of any other species of whale.

The Coast Guard initiated consultation under section 7 of the ESA on the effects of its actions on endangered whales and sea turtles and reviewed vessel operating procedures to identify environmental problems and to implement measures that would avoid collisions with right whales and other marine species. On February 10, 1995, the court held a hearing on this case. On May 2, 1995, the court issued its order on the plaintiff's motion for a preliminary injunction. As a preliminary matter, the court ruled that the plaintiff only had standing to challenge Coast Guard activities in the First Coast Guard District, which includes the area between Maine and New Jersey. With respect to claims asserted under the ESA, the court ruled that Coast Guard lacked discretion over vessel documentation and inspection activities and thus, such actions were not subject to consultation requirements of the Act. However, with respect to the operation of Coast Guard vessels in the First District, the court found that such operations would not be in full compliance with the Act until the section 7 consultation was completed. Nonetheless, the court declined to issue a preliminary injunction noting that the Coast Guard had taken steps to prevent its vessels from striking whales and that likelihood of such an occurrence was in dispute.

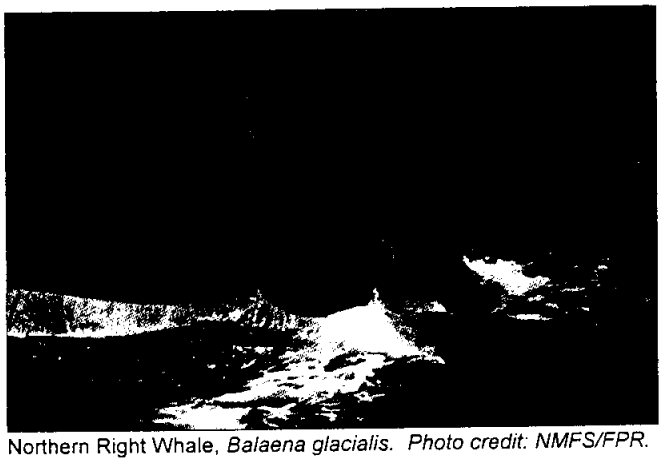
In terms of the MMPA claims, the court noted that a small take authorization is required for activities that may result in the taking of a marine mammal and, on that basis, ordered the Coast Guard to apply for such an authorization by May 31, 1995. The court also found that the Coast Guard had violated the National Environmental Policy Act and ordered the preparation of a draft environmental assessment. The court dismissed claims based upon alleged violations of the Whaling Convention Act.

On June 2, 1995, the Coast Guard applied to NMFS for a small take authorization. At the end of the year, NMFS was reviewing that application. On September 15, 1995, NMFS issued its biological opinion on Coast Guard activities along the Atlantic Coast. The opinion concluded that, given specified mitigation measures, such activities were not likely to jeopardize the continued existence of threatened or endangered species. On October 9, 1995, a Coast Guard vessel struck another whale. The species could not be identified with any degree of certainty, but it was suspected of being a humpback whale. Under the terms of the biological opinion, reinitiation of consultation is required if any endangered whale is struck. NMFS continues to be engaged in discussions with the Coast Guard on this issue.

New Legal Actions

Strong v. U.S.

[No. C-95-438 (S.D. Tex. complaint filed Aug. 29, 1995).] The plaintiffs in this case operated a tour boat engaged in the business of feeding dolphins. In 1991, NMFS amended the regulatory definition of the term "take" to include feeding or attempting to feed marine mammals in the wild. In prior litigation discussed in previous Annual Reports, the plaintiffs challenged the regulatory definition. The district court held that feeding bottlenose dolphins in the wild did not constitute harassment and, therefore, was not a form of taking under the MMPA. On appeal, the Circuit Court of Appeals for the Fifth Circuit held that feeding wild dolphins could disturb their normal behavior, and thus, was harassment under the Act, and vacated the judgment of the district court. Strong v. U.S., 811 F. Supp. 246 (S.D. Tex. 1992), vacated per curiam 5 F.3d 904 (5th Cir. 1993).



Northern Right Whale, *Balaena glacialis*. *Photo credit: NMFS/FPR.*

The 1994 Amendments to the MMPA included a statutory definition of the term "harassment." This term is defined as any act of pursuit, torment or annoyance that has the potential to injure or to disturb a marine mammal or a marine mammal stock in the wild by disrupting behavior patterns, including but not limited to, migration, breathing, nursing, breeding, feeding or sheltering. In this new litigation plaintiffs, Erv and Sonja Strong, claimed that the 1994 statutory definition superseded the regulatory definition. The Strongs did not ask the court to hold that the feeding of dolphins was permitted under the MMPA, but rather they requested the court to grant declaratory relief in the form of a ruling that feeding dolphins in the wild, *per se*, is not a violation of the Act. Such a ruling would require the agency to establish not merely that feeding in general could disrupt normal behavior, but in the context of a specific enforcement action that feeding in that particular case caused harassment. The government filed a motion to dismiss the case on October 27, 1995. The government argued, first, that the court lacked jurisdiction to enter a declaratory judgment because there was no pending enforcement action or other case or controversy appropriate for judicial review. Second, it was argued that the same issue was adjudicated in previous litigation, Strong v. U.S., 5 F.3d 904 (5th Cir. 1993), and the new statutory definition was consistent with that decision. On November 21, 1995, the plaintiffs agreed to dismiss the case without prejudice.

Tepley v. NOAA

[No. C-95-0844 (N.D. Cal. order issued Nov. 28, 1995).] On May 10, 1992, Mr. Tepley and a woman companion pursued and approached a pod of pilot whales in a small boat. Mr. Tepley and his companion entered the water with the whales. The companion began to touch and pet the whales while Mr. Tepley filmed the animals. One of the whales nipped the woman and shortly thereafter grabbed her ankle in its mouth and dived to a depth of about forty feet. About a minute later the whale brought the woman to the surface and released her. The woman was taken to a hospital and received stitches in her leg.

On November 18, 1992, NOAA issued a notice of violation charging Mr. Tepley with the unlawful taking by harassment of one or more pilot whales through operations of a powerboat and subsequent activities in the water. After a hearing before an administrative law judge (ALJ), Mr. Tepley was found guilty of harassing the whales. The ALJ determined that Tepley chased the whales and that it was primarily the chase that

constituted a sustained and serious disruption of normal marine activity. The ALJ also found that Mr. Tepley's camera may have emitted a sound that harassed the whales.

