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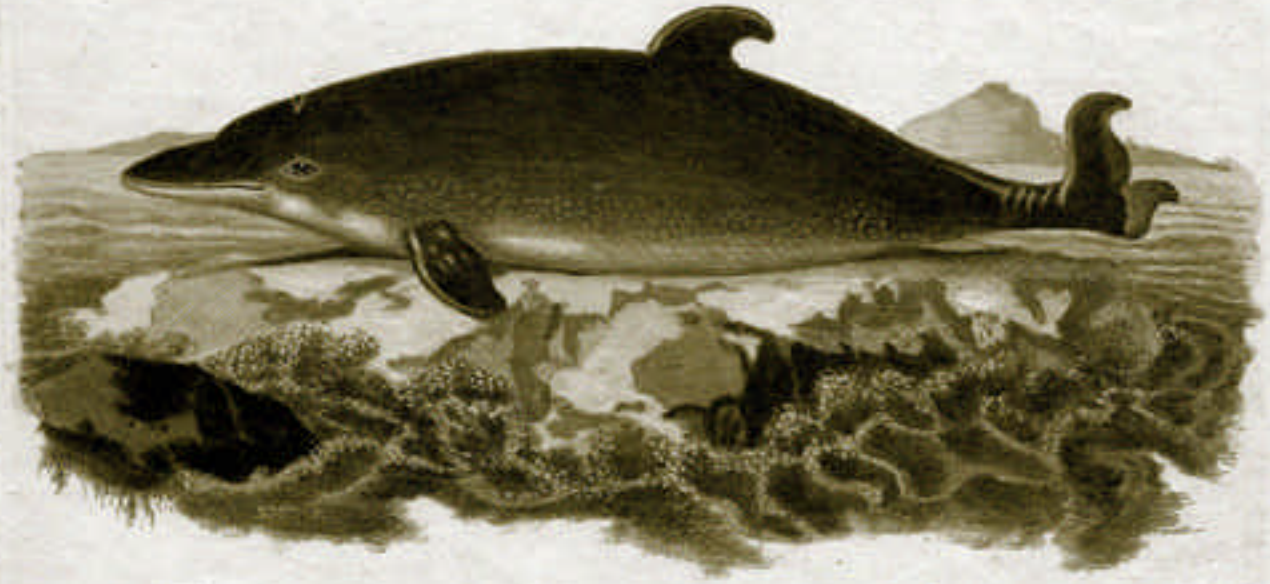
MARINE MAMMAL COMMISSION

ANNUAL REPORT TO CONGRESS 2003



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MARINE MAMMAL COMMISSION • 4340 East-West Highway • Room 905
Bethesda, Maryland 20814

Marine Mammal Commission

Annual Report to Congress

2003

Marine Mammal Commission
4340 East-West Highway, Room 905
Bethesda, Maryland 20814

30 April 2004

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Front cover: Copperplate engraving of the common dolphin from *Die Saugthiere* (The Mammals) by Johann Schreber, published in Erlangen, Germany, between 1775 and 1787.

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Chapter I

INTRODUCTION

This is the 31st Annual Report of the Marine Mammal Commission, covering the period 1 January through 31 December 2003. The Commission submits its reports to Congress pursuant to section 204 of the Marine Mammal Protection Act of 1972.

Established under Title II of the Act, the Marine Mammal Commission is an independent agency of the Executive Branch. It reviews and makes recommendations on domestic and international actions and policies of all federal agencies with respect to marine mammal protection and conservation and with carrying out a research program.

The purpose of this report is to provide timely information on management issues and events under purview of the Marine Mammal Commission in 2003. The Commission provides the report to Congress, federal and state agencies, public interest groups, the academic community, private citizens, and the international community. When combined with past reports, it describes the evolution and progress of U.S. policies and programs to conserve marine mammals and their habitats. To ensure accuracy, the Commission asks federal and state agencies and knowledgeable individuals to review report drafts before publication.

The Commission consists of three members nominated by the President and confirmed by the Senate. The Marine Mammal Protection Act requires that Commissioners be knowledgeable in marine ecology and resource management. The Commission Chairman, after consultation with the Council on Environmental Quality, the National Science Foundation, and the National Academy of Sciences/National Research Council and with the concurrence of other Commissioners, appoints people to the nine-member Committee of Scientific Advisors on Marine Mammals. The Marine Mammal Protection Act requires that committee members be scientists who are knowledgeable in marine ecology and marine mammal affairs. Members of the Commission, the Committee of Scientific Advisors, and the staff are listed opposite the contents page of this report.

Appropriations to the Marine Mammal Commission in the past five fiscal years have been as follows: FY 1999, $1,240,000; FY 2000, $1,265,000; FY 2001, $1,696,260; FY 2002, $1,956,000; and FY 2003, $3,050,000. The Commission's appropriation for the current fiscal year, FY 2004, is $1,856,000 plus a transfer of $1,194,000 from the National Oceanic and Atmospheric Administration.

New Initiatives in Fiscal Year 2003

Along with its customary review and oversight functions, the Marine Mammal Commission embarked on several new undertakings during 2003.

Consultation on Future Directions in Marine Mammal Research

In testimony before Congress and in other forums, the Commission has long espoused the need for an anticipatory and proactive approach to marine mammal research and management to inform managers and decisionmakers and help them avoid the all too common crises-driven patterns of response. Crises-driven approaches are generally expensive and provide few options. In contrast, far-sighted and comprehensive decisionmaking is both cost-effective and flexible. In its Fiscal Year 2002 appropriation, the Commission was provided funds to bring together a panel of scientific experts to identify current and future management needs for marine mammals and the research necessary to address those needs in a proactive manner.

The Commission constituted a steering committee to help plan an international meeting to address future research needs. The committee met several

times to develop an agenda, identify participants, and assign topics and authors for background papers. In August 2003 a consultation with leading biologists and marine scientists from seven countries was held in Portland, Oregon. For a summary of the consultation, see Chapter VIII of this report.

Commission Web Site

In May 2003 the Commission launched its official Web site — www.mmc.gov. The site contains information about the Commission, including the Commissioners and Scientific Committee, letters, reports of the Commission and contractors, brief species summaries of many marine mammals, and links to many Web sites where people can find additional information. The Commission also uses the Web site to post announcements of upcoming meetings and summaries of meetings, including materials for the sound policy dialogue.

Sound Project

In its Fiscal Year 2003 appropriation, Congress provided additional funds over the President's requested amount to the Commission and directed that the Commission hold "… an international conference or series of conferences to share findings, survey acoustic threats to marine mammals, and develop means of reducing those threats while maintaining the oceans as a global highway of international commerce." Commission staff met with numerous people representing diverse interests on this topic, including Congressional staff and representatives of industries, academia, states, and environmental groups. Most of the people felt that a facilitated policy dialogue would be the most useful process to bring disparate interests to the same table to discuss these issues.

The Commission worked with the U.S. Institute for Environmental Conflict Resolution to hire a facilitation team to organize and manage the meetings. The Commission chartered the group in compliance with the Federal Advisory Committee Act (FACA). For a more complete discussion of the FACA committee, see Chapter VII of this report.

In addition to the FACA committee, the Commission is working with staff from the National Marine Fisheries Service, the Consortium on Oceanographic Research and Education, and the American Association of Zoological Parks and Aquariums on an educational outreach program to inform the public about sound in the oceans and its effect on marine mammals.

New Initiatives for Fiscal Year 2004

The Commission will continue its core programs of oversight and participation in the variety of marine mammal research and management programs as well as working with other Executive Branch agencies and Congress on reauthorization of the Marine Mammal Protection Act. The Commission will continue holding meetings of the Advisory Committee on Anthropogenic Sound and Marine Mammals. We anticipate a final report from the full committee in early 2005.

In addition to the Commission's base program, Congress directed the National Oceanic and Atmospheric Administration to transfer $1,194,000 to the Commission and directed the Commission to "… review the biological viability of the most endangered marine mammal populations and make recommendations regarding the cost-effectiveness of current protection programs. The Committee further directs the Commission to review available evidence regarding the theory that rogue packs of killer whales are wiping out discreet populations of the most endangered marine mammals." The Commission will initiate these reviews during 2004.

Chapter II

REAUTHORIZATION OF THE MARINE MAMMAL PROTECTION ACT

The Marine Mammal Protection Act was enacted in 1972. Since then, it has been amended and reauthorized several times. The most recent authorization, enacted in 1994, extended appropriation authority for carrying out the provisions of the Act through fiscal year 1999. Although the Act has not been reauthorized since then, its provisions remain in effect and Congress continues to appropriate funds to carry out its mandates.

As a matter of course, Congress examines the implementation of the Act and considers amendments during the reauthorization process. For example, major amendments were enacted in 1984, 1988, and 1994, the last three times the Act was reauthorized. The Act may also be amended at other times, as it was in 1997 when significant changes were made to the Act's tuna-dolphin provisions (see Chapter IV). Other recent amendments include the Marine Mammal Rescue Assistance Act of 2000 (enacted as Title II of Public Law 106-555), which created the John H. Prescott Marine Mammal Rescue Assistance Grant Program (see Chapter VI), and, as discussed below, changes to the Act's harassment definition, small-take provisions, and polar bear permit provisions enacted in 2003 in appropriations legislation.

Background

Congress began the most recent process to reauthorize the Marine Mammal Protection Act in 1999. As discussed in previous annual reports, the Subcommittee on Fisheries Conservation, Wildlife, and Oceans of the House Resources Committee held an initial hearing in June 1999. The Marine Mammal Commission and the other federal agencies with primary responsibilities under the Act testified on implementation of the 1994 amendments and identified subjects that might warrant additional legislation. Further hearings were held in April 2000 to examine implementation of section 118 of the Marine Mammal Protection Act, the regime that governs the taking of marine mammals incidental to commercial fisheries, and efforts to conclude and implement cooperative agreements between the Services and Alaska Native organizations under section 119 of the Act.

The Subcommittee on Fisheries Conservation, Wildlife, and Oceans again turned its attention to Marine Mammal Protection Act reauthorization during the 2001 session of Congress. In October 2001 the Subcommittee held a day-long oversight hearing on the Act to consider a broad range of topics bearing on reauthorization and possible amendments, including implementation of the 1994 amendments to the Act, the bilateral polar bear agreement concluded between the United States and Russia in 2000, ocean noise and the deployment of Navy sonar systems, marine mammal/fisheries interactions, cooperative efforts between Alaska Natives and federal agencies to manage subsistence hunting of marine mammals, public display permits, and the conservation of California sea otters.

Another reauthorization hearing was convened by the Subcommittee on Fisheries Conservation, Wildlife, and Oceans in June 2002, this time to solicit comments on H.R. 4781, a reauthorization bill introduced by Congressman Gilchrest during the previous session of Congress. Summaries of the Commission's testimony and copies of the statements submitted by the Commission at those hearings can be found in previous annual reports. Those reports also discuss the proposed reauthorization bills submitted to Congress by the Clinton Administration in 2000 and the Bush Administration in 2002.

Activities in 2003

Administration Bill

On 21 February 2003 the General Counsel of the Department of Commerce transmitted to Congress the Administration's recommended reauthorization bill, entitled "The Marine Mammal Protection Act Amendments of 2003." The bill was substantively identical to the bill transmitted to Congress by the Administration in 2002 and would authorize appropriations for the Marine Mammal Commission, the Department of Commerce, and the Department of the Interior to carry out their responsibilities under the Act through Fiscal Year 2007. In addition, the bill recommended extensive revisions to the Act to address various issues that had arisen since the last reauthorization and to clarify certain provisions of the 1994 and 1997 amendments. Although patterned on the bill proposed in 2000, the bills transmitted to Congress in 2002 and 2003 differed in several respects. The provisions of the 2003 bill are described below. The full text of the proposed amendments, as well as the accompanying statement of purpose and need, can be found at the National Marine Fisheries Service's Web page (http://www.nmfs.noaa.gov/prot_res/PR2/MMPA_Reauthorization).

Management of Taking by Alaska Natives — A central provision of the Administration bill is the harvest management provision worked out between the National Marine Fisheries Service, the Fish and Wildlife Service, the Marine Mammal Commission, and representatives of the Alaska Native hunting community. Unlike existing section 119, which currently enables the National Marine Fisheries Service and the Fish and Wildlife Service to enter into cooperative agreements with Alaska Native organizations, the harvest management agreements entered into under the new provision would be enforceable by both the federal government and Alaska Native parties. Thus, any limitation on when, where, how, or how many marine mammals may be taken that was agreed to by the parties to the agreement would be binding on all members of the Alaska Native tribes or organizations that are signatories to the agreement. Currently, such limitations can be established only after the affected marine mammal stock has been determined to be depleted and, even then, only through formal rulemaking. Harvest management agreements would be limited to Alaska Native tribes or tribally recognized organizations as a means of ensuring that the Native party had sufficient authority to enforce the agreement with respect to its membership. The proposed amendment would require the Service to provide draft regulations to harvest management partners before imposing any restrictions on Native taking and to seek their advice before making a depletion finding concerning any species or stock covered by such an agreement. In addition, the proposed amendment would (1) provide for cooperative enforcement by the Services and Native organizations, (2) provide an opportunity for public review and comment before approval of a co-management agreement, and (3) authorize specific funding to carry out the new provisions.

Cultural Exchanges and Exports — As part of a package of permit-related amendments enacted in 1994, Congress added a provision to prohibit the export of marine mammals for purposes other than public display, scientific research, or enhancing the survival of a species or stock. Although this prohibition specifies that it is subject to exceptions set forth elsewhere in the Act, it was added late in the 1994 reauthorization process, and its drafters neglected to include any such exceptions in those other sections. Thus, certain types of exports that had been permissible before 1994 arguably could no longer be authorized.

The 1994 amendments also added section 101(a)(6) to the Act to allow marine mammal products to be imported into the United States if they are (1) legally possessed and exported by a U.S. citizen in conjunction with foreign travel, (2) obtained by an Alaska Native outside the United States as part of a cultural exchange, or (3) owned by a Native inhabitant of Russia, Canada, or Greenland and are being imported for noncommercial purposes in conjunction with personal travel or as part of a cultural exchange with an Alaska Native. However, the drafters of this provision did not anticipate enactment of the export prohibition. Thus, many U.S. citizens may not be able to avail themselves of the import provision because they could not have legally exported the item in the first place. Similarly, Natives from other countries who bring marine mammal items into the United States under this provision may face difficulties when they try to export those items upon departure.

To address some of these problems, the Administration's proposed bill would amend several sections of the Act to indicate when exports of marine mammals or marine mammal products are allowed. The bill would authorize exports related to a waiver of the Act's moratorium on taking or importing marine mammals. The proposal would also clarify that

permits may be issued to authorize the export of marine mammals for purposes of public display, scientific research, and species enhancement. Although such exports are currently allowed, the existing provisions are geared toward transfers of marine mammals from U.S. facilities, which do not require a permit, rather than the take of marine mammals from U.S. waters for direct export to foreign facilities. The proposed amendments to section 104 would supplement the existing mechanisms for authorizing exports by allowing permits to be issued in situations not currently covered by the existing provisions but would not require a permit to be obtained in those instances where a permit currently is not required.

The bill would also amend the Act's prohibition section to resurrect language enacted in 1981 but changed by the 1994 amendments. The proposed change would close a potential loophole by clarifying that unauthorized transports, purchases, sales, or exports of marine mammals or marine mammal parts constitute violations of the Act regardless of whether the underlying taking was legal.

Permit-Related Amendments — Three sections of the Administration bill address specific problems that have arisen with respect to the permit provisions of the Act. The 1994 amendments added a provision authorizing the issuance of permits for the importation of polar bear trophies from Canada. Currently, the Fish and Wildlife Service is required to publish in the *Federal Register* a notice of the receipt of the application for each such permit and a notice of issuance for each permit. Inasmuch as the only determination to be made is whether the trophy to be imported was legally taken in Canada before a certain date or from an approved population, and because few public comments on individual imports have been submitted, the proposed bill would streamline the permitting process by eliminating these publication requirements. In their place, to ensure that the public continues to have access to information on these types of permits, the Service would be required to make available on a semiannual basis a summary of all such permits issued or denied. The Service would still be required to publish a notice of any application received seeking authority to import a polar bear trophy taken from an unapproved population.

Another question that has arisen in the past several years is whether releasing captive marine mammals to the wild constitutes a taking that requires authorization under the Act. The Commission, the National Marine Fisheries Service, and some others subscribe to the view that releasing marine mammals has the potential to injure the animals or wild populations exposed to the animals and, therefore, is a taking. This position was adopted by the presiding administrative law judge in a 1999 ruling in an enforcement proceeding brought by the National Marine Fisheries Service against individuals who had released two long-term captive dolphins without obtaining authorization. The Administration bill would codify this interpretation by adding an explicit prohibition on releasing captive marine mammals unless authorized by a permit or under section 109(h) of the Act, which authorizes the rehabilitation and release of stranded marine mammals. In response to concerns raised by the Navy that marine mammals it maintains for military and research purposes might fit under this provision, the bill would exclude the temporary release of such animals.

The 1994 amendments to the Act eliminated most authority of the National Marine Fisheries Service and the Fish and Wildlife Service over captive marine mammals. One result of this shift in agency responsibilities was the invalidation of a long-standing National Marine Fisheries Service policy against issuing permits for traveling displays of dolphins or other cetaceans. This policy had been instituted because of the high stress levels and other risks posed by such exhibits on this group of animals. The Administration bill would reinstate the ban on traveling cetacean exhibits through an amendment to the Act's prohibition section.

Fisheries Provisions — The 1994 amendments to the Act established a new regime to govern the taking of marine mammals incidental to commercial fishing operations. This regime replaced an interim exemption for commercial fisheries that had been in place since 1988. The Administration bill would strike the outdated interim exemption provisions (section 114) and would modify the operative provisions of section 118. Most notably, the proposed amendments would expand coverage of the incidental take regime to include not only commercial fisheries, but certain recreational and subsistence fisheries as well. Such a change is considered desirable because in some areas these groups of fishermen use the same gear and fishing techniques as do commercial fishermen, yet are not subject to the requirements of the Act pertaining to monitoring, reporting, and take reduction.

Other fisheries-related amendments recommended in the Administration bill would (1) clarify that it constitutes a violation of the Act to engage in

a fishery that frequently or occasionally takes marine mammals (category I and II fisheries) without having registered, (2) clarify that owners of vessels engaged in category I and II fisheries are required to carry an observer when requested, whether or not they are registered, (3) consolidate all section 118 prohibitions into a single subparagraph to eliminate possible confusion, (4) eliminate the requirement to prepare a take reduction plan for a strategic stock if it is determined that fishery-related mortality and serious injury are having a negligible impact on that stock, and (5) require that California sea otters be factored into monitoring and observer placement decisions, even though incidental taking of this species would not be authorized. The bill would also delete section 120(j) of the Act, which contains provisions applicable to the Gulf of Maine stock of harbor porpoises that are no longer needed.

Other changes recommended by the Administration would require the Secretary of Commerce to assign a technical liaison to each take reduction team and to reconvene the team to review proposed regulations implementing the take reduction plan and any proposed changes to the team's draft plan. In addition, a new provision would be added directing the Secretary to undertake and fund research directed at developing improved fishing methods and gear to reduce the taking of marine mammals incidental to fishing operations. The bill also contains technical amendments to correct and clarify the Act's tuna-dolphin provisions.

Enforcement and Penalties — The fines and other penalties that can be assessed for violations of the Marine Mammal Protection Act have not been increased since it was originally enacted in 1972. To account for inflation since that time and to enhance effective enforcement of the Act, the Administration proposed that the Act be amended to increase the maximum civil penalty from $10,000 to $50,000 for each violation. Maximum criminal fines would be increased from $20,000 to $100,000 per violation. Similarly, the maximum fine that could be assessed against a vessel for violating the Act would be increased from $25,000 to $50,000. A related amendment would authorize the seizure and forfeiture of a vessel's cargo (including fish) for fishing in violation of the provisions of section 118 of the Act.

The proposed amendments would add a new provision explicitly prohibiting various actions that impede implementation and enforcement of the Act. The bill would make it illegal to refuse a lawful vessel boarding, interfere with an authorized search or inspection, or submit false information in an investigation. An enhanced penalty of up to $200,000 would be made available for offenses involving the use of a dangerous weapon, that cause bodily injury to enforcement officials or that place enforcement officials in fear of imminent bodily injury.

The Administration bill also contains a provision that would direct the Secretary to seek cooperative enforcement agreements with state law enforcement agencies. Another provision would authorize the National Marine Fisheries Service to use fines collected under the Act for the protection and recovery of marine mammals under its jurisdiction, something that the Fish and Wildlife Service currently is authorized to do.

Marine Mammal Commission Administration — The Marine Mammal Protection Act currently limits the amount that the Commission may compensate experts or consultants to $100 per day. This limitation, in today's economy, prevents the Commission from securing the services of virtually all experts and consultants. The Administration bill would eliminate this restriction and place the Commission on an equal footing with other government agencies.

Marine Mammal Health and Stranding Response — Under the Administration bill, appropriations would be authorized to carry out Title IV of the Act for a five-year period. In addition, the bill would amend sections 402 (data collection), 403 (stranding response agreements), and 406 (indemnification) to specify that these provisions apply to disentanglement activities as well as to stranding responses. Another proposed amendment would allow general appropriations for implementing the Act to be placed in the unusual mortality event fund, whether or not they are earmarked for unusual mortality responses.

Research Grants — Section 110 of the Act authorizes the National Marine Fisheries Service and the Fish and Wildlife Service to make grants or otherwise fund research pertaining to the protection and conservation of marine mammals. The 1994 amendments to that section identified specific research projects to be undertaken, all of which should have been completed. Therefore, the Administration bill recommends that the provisions applicable to those projects be deleted and the section revised to facilitate research directed not only at specific marine mammal issues but also at ecosystem-level problems. The proposed language identified two such studies that should be given high priority — a Bering Sea–Chukchi Sea ecosystem

study and a study of the California coastal marine ecosystem.

Definition of Harassment — Although harassment has been an element of the term "take" since the Act was enacted in 1972, a definition of harassment was not added to the Act until 1994. Under that definition, Level A harassment is any act of pursuit, torment, or annoyance that has the potential to injure a marine mammal or marine mammal stock in the wild. Level B harassment is defined as any act of pursuit, torment, or annoyance that has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering. These definitions have been subject to differing interpretations.

To eliminate the ambiguities in the current definitions and to provide greater predictability, the Administration bill includes a proposed redefinition of harassment. Level A harassment would be redefined to mean any act that injures or has the significant potential to injure a marine mammal or marine mammal stock in the wild. Level B harassment would be split into two parts. First, Level B harassment would include any act that disturbs or is likely to disturb a marine mammal or marine mammal stock in the wild by causing disruption of natural behavioral patterns, including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering to a point where such behavioral patterns are abandoned or significantly altered. Second, Level B harassment would include any act directed toward a specific individual, group, or stock of marine mammals in the wild that is likely to disturb the mammal or mammals by disrupting behavior, including, but not limited to, migration, surfacing, nursing, breeding, feeding, or sheltering.

Ship Strikes — To underscore the plight of the North Atlantic right whale and the need to take additional steps to stem whale mortalities from ship strikes, the Administration bill would amend section 112 of the Act to require the Secretary of Commerce to use existing authorities under the Act to reduce the incidence of ship strikes of whales and to encourage further investigation of methods for avoiding ship strikes.