On March 12, 1995, Mr. Tepley filed an action for judicial review of the agency's decision. Relying upon United States v. Hayashi, 22 F.3d 859 (9th Cir. 1993) superseding 5 F.3d 1278 (9th Cir. 1993), a case discussed in last year's Annual Report, the U.S. District Court for the Northern District of California concluded that the standard for harassment under the MMPA refers to a direct, serious disruption of a marine mammal's customary pursuits. Using this standard the court concluded that the ALJ erred in finding that the actions of Mr. Tepley constituted harassment. Unlike the ALJ, the court found that there was no substantial evidence that the whales were being chased or that their behavior was being disrupted under the Hayashi standard. Likewise, the court found there was no substantial evidence that the operation of the camera or other underwater activities constituted harassment. On November 28, 1995, the court granted Mr. Tepley's motion for summary judgment and set aside the agency's decision.

After the events in this case, Congress amended the MMPA to include a statutory definition of "harassment." The new statutory definition differs from the standard enunciated in Hayashi and applied in Tepley. As noted above the definition refers to any act of pursuit, torment or annoyance that has the potential to injure or to disturb a marine mammal or a marine mammal stock in the wild by disrupting behavior patterns, including but not limited to, migration, breathing, nursing, breeding, feeding or sheltering. Given the statutory change, the significance and impact of the Hayashi and Tepley cases are expected to be limited.

Humane Society of the United States v. Brown

[No. 95-05-00631, U.S. Court of International Trade.] On May 3, 1995, a suit was filed against the Secretary of Commerce and the Secretary of State in the U.S. Court of International Trade, under the High Seas Driftnet Fisheries Enforcement Act, 16 U.S.C. 1826a-1826c. Plaintiffs are the Humane Society of the United States, the Humane Society International, Defenders of Wildlife, the Royal Society for the Prevention of Cruelty to Animals, the Whale and Dolphin Conservation Society, and Earth Island Institute.

Plaintiffs sought an order directing the Secretary of Commerce to identify Italy as a country whose nationals or vessels are conducting large-scale driftnet fishing on the high seas. Such an identification would require the State Department to initiate consultations with Italy. If those consultations were not satisfactorily concluded within 90 days, the United States would be required to prohibit importation of fish, fish products, and sport fishing equipment from Italy.

On August 18, 1995, the Court denied plaintiffs' motion for a preliminary injunction, because plaintiffs had not made a showing of immediate and irreparable harm. The Court also dismissed one count of the complaint, which was based on the Secretary's failure to identify Italy as a driftnetting nation on January 10, 1993 (the original statutory deadline), because the statute of limitations had run. The defendants' motion for a protective order was denied, however; defendants have since responded to numerous interrogatories and requests for production of documents.

Plaintiffs filed a motion for summary judgment on October 6, 1995; defendants filed their motion for judgment on the Agency record on October 31, 1995. The Court heard arguments on the suit on December 19, 1995, in New York City. However, as of December 31, 1995, the Court had not ruled on the case.

Chapter XIII. Publications

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Appendix A

Table A-1 -- List of Category I & II Fisheries
Commercial Fisheries in the Pacific Ocean

Fishery Description	Estimated # of vessels/ persons	Marine mammal species/stocks incidentally injured/killed
Category I:		
Gillnet fisheries:		
CA angel shark/halibut and other species large mesh (>3.5in) set gillnet fishery	80	Harbor porpoise, central CA Common dolphin, short-beaked, CA/OR/WA Common dolphin, long-beaked, CA California sea lion, U.S. Harbor seal, CA Northern elephant seal, CA breeding
CA/OR thresher shark/swordfish drift gillnet fishery	150	Steller sea lion, Eastern U.S.*+ Sperm whale, CA to WA*+ Dall's porpoise, CA/OR/WA Pacific white sided dolphin, CA/OR/WA Risso's dolphin, CA/OR/WA Bottlenose dolphin, CA/OR/WA offshore Common dolphin, short-beaked, CA/OR/WA Common dolphin, long-beaked, CA Northern right whale dolphin, CA/OR/WA Short-finned pilot whale, CA/OR/WA* Baird's beaked whale, CA/OR/WA Mesoplodont beaked whales, CA to WA* Cuvier's beaked whale, CA/OR/WA Pygmy sperm whale, CA/OR/WA* California sea lion, U.S. Harbor seal, CA Northern elephant seal, CA breeding Harbor porpoise, OR/WA coastal Humpback whale, CA/OR/WA-Mexico
Category II:		
Gillnet fisheries		
AK Peninsula/ Aleutian Island salmon set gillnet	120	Steller sea lion, Western U.S.*+ Harbor porpoise, AK

* Marine mammal stock is strategic
\+ stock is listed as threatened or endangered under the ESA, or as depleted under the MMPA

List of Abbreviations Used in Table A-1
AK - Alaska
CA - California
HI - Hawaii
GOA - Gulf of Alaska
OR - Oregon
WA - Washington

Table A-1 -- List of Category I & II Fisheries Commercial Fisheries in the Pacific Ocean (cont'd)

Fishery Description	Estimated # of vessels/ persons	Marine mammal species/stocks incidentally injured/killed
AK Prince William Sound salmon drift gillnet	509	Steller sea lion, Western U.S.*+ Northern fur seal, Northern Pacific* Harbor seal, GOA Pacific white-sided dolphin, central North Pacific Harbor porpoise, AK Dall's porpoise, AK
AK Peninsula/Aleutians salmon drift gillnet fishery	107	Northern fur seal, North Pacific Harbor seal, GOA Harbor seal, Bering Sea Harbor porpoise, AK Dall's porpoise, AK Northern (Alaska) sea otter, Pacific
Southeast Alaska salmon drift gillnet fishery	443	Steller sea lion, Eastern U.S.*+ Harbor seal, Southeast AK Pacific white-sided dolphin, central North Pacific Harbor porpoise, AK Dall's porpoise, AK Humpback whale, central North Pacific*+
AK Cook Inlet drift gillnet	554	Steller sea lion, Western U.S.*+ Harbor seal, GOA Harbor porpoise, AK Dall's porpoise, AK
AK Cook Inlet salmon set gillnet	633	Steller sea lion, Western U.S.*+ Harbor seal, GOA Harbor porpoise, AK Beluga, Cook Inlet
AK Yakutat salmon set gillnet	152	Harbor seal, Southeast AK
AK Kodiak salmon set gillnet	162	Harbor seal, GOA Harbor porpoise, AK
AK Bristol Bay drift gillnet	1,741	Steller sea lion, Western U.S.*+ Northern fur seal, North Pacific* Harbor seal, Bering Sea Beluga, Bristol Bay Gray whale, Eastern North Pacific

Table A-1 -- List of Category I & II Fisheries Commercial Fisheries in the Pacific Ocean (cont'd)