Introduced Bills

As discussed in the previous annual report, Representative Wayne T. Gilchrest, Chairman of the Subcommittee on Fisheries Conservation, Wildlife, and Oceans, introduced H.R. 4781 on 21 May 2002 to reauthorize appropriations under the Act through Fiscal Year 2007. The bill sought to address some, but not all, of the issues identified by the Commission and others at previous reauthorization hearings. The bill deferred consideration of some major issues, such as the desirability of adding a mechanism to restrict subsistence hunting by Alaska Natives before a stock becomes depleted, pending further Committee review.

Drawing on that bill, Congressman Gilchrest, on behalf of himself and Congressman Pombo, Chairman of the House Resources Committee, introduced H.R. 2693 on 10 July 2003 for consideration by the 108th Congress. That bill would authorize appropriations for purposes of carrying out the Act for Fiscal Years 2004 through 2008. The bill incorporated some, but not all, of the amendments that had been advocated by the Commission and other agencies at earlier reauthorization hearings and in the Administration bill. It also included some provisions that had not been specifically recommended by the agencies. Among other things, H.R. 2693, as introduced, would —

- amend section 101(a)(6) of the Act to clarify that exports, as well as imports, of marine mammal products as part of cultural exchanges by Alaska Natives and Native inhabitants of Russia, Canada, and Greenland are authorized;
- expand the incidental take regime for commercial fisheries (section 118) to include recreational fisheries that meet the criteria of a category I or II fishery;
- increase the time specified for preparing and reviewing take reduction plans under section 118(f) of the Act;
- require increased representation of National Marine Fisheries Service employees at take reduction team meetings;
- require the Service to consult with a take reduction team before publishing any take reduction plan that differs from that recommended by the team;
- direct the Secretary of Commerce to conduct research on measures for the nonlethal removal and control of nuisance pinnipeds;
- eliminate the requirement that the Marine Mammal Commission be staffed by no fewer than 11 employees and the provision restricting the amount the Commission can spend on experts or consultants;
- extend the exemption for scrimshaw products and materials under the Endangered Species Act for an additional eight years;
- revise the "grandfather provision" of section 104(c)(5) to allow the importation of any polar bear

trophy legally taken in Canada before the effective date of applicable regulations (18 February 1997), regardless of whether it was taken from an approved population;

- eliminate the notice and comment requirements for each permit authorizing the importation of a polar bear trophy from Canada, replacing it with a semiannual reporting requirement;
- add an explicit prohibition on the unauthorized release of captive marine mammals;
- revise Title IV of the Act to refer to entanglements as well as strandings;
- redefine the term "harassment" to mean any act that —

  (i) has the probability to injure a marine mammal or marine mammal stock in the wild;

  (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing biologically significant disruption of activities, including, but not limited to, migration, breeding, care of young, predator avoidance, defense, or feeding; or

  (iii) is directed toward a specific individual, group, or stock of marine mammals in the wild and is likely to impact the individual, group, or stock of marine mammals by disrupting behavior, including, but not limited to, migration, breeding, care of young, predator avoidance, defense, or feeding; and
- amend the Act's small take provisions (section 101(a)(5)) to eliminate the limitations restricting their applicability to "a specified geographic region" and "small numbers" of marine mammals and to provide for a general authorization of incidental taking in some instances.

Congressman Frank Pallone, ranking minority member of the Subcommittee on Fisheries Conservation, Wildlife, and Oceans, introduced a separate reauthorization bill on 16 October 2003. That bill, H.R. 3316, drew more heavily on the Administration bill than did H.R. 2693. For example, it reflected the Administration's proposals with respect to (1) expanding section 118 to include both recreational and subsistence fisheries and restructuring the provision to clarify the applicable requirements, (2) requiring greater consideration of California sea otters in implementing some aspects of section 118, (3) including entanglements under Title IV, (4) providing greater flexibility for supporting the unusual mortality event fund, (5) increasing available penalties, (6) allowing fines to be used for marine mammal conservation programs, (7) seeking cooperative enforcement agreements with the states, (8) prohibiting the unauthorized release of captive marine mammals, (9) amending the prohibition on selling, purchasing, and transporting marine mammals to close a potential loophole, and (10) updating the Act's research grant provision.

Other Administration proposals were partially incorporated into H.R. 3316. For example, it included a prohibition on traveling exhibits, but unlike the Administration's proposal, which is limited to cetaceans, it would apply to all marine mammals. The bill also incorporated many of the recommended changes to the take reduction plan provisions but would make additional changes as well. Similarly, the Pallone bill included provisions related to fishing gear development, including the establishment of a voluntary gear buy-back program. However, H.R. 3316 would direct, rather than authorize, the Secretary to carry out a gear research and development program.

Other provisions of H.R. 3316 were patterned on, but differed from, the Administration proposals. Both addressed ship strikes of right whales, but the Pallone bill would require the Secretary of Commerce to prepare and implement a ship strike reduction plan with the goal of reducing strikes to levels approaching zero within five years. Other provisions, such as those pertaining to nonlethal control of nuisance pinnipeds, were drawn from the Gilchrest bill. However, H.R. 3316 provided greater detail as to how the research was to be conducted and administered.

The Pallone bill also contained several provisions that did not have any counterpart in either H.R. 2693 or the Administration's proposed bill. Those included —

- changes to the Act's provisions concerning the inventory of captive marine mammals;
- establishment of an advisory committee, under the auspices of the Marine Mammal Commission, to make recommendations on care and maintenance standards for marine mammals in captivity;
- amendments to the Prescott Marine Mammal Rescue Assistance Program;
- revisions to section 101(a)(4) requiring the promulgation of deterrence regulations;
- a requirement that cumulative impacts be considered when issuing incidental harassment authorizations under section 101(a)(5)(D);
- a directive for the Marine Mammal Commission to prepare a report on emerging threats to marine mammals; and

- a requirement for reconvening the regional scientific review groups established under section 117(d) to provide recommendations on priorities for completing and updating stock assessments.

As with the other proposed bills, H.R. 3316 also contained a provision to redefine the term "harassment." That proposed definition is more inclusive than the definitions proposed in H.R. 2693 and the Administration's recommended bill. Specifically, the Pallone bill would define harassment as any act that (i) injures or has the potential to injure a marine mammal or marine mammal stock in the wild or (ii) disturbs or has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of biologically significant activities, including, but not limited to, surfacing, communication, sheltering, resting, migration, breeding, care of young, predator avoidance or defense, feeding, or foraging.

Further guidance would be provided by specifying that the term "potential" means "capability or possibility," and the term "disruption" means "an interruption of the normal course, taking into account the cumulative effects that behavioral changes may have on biologically significant activities."

Congressional Hearings

The Senate Committee on Commerce, Science, and Transportation scheduled its first hearing on the reauthorization of the Marine Mammal Protection Act on 15 May 2003 but, because of conflicts with the Senate's legislative agenda, postponed the hearing at the last minute. Nevertheless, because of the availability of the scheduled witnesses, the Committee staff took the opportunity to discuss reauthorization issues with them in an informal, off-the-record setting. The Commission's Chairman participated in those discussions.

The Commerce Committee hearing was held on 16 July 2003, and the Commission's Executive Director testified on behalf of the Commission. The Commission took the opportunity to reflect on the successes that had been achieved under the first 30 years of the Marine Mammal Protection Act but noted that new threats are emerging, including retreating sea ice in polar regions and, possibly, the proliferation of noise in the marine environment. The Commission explained that a shift in focus away from crisis management was desirable to foster the development of more broad-based, interdisciplinary, and anticipatory approaches that enable the agencies to address emerging conservation problems before they become crises. The Commission's testimony also highlighted specific issues meriting Congressional attention during the reauthorization process. These tracked the amendments that had been proposed in the Administration bill. The full text of the Commission's testimony is presented in Appendix B of this report.

The House Subcommittee on Fisheries Conservation, Wildlife, and Oceans convened a hearing on 24 July 2003 to solicit comments on H.R. 2693, and the Commission's Executive Director testified on behalf of the Commission. His statement is provided in Appendix B. The statements of other witnesses may be found on the Resources Committee's Web site at http://resourcescommittee.house.gov/archives/108/fcwo/07_24_03/htm.

The Commission noted the similarities between H.R. 2693 and H.R. 4781, the reauthorization bill introduced in the previous Congress, but observed that the current bill contained several important improvements. The Commission also noted that H.R. 2693 included several of the key elements contained in the Administration bill but omitted some of the recommended amendments. Foremost among those was the proposal worked out jointly by the Commission, the Fish and Wildlife Service, the National Marine Fisheries Service, and representatives of the Alaska Native community to expand the authority under section 119 to enable the parties to enter into enforceable harvest management agreements. The Commission encouraged the Committee to give additional consideration to that proposal and the other amendments recommended in the Administration bill and provided a summary of those provisions and the rationale behind them.

The Commission's testimony provided a section-by-section analysis of H.R. 2693, offering specific drafting suggestions as appropriate. One provision of the bill that concerned the Commission was a proposal to add to section 101(a)(5) of the Act a general authorization for certain activities that would have a negligible impact on the affected marine mammal stocks. Although supportive of the idea in general, the Commission did not believe that the amendment clearly delineated when it, rather than the other parts of section 101(a)(5), which also have a negligible impact standard, would be invoked. The Commission also cautioned that a general authorization provision may not be appropriate if the definition of "harassment" under the Act were revised to include only those responses considered to be "biologically significant."

The Commission's testimony concluded by providing the Committee with an update of the progress that had been made to organize the conference, or series of conferences, on acoustic threats to marine mammals that had been called for in the Fiscal Year 2003 appropriations bill. The Commission noted that it had (1) met with Senate and House staff to solicit their advice and to clarify the intent behind the legislative directive, (2) met with representatives of a wide range of affected interests to solicit their input, and (3) entered into an agreement with the U.S. Institute for Environmental Conflict Resolution to assist in conducting a series of policy dialogues and in selecting a team of facilitators to run the dialogues (see Chapter VII).

The Subcommittee on Fisheries Conservation, Wildlife, and Oceans subsequently convened a field hearing to obtain information on interactions between growing marine mammal populations and human activities on the West Coast. That hearing, held in San Diego on 19 August 2003, sought the views of government agencies, fishing interests, and researchers considering the impacts of increasing pinniped populations. The Commission did not participate in that hearing.

Markup of H.R. 2693

The Subcommittee on Fisheries Conservation, Wildlife, and Oceans met to mark up H.R. 2693 on 25 September 2003. At that time, Congressman Gilchrest offered an amendment in the nature of a substitute bill, which included four substantive differences from the introduced bill. First, the bill incorporated a new definition of harassment. Second, the substitute adopted the Administration proposal that would eliminate the requirement to prepare a take reduction plan for a strategic stock when the fishery-related impacts on the stock are negligible. Third, the changes would require stock assessment reports to discuss potential conservation benefits provided by state and regional fishery management regulations. Fourth, the substitute bill included most of the amendments relating to the Act's tuna-dolphin provisions that had been recommended by the Administration. Subcommittee members offered four other amendments but later withdrew them. As such, the substitute bill, as offered by Congressman Gilchrest, was agreed to and forwarded to the full Committee.

The Resources Committee met to mark up H.R. 2693 on 5 November 2003. Congressman Gilchrest offered a new substitute bill for consideration that reflected a bipartisan agreement reached among Committee members. Changes from the bill approved by the Subcommittee on Fisheries Conservation, Wildlife, and Oceans included increasing the authorization levels for the Department of Commerce, requiring that take reduction plans discuss possible changes in fishing methods and technology and the conservation benefits of State and regional fishery management regulations, and placing a limit on the administrative costs associated with the Prescott grant program. Also, the revised bill dropped most of the previously proposed amendments concerning the Act's tuna-dolphin provisions, retaining only a technical change that would redefine the western extent of the eastern tropical Pacific as 150° W longitude, rather than 160°. Similarly, the proposed changes to the Act's small-take provisions were scaled back. The revised bill would still delete the "small numbers" requirements of section 101(a)(5), but would retain the limitation on geographic specificity. The substitute bill also contained a different proposed definition of "harassment." The threshold for Level B harassment was lowered to include acts that disturb or have "the potential to disturb" marine mammals. The previous version of the bill had defined Level B harassment to include acts that disturb or are "likely to disturb" marine mammals.

The revised bill also contained a new section that would amend the Act's permit provisions. Under the proposed language, the Secretary of Agriculture would make comparability determinations for foreign facilities under section 104(c)(9). In addition, the Secretaries of Commerce and the Interior would be prevented from requesting comity statements from foreign nations to which marine mammals are being exported or from otherwise requiring that exported marine mammals remain subject to U.S. jurisdiction. The bill would also change the inventory requirements applicable to public display facilities, making them applicable only to U.S. facilities and requiring them to be updated only on an annual basis.

Other changes to the version of H.R. 2693 considered at markup were drawn from H.R. 3316. Those included provisions related to fisheries gear development, marine mammal research grants, and increased fines and penalties, albeit less than those originally sought under the Pallone bill. Available civil penalties would be increased from $10,000 to $20,000 per violation, available criminal penalties would be increased from $20,000 to $30,000, and available vessel penalties would be increased from $25,000 to $35,000.

Participants in the markup stressed that the bill was still a work in progress and that further changes were likely before the bill is considered by the full House. Among the key issues still under review were the definition of harassment, possible changes to the Act's permit provisions, a proposal to eliminate or modify the zero mortality rate goal applicable to commercial fisheries, and the desirability of expanding section 119 cooperative agreements to allow for management of subsistence taking by Alaska Natives.

Amendments Enacted in 2003

Efforts to amend the Marine Mammal Protection Act's definition of harassment and make other changes to the Act were also pursued along another line. The Department of Defense submitted the 2003 Readiness and Range Preservation Initiative to Congress in March 2003. That initiative advocated amendments to various environmental statutes, including the Marine Mammal Protection Act, designed to alleviate what were perceived to be adverse effects of those laws on military readiness. The proposed amendments to the Marine Mammal Protection Act would have made three basic changes.

First, the initiative included a redefinition of the term harassment, but only as it pertains to "military readiness activities." The proposed definition was consistent with the Administration's proposed reauthorization bill except that it did not include the second part of the definition of Level B harassment. That portion of the definition was believed to be inapplicable to military activities, which are not directed at marine mammals.

Second, the initiative would have addressed Defense Department concerns resulting from a recent law suit challenging the authorization issued by the National Marine Fisheries Service for the taking of marine mammals incidental to the Navy's deployment of the SURTASS LFA sonar (see discussion in Chapter VII). That amendment, again applicable only to military readiness activities, would eliminate the requirements of section 101(a)(5) that limit such authorizations to instances when only small numbers of marine mammals would be taken and when the activities would occur within a specified geographic region. The notice requirements for such authorizations would also be revised under the Defense Department proposal. Announcements of proposed incidental take regulations would still be required in the *Federal Register* but no longer need to be published in local or regional newspapers.

Third, the initiative included a provision that would authorize the Secretary of Defense, in consultation with the Secretary of Commerce and/or the Secretary of the Interior, to exempt Defense Department activities from the requirements of the Marine Mammal Protection Act if determined to be "necessary for national defense." Any such exemption would be applicable for no more than a two-year period.

The amendments proposed in the Readiness and Range Preservation Initiative were incorporated into H.R. 1588, the National Defense Authorization Act for Fiscal Year 2004 passed by the House. The counterpart authorization bill as originally passed by the Senate did not contain those provisions. These differences were among those worked out by a conference committee formed to reconcile the two bills (see House Report 108-354), with the Senate agreeing to the provisions in the House bill. The conferees also agreed to expand the applicability of the new harassment definition to include scientific research activities "conducted by or on behalf of the Federal Government consistent with section 104(c)(3)" of the Marine Mammal Protection Act, as well as military readiness activities. The reference to section 104 clarifies that the definition applies only to research conducted on marine mammals, not other types of research that may take marine mammals incidentally. These amendments were signed into law on 24 November 2003 as section 319 of the National Defense Authorization Act for Fiscal Year 2004 (Public Law 108-136).

The National Marine Fisheries Service and Fish and Wildlife Service have yet to determine how they will implement the new harassment definition. However, the conference report provides some guidance in this regard. The report notes that, for marine mammal behavioral patterns to be considered abandoned, "long-term cessation of behaviors and demographic consequences to reproduction or survivability of the species or stock…" would have to occur. Similarly, the report explained that "[i]n order for natural behavioral patterns to be considered 'significantly altered,' there must be demographic consequences to reproduction or survivability of the species." In light of the report language, it can be argued that under the new definition, Level B and Level A harassment could potentially overlap inasmuch as any behavioral modification that has demographic consequences to survival or reproduction could seem to constitute an "injury" (the standard for Level A harassment) at either the

individual or population level. Furthermore, in some situations it may be difficult to determine whether a marine mammal has been harassed under these definitions of "significantly altered" and "abandoned" because demographic and reproductive impacts may not be apparent for many years.

A second amendment that was being considered in the context of the Marine Mammal Protection Act also was incorporated in one of the appropriations bills passed by Congress in 2003. The proposal to extend the grandfather provision applicable to polar bear trophies from the date of enactment of the 1994 amendments (30 April 1994) to the date the Fish and Wildlife Service published its implementing regulations (18 February 1997) was enacted as section 149 of Public Law 108-108, the Fiscal Year 2004 legislation for the Department of the Interior, which was signed into law on 10 November 2003.

Chapter III

SPECIES OF SPECIAL CONCERN

Section 202 of the Marine Mammal Protection Act directs the Marine Mammal Commission, in consultation with its Committee of Scientific Advisors, to make recommendations to the Department of Commerce, the Department of the Interior, and other federal agencies on research and management actions needed to conserve species of marine mammals.

To meet this charge, the Commission devotes special attention to particular species and populations that are vulnerable to various types of human-related activities, impacts, and contaminants. Such species may include marine mammals listed as endangered or threatened under the Endangered Species Act or as depleted under the Marine Mammal Protection Act (Table 1). In addition, the Commission often directs special attention to other species or populations of marine mammals not so listed whenever special conservation challenges arise that may affect them.

During 2003 special attention was directed to a number of endangered, threatened, or depleted species or populations. As discussed below, these include North Atlantic right whales, the Cook Inlet (Alaska) stock of beluga whales, mid-Atlantic coastal bottlenose dolphins, Hawaiian monk seals, southern sea otters, and Florida manatees.

Other species not so listed, but which received special attention during 2003, include killer whales in the eastern North Pacific, bottlenose dolphins (other than mid-Atlantic coastal bottlenose dolphins), and sea otters in Alaska.

In addition to those species mentioned above, significant numbers of marine mammal species and populations in other areas of the world also face major conservation challenges. Although the Commission has not been involved in oversight or management of many such species and populations, several are discussed briefly in Chapter V of this report to provide the reader with a broader perspective on the status of marine mammals worldwide.

North Atlantic Right Whale
(Eubalaena glacialis)

The North Atlantic right whale is one of the world's most endangered species. Numbering about 300 whales, it was reduced to its precarious level by centuries of commercial whaling that continued through the early 1900s. Its range once extended around the rim of the North Atlantic Ocean but is now limited principally to coastal waters off the eastern United States and Canada. Its most important habitats include a winter calving ground off Florida and Georgia and summer feeding areas off New England and southeastern Canada in the Bay of Fundy (Fig. 1). Over the past 25 years, the sole surviving population has made no significant progress toward recovery. In large part this is due to human-related deaths caused by entanglement in commercial fishing gear and collisions with ships.

The National Marine Fisheries Service is the federal agency with lead responsibility for the conservation of the North Atlantic right whale. Recent modeling studies suggest that the remaining population is declining by about 2 percent per year. On several occasions at its annual meetings in recent years, the Commission has held reviews of the Service's right whale recovery program to help identify priority research and management needs. It did so again in 2003. During that meeting, representatives of the Service and its partner agencies and groups presented detailed analyses of ongoing and planned research, efforts to minimize collisions with ships, and steps to reduce right whale entanglement in commercial fishing gear. As discussed in previous annual reports, the Commission has recommended on numerous occasions over the past decade that the Service take actions to reduce both entanglement and ship collision risks; however, most of those actions have not been adopted by the Service. As discussed below, during

Table 1. Marine mammals listed as endangered (E) or threatened (T) under the Endangered Species Act or depleted (D) under the Marine Mammal Protection Act, as of 31 December 2003

Common Name	Scientific Name	Status	Range
Manatees and Dugongs			
West Indian manatee	*Trichechus manatus*	E/D	Caribbean Sea and North Atlantic from southeastern United States to Brazil; and Greater Antilles Islands
Amazonian manatee	*Trichechus inunguis*	E/D	Amazon River basin of South America
West African manatee	*Trichechus senegalensis*	T/D	West African coast and rivers; Senegal to Angola
Dugong	*Dugong dugong*	E/D	Northern Indian Ocean from Madagascar to Indonesia; Philippines; Australia; southern China
Otters			
Marine otter	*Lutra felina*	E/D	Western South America; Peru to southern Chile
Southern sea otter	*Enhydra lutris nereis*	T/D	Central California coast
Seals and Sea Lions			
Caribbean monk seal	*Monachus tropicalis*	E/D	Caribbean Sea and Bahamas (probably extinct)
Hawaiian monk seal	*Monachus schauinslandi*	E/D	Hawaiian Archipelago
Mediterranean monk seal	*Monachus monachus*	E/D	Mediterranean Sea; northwestern African coast
Guadalupe fur seal	*Arctocephalus townsendi*	T/D	Baja California, Mexico, to southern California
Northern fur seal	*Callorhinus ursinus*	D	North Pacific Rim from California to Japan
Western Steller sea lion	*Eumetopias jubatus*	E/D	North Pacific Rim from Japan to Prince William Sound, Alaska (west of 144° W longitude)
Eastern Steller sea lion	*Eumetopias jubatus*	T/D	North Pacific Rim from Japan to Prince William Sound, Alaska (east of 144° W longitude)
Saimaa seal	*Phoca hispida saimensis*	E/D	Lake Saimaa, Finland
Whales, Porpoises, and Dolphins			
Baiji	*Lipotes vexillifer*	E/D	Changjiang (Yangtze) River, China
Indus river dolphin	*Platanista minor*	E/D	Indus River and tributaries, Pakistan
Vaquita	*Phocoena sinus*	E/D	Northern Gulf of California
Northeastern offshore spotted dolphin	*Stenella attenuata attenuata*	D	Eastern tropical Pacific Ocean
Coastal spotted dolphin	*Stenella attenuata graffmani*	D	Eastern tropical Pacific Ocean
Eastern spinner dolphin	*Stenella longirostris orientalis*	D	Eastern tropical Pacific Ocean
Mid-Atlantic coastal bottlenose dolphin	*Tursiops truncatus*	D	Atlantic coastal waters from New York to Florida
Cook Inlet beluga whale	*Delphinapterus leucas*	D	Cook Inlet, Alaska
Northern right whale	*Eubalaena glacialis*	E/D	North Atlantic and North Pacific Oceans; Bering Sea
Southern right whale	*Eubalaena australis*	E/D	South Atlantic, South Pacific, Indian, and Southern Oceans
Bowhead whale	*Balaena mysticetus*	E/D	Arctic Ocean and adjacent seas
Humpback whale	*Megaptera novaeangliae*	E/D	Oceanic; all oceans
Blue whale	*Balaenoptera musculus*	E/D	Oceanic; all oceans
Finback or fin whale	*Balaenoptera physalus*	E/D	Oceanic; all oceans
Sei whale	*Balaenoptera borealis*	E/D	Oceanic; all oceans
Western gray whale	*Eschrichtius robustus*	E/D	Western North Pacific Ocean
Sperm whale	*Physeter macrocephalus*	E/D	Oceanic; all oceans

Source: Fish and Wildlife Service regulations at 50 C.F.R. § 17.11 and National Marine Fisheries Service regulations at 50 C.F.R. § 216.15.