Fishery Description	Estimated # of vessels/ persons	Marine mammal species/stocks incidentally injured/killed
AK Bristol Bay set gillnet	888	Harbor seal, Bering Sea Beluga, Bristol Bay Gray whale, Eastern North Pacific
AK Metlakatla/ Annette Island salmon drift gillnet	60	None documented
WA Puget Sound Region salmon drift gillnet fishery (includes all inland waters south of US-Canada border and eastward of the Bonilla-Tatoosh line--Treaty Indian fishing is excluded)	1,044	Harbor porpoise, inland WA Dall's porpoise, CA/OR/WA Harbor seal, WA inland
Purse seine fisheries:		
CA anchovy, mackerel, tuna purse seine	150	Bottlenose dolphin, CA/OR/WA offshore California sea lion, U.S. Harbor seal, CA
AK Southeast salmon purse seine	443	Humpback whale, central North Pacific*+
Trawl fisheries:		
AK pair trawl	2	None documented
Longline fisheries		
OR swordfish/blue shark surface longline fishery	30	None documented

Table A-2 -- List of Category I & II Fisheries
Commercial Fisheries in the Atlantic Ocean, Gulf of Mexico, and Caribbean

Description of Fishery	Estimated # of vessels/ persons	Marine mammal species/stocks incidentally injured/killed
Category I		
Pair trawl fisheries:		
U.S. Atlantic large pelagics pair trawl	7	Risso's dolphin, WNA Long-finned pilot whale, WNA* Common dolphin, WNA* Bottlenose dolphin, WNA offshore*
Gillnet fisheries:		
Atlantic Ocean, Caribbean, Gulf of Mexico large pelagics drift gillnet	75	North Atlantic right whale, WNA*+ Humpback whale, WNA*+ Sperm whale, WNA*+ Dwarf sperm whale, WNA* Pygmy sperm whale, WNA* Cuvier's beaked whale, WNA* True's beaked whale, WNA* Gervais' beaked whale, WNA* Blainville's beaked whale, WNA* Risso's dolphin, WNA Long-finned pilot whale, WNA* Short-finned pilot whale, WNA* White-sided dolphin, WNA* Common dolphin, WNA* Atlantic spotted dolphin, WNA* Pantropical spotted dolphin, WNA* Striped dolphin, WNA Spinner dolphin, WNA Bottlenose dolphin, WNA offshore* Harbor porpoise, GME/BF*

Table A-2 -- List of Category I & II Fisheries Commercial Fisheries in the Atlantic Ocean, Gulf of Mexico, and Carribean (cont'd)

Description of Fishery	Estimated # of vessels/ persons	Marine mammal species/stocks incidentally injured/killed
New England multispecies sink gillnet (including species as defined in the Multispecies Fisheries Management Plan and spiny dogfish and monkfish)	341	North Atlantic right whale, WNA*+ Humpback whale, WNA*+ Minke whale, Canadian east coast Killer whale, WNA White-sided dolphin, WNA* Striped dolphin, WNA Bottlenose dolphin, WNA offshore Harbor porpoise, GME/BF* Harbor seal, WNA Gray seal, Northwest North Atlantic Common dolphin, Fin whale, Spotted dolphin False killer whale, Harp seal
Longline fisheries:		
Atlantic Ocean, Caribbean, Gulf of Mexico large pelagics longline	361	Humpback whale, WNA*+ Minke whale, Canadian east coast Risso's dolphin, WNA Long-finned pilot whale, WNA* Short-finned pilot whale, WNA* Common dolphin, WNA* Atlantic spotted dolphin, WNA* Pantropical spotted dolphin, WNA Striped dolphin, WNA Bottlenose dolphin, WNA offshore* Bottlenose dolphin, GMX Outer Continental Shelf Bottlenose dolphin, GMX Continental Shelf Edge and Slope Atlantic spotted dolphin, Northern GMX Pantropical spotted dolphin, Northern GMX Risso's dolphin, Northern GMX Harbor porpoise, GME/BF *

* Marine mammal stock is strategic
\+ Stock is listed as threatened or endangered under the ESA, or as depleted under the MMPA.

List of Abbreviations Used in Table 2
FL - Florida
GA - Georgia
GME/BF - Gulf of Mexico/Bay of Fundy
GMX - Gulf of Mexico
NC - North Carolina
SC - South Carolina
TX - Texas
WNA - Western North Atlantic

Table A-2 -- List of Category I & II Fisheries Commercial Fisheries in the Atlantic Ocean, Gulf of Mexico, and Carribean (cont'd)

Description of Fishery	Estimated # of vessels/ persons	Marine mammal species/stocks incidentally injured/killed
Category II:		
Gillnet fisheries:		
U.S. mid-Atlantic coastal gillnet fishery	>655	Humpback whale, WNA*+ Minke whale, Canadian east coast Bottlenose dolphin, WNA offshore* Bottlenose dolphin, WNA coastal*+ Harbor porpoise, GME/BF*
Gulf of Maine small pelagics surface gillnet	133	Humpback whale, WNA*+ White-sided dolphin, WNA Harbor seal, WNA
Southeastern U.S. Atlantic shark gillnet fishery	10	Bottlenose dolphin, WNA coastal* North Atlantic right whale, WNA*+
Trawl fisheries:		
Atlantic squid, mackerel, butterfish trawl	620	Common dolphin, WNA* Risso's dolphin, WNA* Long-finned pilot whale, WNA* Short-finned pilot whale, WNA*, White-sided dolphin, WNA*
Haul seine fisheries:		
North Carolina haul seine	unknown	Bottlenose dolphin, WNA coastal* Harbor porpoise, GME/BF*
Stop net fisheries:		
North Carolina roe mullet stop net	13	Bottlenose dolphin, WNA coastal*

Appendix B

Table 1. Summary of marine mammal stock assessments for stocks of marine mammals that are under NMFS authority. Included for each stock is its estimated minimum population size (N_{min}), maximum productivity rate (R_{max}), recovery factor (F_r), potential biological removal level (PBR), total annual human-caused mortality, annual incidental fisheries mortality, and strategic status (yes or no).

Species	Stock area	Region	NMFS Center	N_{min}	R_{max}	F_r	PBR	Total annual mort.	Annual fish. Mort.	Strategic Status
Steller sea lion	Western U.S.	AKA	AKC	42,536	0.12	0.3	766	555	41	Y
Steller sea lion	Eastern	AKA	AKC	23,533	0.12	0.75	1,059	8.0	4.0	Y
Northern fur seal	North Pacific	AKA	AKC	969,595	0.086	0.5	20,846	1,783	6.4	Y
Harbor seal	Southeast Alaska	AKA	AKC	32,745	0.12	1.0	1,965	1,643	N/A[1]	N
Harbor seal	Gulf of Alaska	AKA	AKC	N/D[2]	0.12	N/D	N/D	868	35	N/D
Harbor seal	Bering Sea	AKA	AKC	17,243	0.12	1.0	1,035	334	12	N
Spotted seal	Alaska	AKA	AKC	N/A	0.12	0.5	N/A	N/A	1.0	N
Bearded seal	Alaska	AKA	AKC	N/A	0.12	0.5	N/A	N/A	6.2	N
Ringed seal	Alaska	AKA	AKC	N/A	0.12	0.5	N/A	N/A	0.8	N
Ribbon seal	Alaska	AKA	AKC	N/A	0.12	0.5	N/A	N/A	0.4	N
Beluga	Beaufort Sea	AKA	AKC	38,194	0.04	1.0	764	160	0.00	N
Beluga	Eastern Chukchi Sea	AKA	AKC	3,710	0.04	1.0	74	65	0.00	N
Beluga	Norton Sound	AKA	AKC	N/D	0.04	N/D	N/D	147	0.00	N/D
Beluga	Bristol Bay	AKA	AKC	1,526	0.04	1.0	31	22	0.3	N
Beluga	Cook Inlet	AKA	AKC	N/D	0.04	N/D	N/D	N/A	0.00	N/D
Killer whale	Alaska and Washington Inland Waters, Resident	AKA	AKC	759	0.04	0.5	7.6	0.8	0.8	N
Killer whale	Alaska and Washington Inland Waters, Transient	AKA	AKC	245	0.04	0.5	2.4	0.8	0.8	N
Pacific white-sided dolphin	North Pacific	AKA	AKC	486,719	0.04	0.5	4,867	1.1	1.1	N
Harbor porpoise	Alaska	AKA	AKC	24,635	0.04	0.5	246	33	33	N
Dall's porpoise	Alaska	AKA	AKC	76,874	0.04	1.0	1,537	41	41	N
Sperm whale	Alaska	AKA	AKC	N/A	0.04	0.1	N/A	0.00	0.00	Y

[1]Logbook records indicate commercial fisheries cause a minimum annual mortality of 6 seals for this stock. N/A means that actual estimates are unknown or not available.

[2]N/D indicates an estimate was not determined. NMFS will determine these values after considering relevant information through the co-management process with affected Alaska Native organizations.

Table 1. Summary of marine mammal stock assessments (cont'd.).

Species	Stock area	Region	NMFS Center	N_{min}	R_{max}	F_r	PBR	Total annual mort.	Annual fish. Mort.	Strategic Status
Baird's beaked whale	Alaska	AKA	AKC	N/A	0.04	0.5	N/A	0.00	0.00	N
	Alaska	AKA	AKC	N/A	0.04	0.5	N/A	0.00	0.00	N
Cuvier's beaked whale										
Stejnerger's beaked whale	Alaska	AKA	AKC	N/A	0.04	0.5	N/A	0.00	0.00	N
Gray whale	Eastern North Pacific	AKA	AKC	21,715	0.04	1.0	434	0.3	0.3	N
Humpback whale	Western North Pacific	AKA	AKC	N/A	0.04	0.1	N/A	0.00	0.00	Y
Humpback whale	Central North Pacific	AKA	AKC	1,407	0.04	0.1	2.8	0.00	0.00	Y
Fin whale	N. Pacific	AKA	AKC	N/A	0.04	0.1	N/A	0.00	0.00	Y
Minke whale	Alaska	AKA	AKC	N/A	0.04	0.5	N/A	0.00	0.00	N
Northern right whale	North Pacific	AKA	AKC	N/A	0.04	0.1	0.00	0.00	0.00	Y
Bowhead whale	Western Arctic Stock	AKA	AKC	7,524	0.04	0.5	75[3]	42	0.00	Y
North Atlantic right whale	Western North Atlantic	ATL	NEC	295	0.025	0.1	0.4	2.6	1.6	Y
Humpback whale	Western North Atlantic	ATL	NEC	4,848	0.04	0.1	9.7	1.0	1.0	Y
Fin whale	Western North Atlantic	ATL	NEC	1,704	0.04	0.1	3.4	N/A	0.00	Y
Sei whale	Western North Atlantic	ATL	NEC	N/A	0.04	0.1	N/A	0.00	0.00	Y
Minke whale	Canadian east coast	ATL	NEC	2,053	0.04	0.5	21	2.5	2.5	N
Blue whale	Western North Atlantic	ATL	NEC	N/A	0.04	0.1	N/A	0.00	0.00	Y
Sperm whale	Western North Atlantic	ATL	NEC	226	0.04	0.1	0.5	1.6	1.6	Y
Dwarf sperm whale	Western North Atlantic	ATL	NEC	N/A	0.04	N/A	N/A	N/A	N/A	Y
Pygmy sperm whale	Western North Atlantic	ATL	NEC	N/A	0.04	N/A	N/A	N/A	N/A	Y

[3]The IWC subsistence quota is not affected by the calculation of PBR using the formula specified in the MMPA.

Table 1. Summary of marine mammal stock assessments (cont'd.).

Species	Stock area	Region	NMFS Center	N_{min}	R_{max}	F_r	PBR	Total annual mort.	Annual fish. Mort.	Strategic Status
Killer whale	Western North Atlantic	ATL	NEC	N/A	0.04	N/A	N/A	0.00	0.00	N
Pygmy killer whale	Western North Atlantic	ATL	SEC	6	0.04	0.5	0.1	0.00	0.00	N
Northern bottlenose whale	Western North Atlantic	ATL	NEC	N/A	0.04	N/A	N/A	0.00	0.00	N
Cuvier's beaked whale	Western North Atlantic	ATL	NEC	N/A	0.04	N/A	N/A	34	34[4]	Y
True's beaked whale	Western North Atlantic	ATL	NEC	N/A	0.04	N/A	N/A	34	34	Y
Gervais' beaked whale	Western North Atlantic	ATL	NEC	N/A	0.04	N/A	N/A	34	34	Y
Blainville's beaked whale	Western North Atlantic	ATL	NEC	N/A	0.04	N/A	N/A	34	34	Y
Sowerby's beaked whale	Western North Atlantic	ATL	NEC	N/A	0.04	N/A	N/A	34	34	Y
Risso's dolphin	Western North Atlantic	ATL	NEC	11,140	0.04	0.5	111	68	68	N
Pilot whale, long-finned	Western North Atlantic	ATL	NEC	3,537	0.04	0.4	28	109	109[5]	Y
Pilot whale, short-finned	Western North Atlantic	ATL	NEC	457	0.04	0.5	3.7	109	109[5]	Y
Atlantic white-sided dolphin	Western North Atlantic	ATL	NEC	12,538	0.04	0.5	125	127	127	Y
White-beaked dolphin	Western North Atlantic	ATL	NEC	N/A	0.04	N/A	N/A	0.00	0.00	N
Common dolphin	Western North Atlantic	ATL	NEC	3,233	0.04	0.5	32	449	449	Y
Atlantic spotted dolphin	Western North Atlantic	ATL	NEC	4,885	0.04	0.1	N/A	31[6]	31[6]	Y
Pantropical spotted dolphin	Western North Atlantic	ATL	NEC	N/A	N/A	N/A	N/A	31[6]	31[6]	Y

[4]This is the average mortality of beaked whales (Mesoplodon sp.) based on 5 years of observer data. This annual mortality rate may include an unknown number of Cuvier's beaked whales.