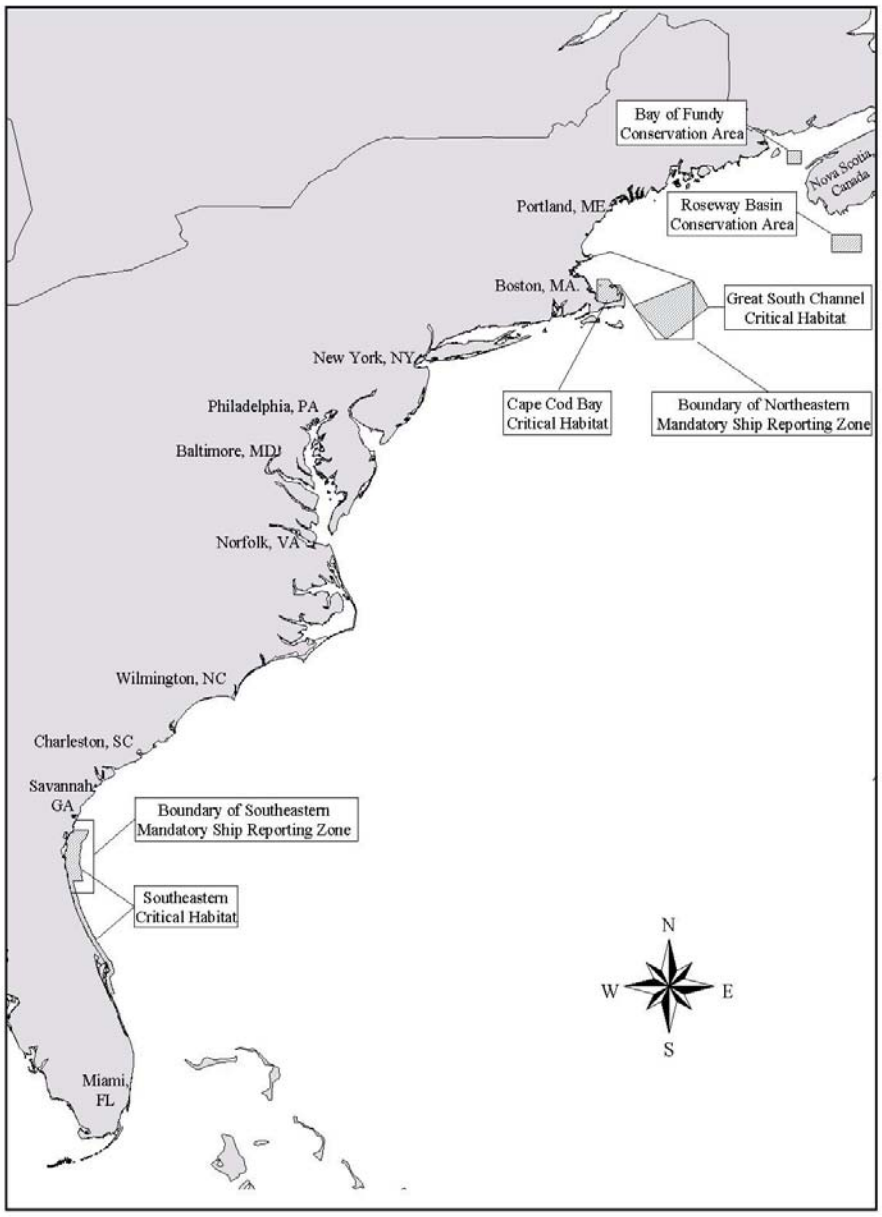

Figure 1. Designated critical habitats and mandatory ship reporting zones for North Atlantic right whales. (Figure by Leslie Ward and Alex Smith, courtesy of the Florida Marine Research Institute.)

2003 the Service continued to analyze potential new measures to reduce entanglements and ship strikes, but no significant new protection measures were adopted.

Right Whale Mortalities and Injuries in 2003

Since 1990 at least 47 percent (17 of 36) of all observed dead right whales have died of human causes — 36 percent (13 carcasses) by ship collisions and 11 percent (4 carcasses) by entanglement in fishing gear (Fig. 2). Because it is not possible to examine all reported carcasses and because some deaths go undetected, documented deaths in Figure 2 are an underestimate of total deaths. For example, seven whales observed with potentially fatal entanglements between 2000 and 2002 either have not been resighted (whales numbered 1130, 1102, and 1815) or were resighted in 2003 still seriously entangled and with questionable prospects of survival (whales numbered 1424, 3120, 2320, and 3210). Many of these whales have likely died or will die but will not be included among the known deaths unless their carcasses are actually found. Finding their carcasses, however, is unlikely because, as their conditions decline, they lose fat, making them likely to sink when they die and disappear at sea.

In 2003 one right whale carcass was observed. It was an adult female found floating on 2 October near a major shipping channel in Canadian waters in the Bay of Fundy, 4.5 nmi off the coast of Nova Scotia. After being towed ashore, a necropsy revealed a crushed skull and broken jaw, indicating that it was killed by a collision with a large ship.

There also were two injuries due to ship strikes and five new entanglements recorded in 2003. The ship strikes both involved calves. The first injured animal was seen by a right whale research team on 26 January on the species' calving grounds. Six fresh propeller slashes on the animal's back indicated that it had been hit by a small vessel (possibly a recreational boat). It was subsequently resighted in the Bay of Fundy during the summer, apparently recovering from its injuries. The second injured animal was a calf seen in the Bay of Fundy during the summer. It was not known when or where it was hit.

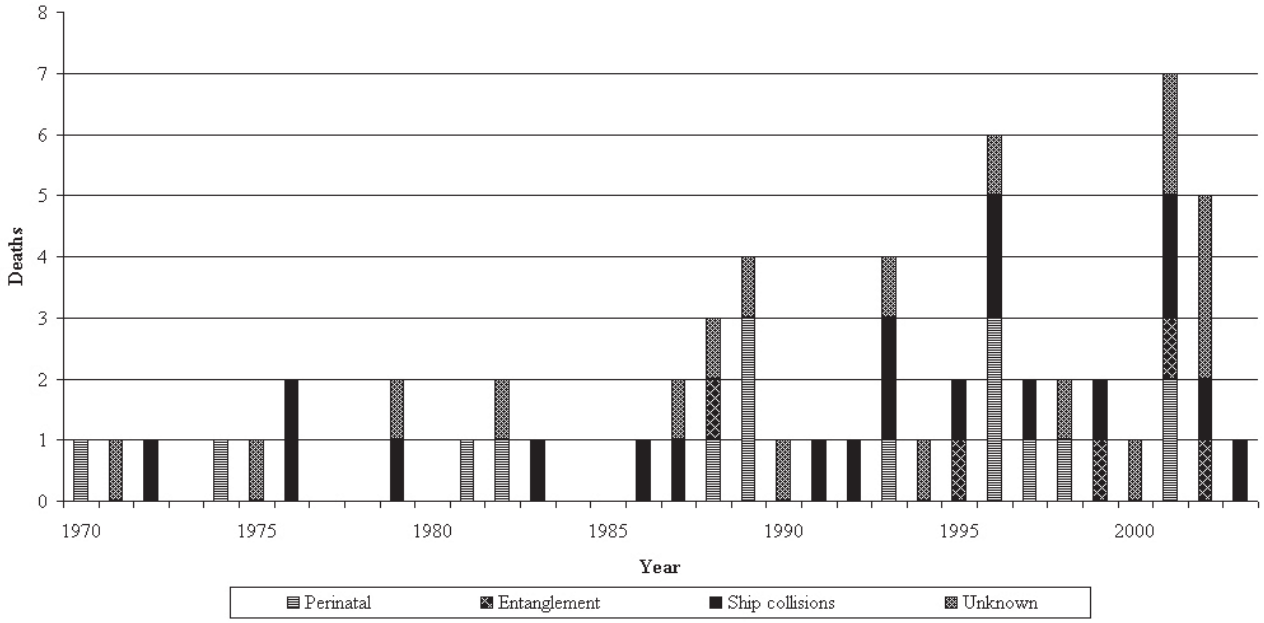

Figure 2. Known mortality of North Atlantic right whales, 1970–2003.

All five new entanglements were potentially fatal. The first involved an adult female (no. 2240) seen on 14 January by a right whale survey team 12 nmi off Jacksonville Beach, Florida, with a single line trailing from the mouth over the back and behind the tail flukes. The whale disappeared before a disentanglement attempt could be made. It was resighted, free of gear, on 15 May in the Great South Channel off Massachusetts but was heavily covered with cyamids (i.e., whale lice), indicating that it was in poor condition. The second case involved a two-year old male (no. 3107) seen a mile off New Smyrna Beach, Florida, on 6 March by right whale researchers (Fig. 3). The whale was not entangled at that time but was covered with extensive scarring and fresh abrasions on its head, tail stock, and fluke from a recent entanglement. It appeared emaciated, and its survival prospects were judged to be poor. It was not resighted in 2003.

The third case, reported on 20 May, involved an adult female (no. 1430) who had given birth to several calves since 1984. First seen entangled 45 nmi northeast of Cape Cod, Massachusetts, by a right whale aerial survey team, it had two lines trailing from the left side of the mouth and across the back with one line passing under a flipper and about 20 feet behind the flukes. The whale disappeared before a disentanglement attempt could be made. It was last seen on 7 June 2003 about 120 nmi east of Cape Cod, still entangled.

The fourth entanglement involved a whale found on 9 July two miles east of Campobello Island, New Brunswick, along the U.S.–Canada border. It was entangled in types of gear including a marked buoy and trap set by a U.S. lobster fisherman and heavy-gauge monofilament line from an unknown source that was cutting into the tail stock. It was successfully disentangled, but based on its lethargic behavior and discolored skin, it was judged to be in very poor condition with a questionable survival prospect. Due to poor photographs, the whale had not been identified as of the end of 2003.

The last observed entanglement in 2003 was an unidentified right whale reported by a tuna spotter plane on 25 August about 100 miles east of Cape Ann, Massachusetts. It was reported entangled in line with two trailing buoys and a submerged white object. A rescue effort could not be mounted because the report came late in the day.

Thus, not including the unidentified whale entangled on 25 August, since January 2000 there have been at least 11 potentially fatal entanglements for which the whales' survival prospects were not promising and were unresolved as of the end of 2003.

Figure 3. North Atlantic right whale seen off New Smyrna Beach, Florida, on 6 March 2003 with severe entanglement injuries. (Photograph by A. Windham-Reid, Florida Marine Research Institute.)

Right Whale Critical Habitats

In 1994 the National Marine Fisheries Service designated three critical habitat areas for North Atlantic right whales in U.S. waters (Fig. 1) under provisions of the Endangered Species Act. The areas include the species' calving grounds off Florida and Georgia, and two feeding areas off Massachusetts — one in Cape Cod Bay and the other in the Great South Channel east of Cape Cod. The designation was recommended by the Right Whale Recovery Team in 1990, and the boundaries were based largely on a report funded by the Marine Mammal Commission summarizing available right whale sighting data[1]. Since 1994 surveys funded or carried out largely by the Service have revealed that right whales also regularly use waters immediately adjacent to all three designated areas.

Based largely on results of the recent surveys, the Ocean Conservancy petitioned the Service on 9 July 2002 to expand the critical habitat boundarries. It sought to extend critical habitat for the calving grounds five miles seaward of its current offshore boundary and to expand the two areas off Massachusetts into a single critical habitat roughly the shape of the northeastern mandatory ship reporting area. On 19 November 2002 the Service published a *Federal Register* notice requesting comments on the petition.

The Commission, in consultation with its Committee of Scientific Advisors, responded on 27 February 2003 noting that right whale surveys since 1994 demonstrate that the critical habitat boundaries should be expanded. It also noted that Service actions since 1994 to establish mandatory ship reporting areas and fishery management zones (see below) that encompass critical habitats and adjacent areas demonstrate the need for special management attention in those areas. The Commission therefore recommended that the Service review available sighting data and, based on the results, modify the critical habitat boundaries. In this regard, it recommended that the Service expedite an analysis similar to that which the Commission supported for the 1994 critical habitat designation so as not to delay action to modify the boundaries.