[5]Mortality data are not separated by species; therefore, species-specific estimates are not available. The mortality estimate represents both short- and long-finned pilot whales.

[6]This value includes either or both of *Stenella frontalis* or *Stenella attenuata*.

Table 1. Summary of marine mammal stock assessments (cont'd.).

Species	Stock area	Region	NMFS Center	N_{min}	R_{max}	F_r	PBR	Total annual mort.	Annual fish. Mort.	Strategic Status
Striped dolphin	Western North Atlantic	ATL	NEC	9,165	0.04	0.4	73	63	63	N
Spinner dolphin	Western North Atlantic	ATL	NEC	N/A	N/A	N/A	N/A	1.0	1.0	N
Bottlenose dolphin	Western North Atlantic, Offshore	ATL	NEC	9,195	0.04	0.5	92	128	128	Y
Bottlenose dolphin	Western North Atlantic, Coastal	ATL	SEC	2,482	0.04	0.5	25	29	29	Y
Harbor porpoise	Gulf of Maine/Bay of Fundy	ATL	NEC	40,297	0.04	0.5	403	1,876	1,876	Y
Harbor seal	Western North Atlantic	ATL	NEC	28,810	0.12	1.0	1,729	476	476	N
Gray seal	Northwest North Atlantic	ATL	NEC	2,035	0.12	1.0	122	4.5	4.5	N
Harp seal	Northwest North Atlantic	ATL	NEC	N/A	N/A	N/A	N/	0.00	0.00	N
Hooded seal	Northwest North Atlantic	ATL	NEC	N/A	N/A	N/A	N/A	0.00	0.00	N
Sperm whale	Northern Gulf of Mexico	ATL	SEC	411	0.04	0.1	0.8	0.00	0.00	Y
Bryde's whale	Northern Gulf of Mexico	ATL	SEC	17	0.04	0.5	0.2	0.00	0.00	N
Cuvier's beaked whale	Northern Gulf of Mexico	ATL	SEC	20	0.04	0.5	0.2	0.00	0.00	N
Blainville's beaked whale	Northern Gulf of Mexico	ATL	SEC	N/A	N/A	N/A	N/A	0.00	0.00	N
Gervais' beaked whale	Northern Gulf of Mexico	ATL	SEC	N/A	N/A	N/A	N/A	0.00	0.00	N
Bottlenose dolphin	Gulf of Mexico, Outer Continental Shelf	ATL	SEC	43,233	0.04	0.5	432	2.8	2.8[7]	N
Bottlenose dolphin	Gulf of Mexico, Continental Shelf Edge and Slope	ATL	SEC	4,530	0.04	0.5	45	2.8	2.8[7]	N

[7]This value may include either or both of the Gulf of Mexico, Continental Shelf Edge and Slope and the Outer Continental Shelf stocks of bottlenose dolphins.

Table 1. Summary of marine mammal stock assessments (cont'd.).

Species	Stock area	Region	NMFS Center	N_{min}	R_{max}	F_r	PBR	Total annual mort.	Annual fish. Mort.	Strategic Status
Bottlenose dolphin	Western Gulf of Mexico Coastal	ATL	SEC	2,938	0.04	0.5	29	13	13[8,9]	N
Bottlenose dolphin	Northern Gulf of Mexico Coastal	ATL	SEC	3,518	0.04	0.5	35	10	10[9]	N
Bottlenose dolphin	Eastern Gulf of Mexico Coastal	ATL	SEC	8,963	0.04	0.5	90	8	8[9]	N
Bottlenose dolphin	Gulf of Mexico Bay, Sound, and Estuarine[10]	ATL	SEC	3,934	0.04	0.5	39.7	30	30[9]	Y
Atlantic spotted dolphin	Northern Gulf of Mexico	ATL	SEC	2,255	0.04	0.5	23	1.5[5]	1.5[5]	N
Pantropical spotted dolphin	Northern Gulf of Mexico	ATL	SEC	26,510	0.04	0.5	265	1.5[5]	1.5[5]	N
Striped dolphin	Northern Gulf of Mexico	ATL	SEC	3,409	0.04	0.5	34	0.00	0.00	N
Spinner dolphin	Northern Gulf of Mexico	ATL	SEC	4,465	0.04	0.5	45	0.00	0.00	N
Rough-toothed dolphin	Northern Gulf of Mexico	ATL	SEC	660	0.04	0.5	6.6	0.00	0.00	N
Clymene dolphin	Northern Gulf of Mexico	ATL	SEC	4,120	0.04	0.5	41	0.00	0.00	N
Fraser's dolphin	Northern Gulf of Mexico	ATL	SEC	66	0.04	0.5	0.7	0.00	0.00	N
Killer whale	Northern Gulf of Mexico	ATL	SEC	197	0.04	0.5	2.0	0.00	0.00	N
False Killer whale	Northern Gulf of Mexico	ATL	SEC	236	0.04	0.5	2.4	0.00	0.00	N
Pygmy killer whale	Northern Gulf of Mexico	ATL	NEC	285	0.04	0.05	2.8	0.00	0.00	N

[8]Low levels of bottlenose dolphin mortaality (0-4 per year) incidental to commercial fisheries have been reported. It is unknown to which stock this mortality can be attributed.

[9]Estimates derived from stranded animals with signs of fishery interactions, and these could be either coastal or estuary stocks.

[10]This entry encompasses 33 stocks of bottlenose dolphins. All stocks are considered strategic; see the full report for information on individual stocks. The listed estimates for abundance, PBR and mortality are sums across all bays, sounds, and estuaries.

Table 1. Summary of marine mammal stock assessments (cont'd.).