On 28 August 2003 the Service published a *Federal Register* notice concluding that the petitioned action was not warranted at this time. The notice advised that hundreds of people had expressed support for the action and that right whale survey data documented consistent right whale use of areas outside of the current critical habitat. However, the Service determined that "information presented in the petition does not adequately support the petitioned new boundaries for the critical habitat. …For example in discussing the value of 'space' for individual and population growth and for normal behavior, the petitioner states that the requested revision will 'cover areas that consistently maintain large numbers of western North Atlantic right whales and the conditions they require for individual population growth as well as normal behavior.' How-

[1] Kraus, S. D., and R. D. Kenney. 1991. Information on right whales (*Eubalaena glacialis*) in three proposed critical habitats in United States waters off the western North Atlantic Ocean. National Technical Information Service. PB91-194431. Springfield, Virginia, 65p.

ever the petitioner fails to identify or discuss with the necessary degree of detail what those conditions are that would be necessary for individual and population growth, and normal behavior, or how these features are essential to the conservation of right whales."

Concerned about the delay in acting on the matter, the Commission wrote to the Service on 5 December 2003, noting that it was difficult to understand how the Service could reach a conclusion that expansion of critical habitat boundaries was not warranted at this time given that its own surveys documented consistent right whale use of areas outside the current designated critical habitats. Noting that the Commission believed that expanding the three designated critical habitats clearly is warranted, the 5 December letter again recommended that the Service analyze all the available data as quickly as possible.

On 30 December 2003 the Service responded to the Commission's letter noting that because the petition did not list the special management actions or identify the physical or biological habitat features in the areas around the existing critical habitat, the Service was compelled to determine that the petitioner's requested revision was not warranted. The Service advised that it was investigating those matters and would issue a proposed rule if it determined that critical habitat was warranted but provided no indication of how long such an investigation might take.

Entanglement in Fishing Gear

Entanglement in fishing gear has been recognized as a serious conservation issue for right whales since the 1980s. As noted above and in previous annual reports, little was done to reduce entanglement risks in the 1980s and early 1990s. Pursuant to amendments to the Marine Mammal Protection Act adopted in late 1994, the National Marine Fisheries Service convened an Atlantic Large Whale Take Reduction Team in 1996 to develop measures to reduce entanglement risks for right whales and other large whales off the U.S. East Coast.

Development and Components of Take Reduction Approach — The current take reduction team is composed of 58 members from 23 involved fisheries, 19 state and regional fishery management agencies, 5 conservation groups, 3 federal agencies, and 8 academic organizations. It is charged with recommending measures to the Service for inclusion in a take reduction plan that will reduce entanglement-related deaths and serious injuries to a calculated potential biological removal level (PBR), which has been set at zero for North Atlantic right whales due to the species' extremely critical status. The take reduction team and take reduction plan have therefore focused almost exclusively on right whales. After considering advice from the take reduction team, the Service adopted an Atlantic Large Whale Take Reduction Plan in 1997. Although adopted measures are required by law to reduce entanglement rates to established goals within six months of being implemented, entanglements have continued unabated and the Service has reconvened the team periodically and modified the plan several times since then, including a major revision adopted in 2001.

As described in presentations at the Commission's 2003 annual meeting, the plan relies on three fundamental management approaches to reduce whale entanglement risks (1) disentangling whales found entangled, (2) gear modifications to reduce the risk of whales becoming entangled, and (3) time/area fishery closures in areas where right whales occur in greatest numbers. The team has been unable to agree on all needed measures, particularly measures for time/area closures. In the absence of agreement among team members, the Service has relied almost entirely on disentanglement and gear modifications. Given the urgency for reducing entanglement risks, the limited options available to do so, and the questionable effectiveness of disentanglement and speculative gear modification options, the Marine Mammal Commission has recommended for more than a decade that the Service make greater use of time/area fishing closures in areas where right whales are known to concentrate, particularly in designated critical habitats.

Although disentanglement teams have successfully freed a few right whales, not all entanglements are observed. Furthermore, when entanglements are documented, disentanglement teams have been unable to reach most animals because they cannot relocate them after receiving the reports. When teams have been able to get to whales, it often has not been possible to remove all the entangling gear. These limitations have become particularly apparent in recent years. Of the 18 right whales observed entangled since 2000, only three were fully disentangled, all of which had already sustained serious injuries and at least one of which later died of its injuries. Of the remaining animals, four were able to shed attached gear by themselves, and 11 could not be disentangled. During the Commission's annual meeting, representatives of the Center for Coastal Studies, which carries out efforts to disentangle whales for the Service,

underscored their belief that disentanglement is not a solution to the problem.

For the most part, gear modifications have relied on speculative, unproven concepts. The three principal types of gear modifications used by the Service have included limits on line thickness, breakaway links, and nonfloating line to connect strings of traps. The Service considered line thickness to be a mitigation measure based on a theory that thinner line would break before whales could become seriously entangled. A restriction limiting line thicknesses to 7/16 in. (the standard thickness of line used in the lobster fishery) was therefore included as a mitigation measure in regulations for several years until the Service determined that line thickness was a poor measure of breaking strength. Similarly, weak links located on buoys and on head ropes of gillnets are included as a mitigation measure on the theory that a breaking strength limited to the minimum needed to fish gear will reduce the likelihood of entanglement when whales contact gear. There is no evidence to support this theory, and recently fishing gear with intact weak links has been removed from entangled whales.

The only gear modification with a compelling rationale for its potential effectiveness is the use of sinking or neutrally buoyant "groundline" (i.e., lines linking strings of lobster traps together). Most trap fishermen use floating line for groundlines to raise them off the bottom and thereby prevent chaffing against rocks. However, such line can loop 20 feet or more up into the water column between traps and thus entangle passing whales. By requiring sinking or neutrally buoyant line for this purpose, groundlines would remain on or near the bottom where they are less likely to entangle passing whales. This measure, however, has been required only seasonally in a few areas (primarily critical habitats) and more recently in seasonal and "dynamic" management areas discussed below. The measure does not address entanglement risks for buoy lines that extend from the traps to the surface to mark gear locations. The latter may be a greater entanglement risk than groundlines.

As noted in past annual reports, seasonal fishing closures have been established in some critical habitats. However, virtually all areas where lobster and gillnet fishing had previously occurred have been exempted from time/area closures. As a result, those actions resulted in no reduction in fishing effort in the times or areas where right whales are known to occur most often.

Development of a Dynamic Area Management System — Fishermen on the take reduction team have been opposed to seasonal closures of fishing areas. Therefore, in an effort to limit fishing closures to those areas and times where concentrations of right whales are known to occur, some members of the team suggested establishing a dynamic management system in which the Service would immediately close an area to fishing for up to two weeks if groups of whales were observed feeding in that area. Reports of such aggregations are provided by whale researchers, National Marine Fisheries Service whale survey flights, the Coast Guard, and whale watch operators.

On 26 September 2002 the Service adopted rules to implement a dynamic management system. The rules call for designating a dynamic area management zone upon the sighting of three or more whales with a density of at least 0.04 whales per square nautical mile. The zone is to extend 15 nautical miles around the core sighting area for a period of up to 15 days. Within a designated area, the regulations provided the Service three management options: requiring all fishing gear to be removed from the zone, asking fishermen to voluntarily remove their gear, or requiring that certain unspecified gear modifications be used.

As noted in the previous annual report, the Service's efforts to implement the measure have been ineffective and not consistent. In the first seven months of 2003 the Service implemented the measure four times (on 15 April, 4 June, 13 June, and 9 July) in various areas off eastern Massachusetts. In each case the Service asked fishermen to voluntarily remove their gear. Those measures were implemented an average of 16 days after the initial right whale sightings, and no data were collected to assess compliance with the request.

On 4 March 2003 the Service proposed rules to define previously unspecified gear modifications to allow fishing to continue in designated dynamic area management zones. For lobster traps, the Service proposed requirements for (1) weak links (600-lb breaking strength for inshore traps and 1,500 lbs for offshore traps) connecting buoys to buoy lines, (2) groundlines of either sinking line or neutrally buoyant line between traps, and (3) use of one buoy to mark strings of traps. For gillnets, it proposed requiring (1) sinking or neutrally buoyant groundlines between anchors and nets, (2) 1,100-lbs weak links between the buoy and buoy line, (3) 1,100-lbs weak links on the float lines and vertical lines of each net panel, (4) no more than one buoy to mark a gillnet string, and (5) a

specified anchoring system that would create the drag needed to trigger weak links.

On 1 April the Commission commented to the Service on the proposal. It noted that intact weak links had been removed from entangled whales and that there was no evidence that weak links were useful for reducing entanglement risks. It also noted that the proposed gear requirements would be virtually impossible to enforce and that they could actually reduce protection of right whales given that fishermen were now either required or asked to remove gear from designated areas entirely. The Commission therefore advised that it did not support the proposed rules and recommended that the Service eliminate the option to allow continued fishing with modified gear in designated dynamic area management zones. The Commission also recommended that the Service immediately establish new regulations to require that, within one year, all fish and shellfish traps and all gillnets along the U.S. East Coast north of central Florida use sinking or neutrally buoyant groundlines and that only a single buoy line be used to mark trap and gillnet strings. It noted that this requirement should apply year-round off the northeast coast but might be a seasonal requirement in the calving grounds and along the whales' coastal migratory corridor south of New England.

On 26 August 2003 the Service published a final rule adopting gear modifications for dynamic area management zones that were similar to those proposed. Instead of reducing buoy lines by requiring one buoy per string of traps or gillnets, the revision allowed lines at both ends of a string, thus eliminating one of its proposed risk reduction measures. After adopting the rule, the Service designated two additional dynamic area management zones in 2003. One area was designated on 20 November, 13 days after a group of right whales was sighted east of Portsmouth, New Hampshire, and the other on 12 December, 12 days after a sighting in the same area. In both cases, that action required the removal of gear that did not meet the new gear modification specifications.

Future Actions — Because entanglement levels have not been reduced to meet the established potential biological removal level, the Service initiated steps to undertake another major revision of its Atlantic Large Whale Take Reduction Plan. On 28–29 April 2003 it reconvened the take reduction team to seek advice on further actions. The team identified a number of possible actions but again was unable to agree on all measures. By *Federal Register* notice of 30 June 2003, the Service announced its intent to prepare an environmental impact statement on management measures to reduce whale entanglement risks and requested comments on management options it should consider.

On 29 July 2003 the Commission responded to the Service by providing copies of its letters over the past 10 years recommending that the Service seasonally prohibit fishing in critical habitats, require the use of neutrally buoyant or sinking line for groundlines, and implement a dynamic management approach to suspend fishing in areas where concentrations of right whales are observed. It also recommended that the Service clearly identify the whale protection standards it is required to achieve under applicable statutes and that the environmental impact statement present and analyze data on the amounts and types of fishing gear used in different locations and seasons; potential gear modifications; the locations where gear is currently excluded; the effectiveness of management measures tried to date; and alternative management measures that may be considered.

As noted above, the Commission and its Committee of Scientific Advisors also reviewed information on the status of right whale entanglements and related management measures at its annual meeting on 21–23 October 2003. Based on that review, the Commission expected to write to the Service early in 2004 to repeat its past recommendations that designated critical habitats be closed to all gillnet and trap fisheries during seasons of peak whale occurrence and that this measure also be applied to adjacent areas that are regularly used by right whales during the periods of peak whale occurrence in the critical habitats.

Based on the results of the review, the Commission also concluded that the Service's take reduction team process did not work well for critically endangered species. In this regard, concerned about the lack of progress in reducing right whale entanglements since the Service established its Atlantic Large Whale Take Reduction Team in 1996, the Commission expects to recommend that the Service also establish a separate team of marine mammal, fisheries, and ecosystem scientists. The purpose of such a team would be to review proposed measures identified by the team and the Service and to develop recommendations for reducing right whale entanglement risks over the short and long terms, keeping in mind the objective of establishing an optimal mix of fishing

techniques and practices most likely to achieve sustainable fishing with a minimum risk to right whales and regional ecosystems.

Collisions between Ships and Whales

More than a third of all known right whale deaths in the western North Atlantic Ocean since 1990 (13 of 36 carcasses) have been caused by collisions with large vessels. To reduce collision risks, the Service has relied on voluntary efforts by mariners to avoid hitting right whales. To implement this approach, the Service has prepared various educational materials (e.g., movies, brochures, and inserts in mariner publications) to alert mariners of collision risks and to ask that they watch out for and avoid hitting whales. In cooperation with other agencies, including the Navy, the Coast Guard, and the Army Corps of Engineers, it also has undertaken aerial surveys to locate right whales and advise mariners of their locations on a near-real-time basis through radio broadcasts and telex messages to ships. The latter efforts have been focused principally in seasonal right whale concentration areas, such as critical habitats.

In 1999 the Coast Guard and the Service also implemented mandatory ship reporting systems approved by the International Maritime Organization for the right whale calving grounds off Florida and Georgia and two feeding grounds off Massachusetts (Fig. 1). This measure requires that commercial ships larger than 300 gross tons report to a shore station upon entering the two areas and obtain information on recent right whale sighting locations and the importance of efforts to avoid hitting them.

On several occasions in the past, the Commission has recommended that the Service also develop measures to control ship speed and routing through critical habitats to minimize collision risks. To investigate such measures, the Service, at the recommendation of the Commission, contracted for a study in 1999 to consult with commercial shipping industry representatives to identify possible management options. Results of that effort[2], provided to the Service in the fall of 2001, recommended the development of various speed and routing restrictions through key right whale habitats including feeding areas off Massachusetts, the calving grounds off the southeastern United States, and near major ports along the East Coast right whale migratory corridor between Florida and Massachusetts. As this study was undertaken, the Commission also organized a separate study to compile and analyze available information on collisions between ships and whales[3]. As discussed in the Commission's 2001 annual report, the study found that (1) most lethal collisions appear to involve large vessels more than 80 meters in length, (2) whales that are hit are rarely seen by vessel operators more than a few seconds before impact, if at all, and (3) lethal collisions appear to occur rarely when vessels are traveling at speeds of less than 10 knots, infrequently at speeds of 10–13 knots, and most often at speeds of 14 knots or faster.

Since receiving its contractor's report, the Service has been analyzing related data and evaluating possible options for a proposed approach to further minimize collision risks. On 2 October 2003 the Service convened a meeting of officials of other concerned federal agencies to obtain comments and advice on completing a proposed strategy to reduce ship strikes. As of the end of 2003 the Service was reviewing that advice and developing a proposed approach that it expected to announce in 2004.

Marine Mammal Survey Safety

On 26 January 2003 one of the airplanes conducting right whale surveys, a twin-engine Cessna, crashed into the ocean eight miles off Amelia Island, Florida, killing all aboard, including the pilot, Thomas E. Hinds, and three biologists, Emily L. Argo, Jacquelyn N. Ciano, and Michael W. Newcomer. The observers were conducting surveys for the Service under contract. In response to the accident, the National Oceanic and Atmospheric Administration suspended all aerial survey flights pending an investigation by the National Transportation Safety Board and the Federal Aviation Administration. Pending an intensive review of safety procedures for aerial survey work in offshore areas, the National Oceanic and Atmospheric Administration subsequently instituted new interim safety guidelines requiring, in part, that all offshore whale survey flights by its staff and contractors be conducted with two pilots onboard. During the spring of 2003 the agency's Office of Marine and

[2] Russell, B.A. 2001. Recommended measures to reduce ship strikes of North Atlantic right whales. Submitted to the National Marine Fisheries Service by the Northeastern and Southeastern Implementation Teams for the Recovery of the North Atlantic Right Whale. 23 August 2001.

[3] Laist, D.W., A.R. Knowlton, J.G. Mead, A.S. Collet, and M. Podesta. 2001. Collisions between ships and whales. Marine Mammal Science 17(1):35–75.

Aviation Operations hosted an aircraft safety and policy development workshop. Workshop participants, who included aviation experts from both inside and outside the agency, discussed the accident and ways to increase the safety of aerial survey operations. As of the end of 2003 the agency was reviewing results of the workshop to develop a new aviation safety policy that will be incorporated into all agency contracts for aviation services using nonagency aircraft.

Pressing Conservation Issues

- Eliminating right whale deaths and injuries due to entanglement in commercial fishing gear.
- Improving the effectiveness of management recommendations developed by the Atlantic Large Whale Take Reduction Team.
- Eliminating right whale deaths and injuries due to collisions with ships.

Killer Whales *(Orcinus orca)* in the Eastern North Pacific

Killer whales occur in all oceans of the world but are more abundant in temperate and cooler waters within 800 km (500 mi) of coasts. They are designated as a single species worldwide, but their taxonomy is under review. In the eastern North Pacific Ocean, killer whales are divided into three nonassociating ecotypes referred to as "resident," "transient," and "offshore." Resident and transient forms show distinctive differences in genetics, morphology, diet, ecology, distribution, movement patterns, and social structure. The offshore ecotype is less well described but appears to be more closely related to the resident ecotype.

Resident killer whales occur in matrilineal associations called pods that generally include fewer than 40 individuals. Large aggregations involving multiple pods sometimes occur. Transient killer whales exhibit more variable social structure and reproductive behavior. They are generally found in small groups (fewer than 10 individuals) but also as solitary animals or in pairs. Offshore killer whales tend to occur in groups of 25 to 75 individuals. For each ecotype, such associations presumably facilitate cooperative behavior (e.g., foraging and calf rearing). Group cohesion may be maintained by a range of behaviors, including production of sounds that are used for communication, orientation, and foraging.

One of the more notable differences between these ecotypes is their diet. All killer whales are considered top-level predators, but the diet of resident killer whales appears to be composed mainly of fish, whereas the transient form appears to prey primarily on marine mammals. The diet of the offshore form has not been characterized but is assumed to be fish.

Population Status

The National Marine Fisheries Service recognizes five killer whale stocks in the eastern North Pacific, as shown in Table 2. The Service listed the southern resident stock of killer whales as depleted under the Marine Mammal Protection Act on 29 May 2003. In addition, on 24 October 2003 the Service proposed to designate the AT1 group of transient killer whales as a depleted stock, based on evidence of its decline since 1984. None of the remaining stocks is listed as threatened or endangered under the Endangered Species Act or designated as depleted under the Marine Mammal Protection Act. The status of killer whale stocks in the eastern North Pacific has become an issue of

Table 2. Population status of killer whale stocks in the eastern North Pacific Ocean

Stock	Distribution	Minimum Estimate	Trend
Northern resident	British Columbia through Alaska	723	Unknown
Southern resident	Inland waters of Washington State and southern British Columbia	80	Declining
Transient	California to southeastern Alaska	323	Unknown
	Prince William Sound to False Pass	101	Unknown
	False Pass to Tanaga Island and the Bering Sea continental shelf break to the Pribilof Islands	221	Unknown
Offshore	Southeastern Alaska through California	209	Unknown
Hawaiian	Unknown; stock based on rare sightings and strandings	Unknown	Unknown

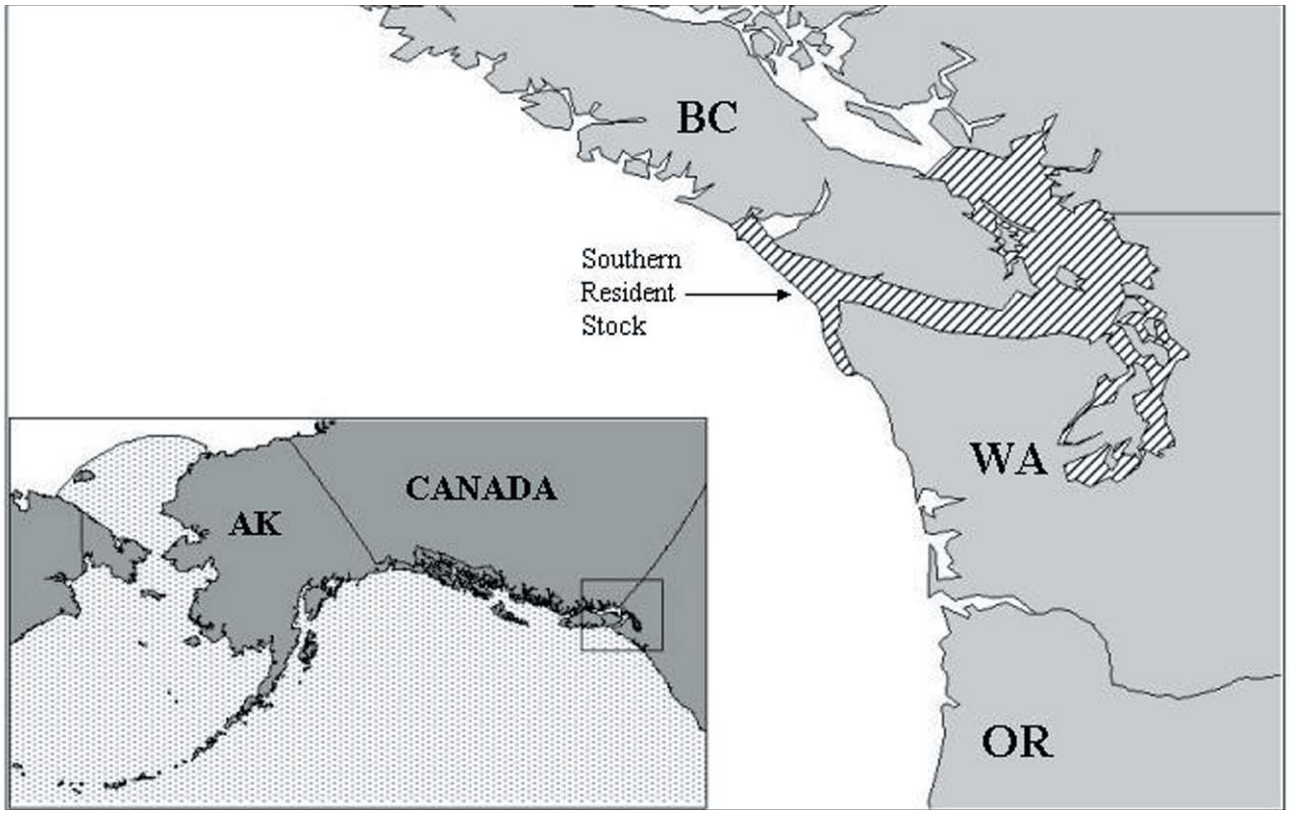

Figure 4. Range of southern resident killer whale stock. Total range of killer whales in North Pacific shown in inset.

considerable concern and debate in recent years due to their ecological role as predators and their interactions with, and vulnerability to, human activities.

Conservation Issues

Southern Resident Killer Whale Stock — Southern resident killer whales occur primarily in the inland waters of Puget Sound and southern British Columbia and occasionally range as far south as California (Fig. 4). However, one pod spends considerable time outside Puget Sound in most years, and the winter distribution of the stock is not well known. The status of the stock before the 1960s is unknown, but it may well have been reduced at that time due to indiscriminate shooting, which was known to occur, and other human-related mortality. In the 1960s and early 1970s the stock was diminished by the live capture and removal of at least 48 whales for aquariums and display facilities. Abundance in 1974 was 70 whales. The stock began to recover in the mid- and late 1970s, declined during the early 1980s, and then recovered to 98 whales in 1995. From 1995 to 2001 the stock declined to 80 whales. This recent decline appears to have resulted from decreases in both fecundity and survival, with the change in survival apparently the more important factor.