Species	Stock area	Region	NMFS Center	N_{min}	R_{max}	F_r	PBR	Total annual mort.	Annual fish. Mort.	Strategic Status
Dwarf sperm whale	Northern Gulf of Mexico	ATL	SEC	N/A	0.04	N/A	N/A	0.00	0.00	Y
Pygmy sperm whale	Northern Gulf of Mexico	ATL	SEC	N/A	0.04	N/A	N/A	0.00	0.00	Y
Melon-headed whale	Northern Gulf of Mexico	ATL	SEC	2,888	0.04	0.5	29	0.00	0.00	N
Risso's dolphin	Northern Gulf of Mexico	ATL	SEC	2,199	0.04	0.5	22	19	19	N
Pilot whale, short-finned	Northern Gulf of Mexico	ATL	SEC	186	0.04	0.5	1.9	0.3	0.3	Y
California sea lion	U.S.	PAC	SWC	84,195	0.12	1.0	5,052	2,446	2,446	N
Harbor seal	California	PAC	SWC	32,798	0.12	1.0	1,968	729	729	N
Harbor seal	Oregon/ Washington coast	PAC	AKC	28,322	0.12	1.0	1,699	233	233	N
Harbor seal	Washington Inland waters	PAC	AKC	13,053	0.12	1.0	783	29	29	N
Northern elephant seal	California breeding	PAC	SWC	42,000	0.086	1.0	1,743	166	166	N
Guadalupe fur seal	Mexico to California	PAC	SWC	3,028	0.137	0.5	104	0.00	0.00	Y
Northern fur seal	San Miguel Island	PAC	AKC	10,536	0.086	0.5	227	0.00	0.00	N
Hawaiian monk seal	Hawaii	PAC	SWC	1,300	0.06	0.1	3.9[11]	N/A	N/A	Y
Harbor porpoise	Central California	PAC	SWC	3,430	0.04	0.5	34	31	31	N
Harbor porpoise	Northern California	PAC	SWC	7,640	0.04	0.5	76	0.00	0.00	N
Harbor porpoise	Oregon/ Washington coast	PAC	AKC	22,049	0.04	0.5	220	14	14	N
Harbor porpoise	Inland Washington	PAC	AKC	2,680	0.04	0.5	27	16	16	N
Dall's porpoise	California/ Oregon/ Washington	PAC	SWC	58,902	0.04	0.5	589	36	36	N

[11]Although the calculated PBR is 3.9, the allowable take is zero due to findings under the ESA.

Table 1. Summary of marine mammal stock assessments (cont'd.).

Species	Stock area	Region	NMFS Center	N_{min}	R_{max}	F_r	PBR	Total annual mort.	Annual fish. Mort.	Strategic Status
Pacific white-sided dolphin	California/ Oregon/ Washington	PAC	SWC	82,939	0.04	0.5	829	28	28	N
Risso's dolphin	California/ Oregon/ Washington	PAC	SWC	22,388	0.04	0.5	224	39	39	N
Bottlenose dolphin	California coastal	PAC	SWC	245	0.04	0.5	2.5	0.00	0.00	N
Bottlenose dolphin	California/Oregon/ Washington Offshore	PAC	SWC	1,775	0.04	0.5	18	7.7	7.7	N
Striped dolphin	California/ Oregon/ Washington	PAC	SWC	13,639	0.04	0.5	136	0.00	0.00	N
Common dolphin, short-beaked	California/ Oregon/ Washington	PAC	SWC	179,185	0.04	0.5	1,792	316	316[12]	N
Common dolphin, long-beaked	California	PAC	SWC	5,636	0.04	0.5	56	23	23[12]	N
Northern right whale dolphin	California/ Oregon/ Washington	PAC	SWC	15,080	0.04	0.5	151	46	46	N
Killer whale	California/ Oregon/ Washington	PAC	SWC	139	0.04	0.5	1.4	0.00	0.00	N
Pilot whale, short-finned	California/ Oregon/ Washington	PAC	SWC	N/A	0.04	0.5	N/A	36	36	Y
Baird's beaked whale	California/ Oregon/ Washington	PAC	SWC	19	0.04	0.5	0.2	0.00	0.00[13]	Y
Mesoplodont beaked whales	California/ Oregon/ Washington	PAC	SWC	136	0.04	0.5	1.4	7.7	7.7	Y
Cuvier's beaked whale	California/ Oregon/ Washington	PAC	SWC	886	0.04	0.5	8.9	24	24	Y

[12]This value includes 6 animals that could not be specified as either short- or long-beaked common dolphins.

[13]Mortality for 1991-1993 was zero; two Baird's beaked whales were observed taken in 1994. This exceeds PBR.

Table 1. Summary of marine mammal stock assessments (cont'd.).

Species	Stock area	Region	NMFS Center	N_{min}	R_{max}	F_r	PBR	Total annual mort.	Annual fish. Mort.	Strategic Status
Pygmy sperm whale	California/ Oregon/ Washington	PAC	SWC	481	0.04	0.5	4.8	5.7	5.7	Y
Dwarf sperm whale	California/ Oregon/ Washington	PAC	SWC	N/A	0.04	0.5	N/A	0.00	0.00	N
Sperm whale	California to Washington	PAC	SWC	512	0.04	0.1	1.0	17	17	Y
Humpback whale	California/ Mexico	PAC	SWC	563	0.04	0.1	0.5	1.16	0.5	Y
Blue whale	California/ Mexico	PAC	SWC	1,709	0.04	0.1	1.7	N/A	N/A	Y
Fin whale	California to Washington	PAC	SWC	575	0.04	0.1	1.1	<1	0.00	Y
Bryde's whale	Eastern Tropical Pacific	PAC	SWC	11,163	0.04	0.5	0.5[14]	N/A	0.00	N
Sei whale	Eastern North Pacific	PAC	SWC	N/A	0.04	0.1	N/A	N/A	0.00	Y
Minke whale	California/ Oregon/ Washington	PAC	SWC	265	0.04	0.5	2.6	0.5	0.5	N
Rough-toothed dolphin	Hawaii	PAC	SWC	N/A	0.04	0.5	N/A	N/A	N/A	N
Risso's dolphin	Hawaii	PAC	SWC	N/A	0.04	0.5	N/A	N/A	N/A	N
Bottlenose dolphin	Hawaii	PAC	SWC	N/A	0.04	0.5	N/A	0.00	0.00	N
Pantropical spotted dolphin	Hawaii	PAC	SWC	N/A	0.04	0.5	N/A	N/A	N/A	N
Spinner dolphin	Hawaii	PAC	SWC	677	0.04	0.5	6.8	N/A	N/A	N
Striped dolphin	Hawaii	PAC	SWC	N/A	0.04	0.5	N/A	N/A	N/A	N
Melon-headed whale	Hawaii	PAC	SWC	N/A	0.04	0.5	N/A	0.00	0.00	N
Pygmy killer whale	Hawaii	PAC	SWC	N/A	0.04	0.5	N/A	N/A	N/A	N
False killer whale	Hawaii	PAC	SWC	N/A	0.04	0.5	N/A	N/A	N/A	N
Killer whale	Hawaii	PAC	SWC	N/A	0.04	0.5	N/A	0.00	0.00	N

[14]This PBR has been adjusted because only 0.5% of this stock is estimated to be in U.S. waters.

Table 1. Summary of marine mammal stock assessments (cont'd.).

Species	Stock area	Region	NMFS Center	N_{min}	R_{max}	F_r	PBR	Total annual mort.	Annual fish. Mort.	Strategic Status
Pilot whale, short-finned	Hawaii	PAC	SWC	N/A	0.04	0.5	N/A	N/A	N/A	N
Blainville's beaked whale	Hawaii	PAC	SWC	N/A	0.04	0.5	N/A	0.00	0.00	N
Cuvier's beaked whale	Hawaii	PAC	SWC	N/A	0.04	0.5	N/A	N/A	0.00	N
Pygmy sperm whale	Hawaii	PAC	SWC	N/A	0.04	0.5	N/A	N/A	N/A	N
Dwarf sperm whale	Hawaii	PAC	SWC	N/A	0.04	0.5	N/A	0.00	0.00	N
Sperm whale	Hawaii	PAC	SWC	N/A	0.04	0.1	N/A	N/A	0.00	Y
Blue whale	Hawaii	PAC	SWC	N/A	0.04	0.1	N/A	N/A	N/A	Y
Fin whale	Hawaii	PAC	SWC	N/A	0.04	0.1	N/A	0.00	0.00	Y
Bryde's whale	Hawaii	PAC	SWC	N/A	0.04	0.5	N/A	0.00	0.00	N

Appendix C

Appendix C. Estimates of Total Incidental Dolphin Mortality for U.S. and Foreign Purse Seine Vessels in the Eastern Tropical Pacific Ocean, 1971-1995

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
1995	5	0	99	3,274	3,274

[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 the period.
[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, 1995 to December 31, 1995

	Scientific Research	Public Display	Scientific Research & Public Display	Totals
NUMBER OF APPLICATIONS SUBMITTED	**29**	**4**	**0**	**33**
No. of Animals Requested (Total)	2,421,276	4	0	2,421,280
OF THESE:				
Taken by Killing	10	0	0	10
Taken and Kept Alive	0	0	0	0
Killed in Captivity	0	0	0	0
Taken and Released	7,145	0	0	7,145
Found Dead	0	0	0	0
Stranded/Exchanged	0	0	0	0
Imports	0	4	0	4
Harass	2,414,121	38	0	2,414,121
ACTION TAKEN ON APPLICATIONS:				
No. Forwarded to Marine Mammal Commission	25	3	0	28
No. Reviewed by Marine Mammal Commission	21	3	0	24
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	1	0	3
No. Denied	0	0	0	0
No. Approved	24	4	0	28
No. Pending	6	0	0	6

Table D-1 (cont'd)
Summary of Permit Applications
January 1, 1995 to December 31, 1995

	Scientific Research	Public Display	Scientific Research & Public Display	Totals
NO. OF ANIMALS APPROVED	**2,413,878**	**3**	**0**	**2,413,881**
OF THESE:				
Taken by Killing	10	0	0	10
Taken and Kept Alive	0	0	0	0
Killed in Captivity	0	0	0	0
Taken and Released	4,360	0	0	4,360
Found Dead	0	0	0	0
Stranded/Exchanged	0	0	0	0
Imports	0	3	0	3
Harass	2,409,508	0	0	2,409,508

Table D-2
Number of Cetaceans in Scientific Research/Public Display Permit Requests
January 1, 1995 to December 31, 1995

	Taken by Killing	Taken / Imported and Kept Alive	Tagged or Taken and Released	Found Dead / Stranded	Total Requested
Atlantic Bottlenose Dolphin	0	0	150	0	150
Atlantic Hump-Backed Dolphin	0	0	0	0	0
Northern Right Whale	0	0	0	0	0
Blue Whale	0	0	0	0	0
Bottlenose Dolphin	0	0	0	0	0
Beaked Whales	0	0	0	0	0
Bottlenose Whales	0	0	0	0	0
Bowhead Whale	0	0	0	0	0
Bryde's Whale	0	0	0	0	0
Burmeister's Porpoise	0	0	0	0	0
Boto, Amazon River Dolphin	0	0	0	0	0
Commerson's Dolphin	0	0	0	0	0
Common Dolphin	0	0	20	0	20
Cuvier's Beaked Whale	0	0	0	0	0
Dall's Porpoise	0	0	0	0	0
Dwarf Sperm Whale	0	0	0	0	0
False Killer Whale	0	0	0	0	0
Finback Whale	0	0	0	0	0
Finless Porpoise	0	0	0	0	0
Fraser's (Sarawak) Dolphin	0	0	0	0	0
Ganges River Dolphin	0	0	0	0	0
Gray Whale	0	0	0	0	0
Harbor Porpoise	10	0	100	0	110
Humpback Whale	0	0	0	0	0
Indo-specific Hump-Backed	0	0	0	0	0
Indus River Dolphin	0	0	0	0	0
Irrawaddy Dolphin	0	0	0	0	0
Killer Whale	0	1	1	0	2

Table D-2 (cont'd)
Number of Cetaceans in Scientific Research/Public Display Permit Requests
January 1, 1995 to December 31, 1995

	Taken by Killing	Taken / Imported and Kept Alive	Tagged or Taken and Released	Found Dead / Stranded	Total Requested
Lagenorhynchine Dolphin	0	0	0	0	0
Long-finned Pilot Whale	0	0	0	0	0
Melon-Headed Whale	0	0	0	0	0
Minke Whale	0	0	0	0	0
Northern Right Whale Dolphin	0	0	0	0	0
Pacific White-sided Dolphin	0	0	20	0	20
Pygmy Killer Whale	0	0	0	0	0
Pygmy Sperm Whale	0	0	0	0	0
Risso's Dolphin, Grampus	0	0	0	0	0
Rough-Toothed Dolphin	0	0	0	0	0
Sei Whale	0	0	0	0	0
Short-Finned Pilot Whale	0	0	0	0	0
Southern Right Whale Dolphin	0	0	0	0	0
Spectacled Porpoise	0	0	0	0	0
Sperm Whale	0	0	0	0	0
Spinner Dolphin	0	0	0	0	0
Stenelline Dolphin	0	0	0	0	0
Striped Dolphin, Streaker	0	0	0	0	0
Chinese River Dolphin	0	0	0	0	0
White Whale, Beluga	0	0	0	0	0
TOTAL	**10**	**1**	**291**	**0**	**302**

Table D-3
Number of Pinnipeds in Scientific Research/Public Display Permit Requests
January 1, 1995 to December 31, 1995

	Taken By Killing	Taken / Imported and Kept Alive	Tagged or Taken and Released	Found Dead/ Stranded	Total Requested
California Sea Lion	0	0	30	0	30
Crabeater Seal	0	0	50	0	50
Hawaiian Monk Seal	0	0	35	0	35
Kerguelen Fur Seal	0	0	2540	0	2540
Leopard Seal	0	0	50	0	50
Northern Elephant Seal	0	0	30	0	30
Pacific Harbor Seal	0	0	250	0	250
South American Sea Lion	0	3	0	0	3
Southern Elephant Seal	0	0	50	0	50
Weddell Seal	0	0	4,000	0	4,000
TOTAL	**0**	**3**	**7,035**	**0**	**7,038**

Table D-4
Number of Cetaceans Authorized in Scientific Research/Public Display Permits
January 1, 1995 to December 31, 1995

	Taken by Killing	Taken/ Imported and Kept Alive	Tagged or Taken and Released	Found Dead/ Stranded	Total Requested
Atlantic Hump-Backed Dolphin	0	0	0	0	0
Northern Right Whale	0	0	0	0	0
Blue Whale	0	0	0	0	0
Bottlenose Dolphin	0	0	150	0	150
Boto, Amazon River Dolphin	0	0	0	0	0
Commerson's Dolphin	0	0	0	0	0
Common Dolphin	0	0	20	0	20
Cuvier's Beaked Whale	0	0	0	0	0
Dall's Porpoise	0	0	0	0	0
Dwarf Sperm Whale	0	0	0	0	0
False Killer Whale	0	0	0	0	0
Finback Whale	0	0	0	0	0
Finless Porpoise	0	0	0	0	0
Fraser's (Sarawak) Dolphin	0	0	0	0	0
Ganges River Dolphin	0	0	0	0	0
Gray Whale	0	0	0	0	0
Harbor Porpoise	10	0	100	0	110
Humpback Whale	0	0	0	0	0
Indus River Dolphin	0	0	0	0	0
Irrawaddy Dolphin	0	0	0	0	0
Killer Whale	0	0	0	0	0
Lagenorhynchine Dolphin	0	0	0	0	0
Melon-Headed Whale	0	0	0	0	0
Minke Whale	0	0	0	0	0
Northern Right Whale Dolphin	0	0	0	0	0
Pacific White-Sided Dolphin	0	0	20	0	20

Table D-4 (cont.)
Number of Cetaceans Authorized in Scientific Research/Public Display Permits
January 1, 1995 to December 31, 1995

	Taken by Killing	Taken/ Imported and Kept Alive	Tagged or Taken and Released	Found Dead/ Stranded	Total Requested
Pygmy Killer Whale	0	0	0	0	0
Risso's Dolphin, Grampus	0	0	0	0	0
Rough-Toothed Dolphin	0	0	0	0	0
Sei Whale	0	0	0	0	0
Short-Finned Pilot Whale	0	0	0	0	0
Southern Right Whale Dolphin	0	0	0	0	0
Spectacled Porpoise	0	0	0	0	0
Sperm Whale	0	0	0	0	0
Spinner Dolphin	0	0	0	0	0
Stenelline Dolphin	0	0	0	0	0
Striped Dolphin, Streaker	0	0	0	0	0
Chinese River Dolphin	0	0	0	0	0
White Whale, Beluga	0	0	0	0	0
TOTAL	**10**	**0**	**290**	**0**	**300**

Table D-5
Number of Pinnipeds Authorized in Scientific Research/Public Display Permits
January 1, 1995 to December 31, 1995

	Taken By Killing	Taken/ Imported and Kept Alive	Tagged or Taken and Released	Found Dead/ Stranded	Total Requested
California Sea Lion	0	0	30	0	30
Hawaiian Monk Seal	0	0	0	0	0
Kerguelen Fur Seal	0	0	40	0	40
Northern Elephant Seal	0	0	30	0	30
South American Sea Lion	0	3	0	0	3
Weddell Seal	0	0	4,000	0	4,000
Pacific Harbor Seal	0	0	0	0	0
TOTAL	**0**	**0**	**4, 103**	**0**	**4, 103**

Table D-6
Summary of All Permits for Permanent Removal of Cetaceans from the Wild
January 1, 1995 to December 31, 1995

	Permits			Number of Animals		
	Issued	**Expired**	**Current**	**Requested**	**Authorized**	**Take Remaining**
Harbor Porpoise	1	0	1	10	10	10
TOTAL	**1**	**0**	**1**	**10**	**0**	**10**

Appendix E

Table E-1
Marine Mammal Strandings in 1995

Species	1995				
	NE	SE	SW	NW	AK
Baleen Whales					
Blue Whale		1			
Bryde's Whale					
Fin Whale	3	1	1		
Gray Whale			13	4	2
Humpback Whale	3	5	6	1	6
Minke Whale	2		2	1	
Northern Right Whale	1		1		
Sei Whale					
Unidentified Whale			2		1
Physeteridae					
Sperm Whale	1	2			1
Dwarf Sperm Whale	2	4			
Pygmy Sperm Whale	1	23	1		
Pyg. or Dwf. Sperm Whale		1			
Beaked Whales					
Baird's Beaked Whale					1
Blainville's Beaked Whale					
Bottlenose Whale					
Cuvier's Beaked Whale		4			
Gervais' Beaked Whale	1	5			
Hubbs' Beaked Whale					
Stejneger's Beaked Whale					
Unidentified Beaked Whale					
Monodontidae					
Beluga					1
Delphinidae					
Killer Whale				1	
False Killer Whale		1			
Pygmy Killer Whale					
Melon Headed Whale					
Long-finned Pilot Whale	3				

Table E-1 (cont'd)
Marine Mammal Strandings in 1995

Species	1995				
	NE	SE	SW	NW	AK
Delphinidae (cont.)					
Short-finned Pilot Whale		50	1		
Unidentified Pilot Whale		1			
Bottlenose Dolphin	38	460	10		
Common Dolphin	6	2	35		
Fraser's Dolphin		1			
Atlantic White-sided Dolph	7				
Pacific White-sided Dolph.			5		
Northern Right Whale Dolp			5		
Risso's Dolphin	2	1	1		
Rough-Toothed Dolphin		3			
Long-snouted Spinner					
Short-snouted Spinner		17			
Spinner Dolphin					
Atlantic spotted Dolphin		8			
Pantropical spotted Dolphin					
Spotted Dolphin					
Striped Dolphin	4	2	1		
Unidentified Stenella sp.		1			
Unidentified Dolphin	2	6	7		
Phocoenidae					
Dall's Porpoise			2	2	
Harbor Porpoise	66	9	16	9	6
Unidentified Cetacean	2		1		
TOTAL CETACEAN	144	607	110	18	19

Table E-1 (cont'd)
Marine Mammal Strandings in 1995

Species	1995				
	NE	SE	SW	NW	AK
Otariid (fur seals/sea lions)					
California Sea Lion			791	11	
Steller Sea Lion			7		8
Guadalupe Fur Seal			2		
Northern Fur Seal			8		
Unidentified otariid				8	
Phocids (true seals)					
Gray Seal	7				
Harbor Seal	166	4	327	70	26
Harp Seal	78				
Hawaiian Monk Seal			1		
Northern Elephant Seal			303	2	1
Ringed Seal					
Unidentified phocid	6			10	
Unidentified pinniped			118	5	
TOTAL PINNIPED	**271**	**4**	**1557**	**106**	**35**
TOTAL MARINE MAMMALS	**459**	**969**	**1622**	**251**	**271**

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