Shortage of prey, exposure to contaminants, and disturbance have been identified as three human-related factors that may be contributing to the recent decline of the southern resident stock. At least in the summer, salmon appear to be a major prey of these whales. Comparisons of historical and current chinook salmon levels from Puget Sound and southern British Columbia south to central California suggest that their numbers have declined markedly, perhaps by 50 to 70 percent or more. As top-level predators, these whales carry high levels of contaminants accumulated through the food chain. The manner and extent to which contaminants affect the whales is unknown, but they may affect, among other things, immune system function and reproduction. In addition, southern resident killer whales are exposed to a variety of potential human-related disturbances from shipping, fishing, recreational boating, and whale watching. Here, too, the manner and extent to which such potential forms of disturbance affect the whales

are unknown, but such disturbance may affect their distribution and habitat use patterns, behavior, or ability to communicate using sound.

On 1 May 2001 the Center for Biological Diversity and others petitioned the National Marine Fisheries Service to list the southern resident stock as endangered or threatened under the Endangered Species Act and to designate critical habitat for the stock. The Service convened a biological review team to assess killer whale stock structure and the probability of extinction of the southern resident stock. The team concluded that, although killer whale taxonomy is likely out of date, the southern resident stock was not significant to its taxon as currently described and therefore did not constitute a distinct population segment worthy of listing.

In a 22 March 2002 letter to the Service, the Marine Mammal Commission commented that the outdated state of killer whale taxonomy appears to undermine the rationale for the preliminary conclusion that the southern resident stock is not significant to its taxon and suggested that the Service consider additional information as to whether the stock is significant. On 1 July 2002 the Service published its final determination that listing was not warranted. At the same time, the Service concurred that "the issue of classifying Southern Resident killer whales into a particular DPS [distinct population segment] cannot be resolved until the taxonomic structure of *O. orca* is clarified." To address that need, the Service, with the support of the Marine Mammal Commission, is planning a workshop on cetacean taxonomy in April 2004.

On 18 December 2002 the Center for Biological Diversity, Friends of the San Juans, People for Puget Sound, the Orca Conservancy, Ocean Advocates, Earth Island Institute, Ralph Munro, and Karen Munro filed suit against the National Marine Fisheries Service, challenging the determination that listing under the Endangered Species Act was not warranted. The plaintiffs argued that (1) the Service's policy for identifying a distinct population segment is inconsistent with Congressional intent because it includes consideration of a population's significance relative to its taxon, and (2) the listing decision was not based on the best available scientific information because it relied on the outdated and discredited taxonomic classification of killer whales as a single taxon.

On 30 January 2003 the Service published a proposed rule to designate the southern resident stock as depleted under the Marine Mammal Protection Act. On 31 March 2003 the Commission wrote to the Service supporting the proposed rule, and a final rule designating the stock as depleted was published on 29 May 2003.

In 2003 Congress provided $750,000 to the Service's Northwest Fisheries Science Center for research on the southern resident stock of killer whales. On 15 April 2003 the Service wrote to the Commission that it had begun to develop a conservation plan for the stock. The conservation plan is to be modeled after a recovery plan prepared under the Endangered Species Act. The Center held two workshops to plan research, and about 20 different projects were funded based on identified research priorities. The primary areas of research pertain to evolutionary relationships, noise/vessel interactions, prey/health assessment, and winter distribution.

On 18 December 2003 the U.S. District Court, Western District of Washington, ruled on the Service's determination that the southern resident stock did not warrant listing under the Endangered Species Act. The court concurred that assessment of a population's significance was reasonable as part of a policy for identifying distinct population segments, but that the Service's reliance on the outdated taxonomic classification of killer whales as a single species was inconsistent with the best available scientific information. The Court set aside the Service's "not warranted" finding and remanded the matter back to the Service for determination, in accordance with the Court's findings, of whether the southern resident stock should be listed pursuant to the Endangered Species Act.

AT1 Group of Transient Whales — The AT1 group of transient killer whales occurs in Prince William Sound and the Kenai fjords. They feed on marine mammals, and Dall's porpoises and harbor seals are thought to be major prey. In 1984 the group consisted of 22 animals, but it has subsequently declined to eight (five females and three males). The cause(s) of the decline have not been confirmed, but suspected causes include the *Exxon Valdez* oil spill, exposure to other contaminants, reduction in prey availability, and human-related disturbance.

On 14 November 2002 the Alaska Center for the Environment, the Alaska Community Action on Toxics, the Center for Biological Diversity, the Coastal Coalition, Defenders of Wildlife, the Eyak Preservation Council, and the National Wildlife Federation petitioned the National Marine Fisheries Service to designate the AT1 group of transient killer whales as depleted under the Marine Mammal Protection Act.

The Service published a notice of the availability of the petition on 22 November 2002. The Alaska Regional Scientific Review Group had previously reviewed evidence that the AT1 population is a separate stock and, in a 13 December 2001 letter, recommended that the Service recognize it as such. In a 23 December 2002 letter to the Service the Marine Mammal Commission concurred with the scientific review group.

The Commission's letter regarding the AT1 group recognized that the designation of such a small group of animals as a stock could require changes in management. The designation of the group as depleted and subsequent management actions would also be confounded by a number of sources of uncertainty, including the relationships of the AT1 group to other killer whale groups and the multiple factors that may have led to its decline. In view of these and other sources of uncertainty, the Marine Mammal Commission recommended that the Service take a precautionary approach to management of the AT1 group and designate it as depleted.

On 24 October 2003 the Service published a proposed rule designating the AT1 population as a depleted stock under the Marine Mammal Protection Act. At the end of 2003 the Marine Mammal Commission was preparing another letter in support of such designation. The final determination by the Service is expected early in 2004.

Predation on Other Marine Mammals — The ecological role of transient killer whales in the Bering Sea/Aleutian Island region of the North Pacific has recently become the focus of considerable debate. In that region, four marine mammal species — the northern fur seal, harbor seal, Steller sea lion, and sea otter — have exhibited various levels of decline.

One hypothesis suggests that the declines are part of a cascade of events initiated by whaling activities in the 1950s to 1970s. About 500,000 whales were removed from the Bering Sea and Pacific Ocean north of 30° N latitude. The hypothesis suggests that transient killer whales that depended on those whales for prey were forced to prey on smaller marine mammals, leading to a sequential reduction of populations of those species. Some evidence supports the idea that killer whale predation may be causing or contributing to the decline of sea otters in the central and western Aleutian Islands. Transient killer whales are known to prey on harbor seals, fur seals, and sea lions, but the available evidence is not sufficient to estimate the rate or significance of such predation, either now or in the past.

The hypothesis has been questioned for several reasons. Transient killer whales consume multiple marine mammal species, and trends of total prey available to killer whales in the Bering Sea/Aleutian Islands region cannot be characterized due to uncertainty regarding abundance and trends, distribution, movement patterns, and significance of many potential prey species. Although killer whales sometimes prey on large whales, their importance in the killer whale diet is unknown. Some prey in those regions (e.g., gray whales, northern fur seals on Bogoslof Island, multiple species around the Commander Islands) have exhibited stable or increasing trends during the period in question. Pinniped abundance has been increasing in southeastern Alaska although the density of transient killer whales in that region appears to be at least as great as that in the Bering Sea/Aleutian Islands region. In addition, the hypothesis does not consider the influence of other factors such as commercial fishing and oceanic regime shifts in spite of data indicating that limited prey availability may have been a factor in the decline of Steller sea lions since the 1970s. Additional factors known to contribute to the decline of marine mammals in the Bering Sea/Aleutian Islands region and Gulf of Alaska include legal and illegal shooting, bycatch in fisheries, and subsistence harvests.

At the end of 2003 appropriations under consideration by Congress included a directive to the Marine Mammal Commission to assess the ecological role of killer whales in marine ecosystems and, in particular, their potential influence on endangered populations of marine mammals.

Predation on Fishes Taken in Commercial Fisheries — In the southeastern Bering Sea and Prince William Sound, some resident killer whales interact with longline fisheries for Pacific halibut, sablefish, and Greenland turbot. The whales sometimes damage or remove fish and damage gear. Studies of such depredation in the 1980s indicated that the killer whales tended to target the larger fish caught, that depredation occurred on at least 20 percent of bottom longline sets in the southeastern Bering Sea, and that an estimated 25 percent of the total catch was lost in Prince William Sound. A review of killer whale/longline interactions in the 1980s suggested that this phenomenon was spreading to the Aleutian Islands. Longline fisheries exist throughout the Aleutian Is-

lands and along the continental shelf break (200-m isobath) in the Bering Sea. Such interactions appear to be spreading, perhaps because killer whales are learning to take advantage of the foraging opportunities presented by longlines with hooked fish or because longline fishing effort is increasing or changing in distribution.

In turn, the whales have been injured by ingestion of hooked fish, entangled in the longline gear, or shot by fishermen. The Service estimates that between 1995 and 1999 the average number of killer whale mortalities resulting annually from entanglements in the Bering Sea/Aleutian Islands region was about 0.8 whales. Estimated killer whale mortality due to incidental catch in groundfish trawl fisheries during the same period was slightly less, suggesting an average total mortality rate of about 1.4 whales per year in the Bering Sea/Aleutian Island region. Studies conducted in 1992 by the Service indicated that 8 of 182 killer whales observed in the Bering Sea and Gulf of Alaska exhibited evidence of gunshot wounds. The mortality rate from such wounds is unknown. In Prince William Sound, 8 of the 35 whales in the AB pod, which has been involved in longline depredation, were lost between 1986 and 1988, and some of those losses may have been due to gunshot wounds. An additional 13 whales were lost from the AB pod after the *Exxon Valdez* oil spill in 1989.

A variety of techniques has been tried to reduce such interactions but, to date, none has proven successful. In 2002 the Oak Foundation, South Pacific Environment Program, and Marine Mammal Commission supported a workshop to develop measures to mitigate interactions between cetaceans and longline fisheries. The workshop proceedings were summarized in a 2003 report entitled "Plan of Action and Priorities for Research to Reduce Depredation on Longlines by Cetaceans." Recommendations include consolidation and standardization of available data on interactions, identification of priority data, standardization of future data collection activities and training of data collectors, development of mitigation measures, and communication among affected groups to facilitate sharing of ideas and implementation of mitigation measures, and other recommendations of the action plan. The plan is available from the Marine Mammal Commission.

Future Research and Management — In its 18 November 2002 letter to the National Marine Fisheries Service, the Marine Mammal Commission emphasized the need for a sustained long-term research program on eastern North Pacific killer whales because of their role as top predators and their vulnerability to human interactions. Future support is needed for studies of their biology, taxonomy, population dynamics, and ecology. Although these animals may have substantial influence on North Pacific ecosystems, they also may be vulnerable to ecosystem changes due to natural factors or human activities. If their foraging patterns have been affected as hypothesized, then the resultant changes may have had or may be having significant effects on their foraging success (e.g., energy balance), reproduction, survival, and ultimately, population trends. Because they have received little study, the overall status of transient killer whales in this region is uncertain. For these and other reasons, the Marine Mammal Commission recommended to the Service that it develop a long-term research plan for North Pacific killer whales to provide the level of information needed to understand their population trends and their role in North Pacific ecosystems and to develop conservation programs needed to provide a suitable level of protection to ensure that they remain functioning elements of those ecosystems. Although the Service is conducting some important research on killer whales in the North Pacific, at the end of 2003 it had not yet developed a comprehensive research plan.

Pressing Conservation Issues

- Investigating taxonomy and population structure.
- Assessing stock status, including abundance, trends, distribution, and movement patterns.
- Investigating factors that may be causing declines of killer whale populations.
- Investigating foraging patterns and the ecological impact of predation by killer whales.
- Developing a long-term prioritized research plan.

Cook Inlet Beluga Whale
(Delphinapterus leucas)

Beluga whales are found in seasonally ice-covered waters throughout arctic and subarctic regions. With the exception of those in the northern Gulf of Alaska, most beluga whales in U.S. waters are thought to winter in the Bering Sea in open leads and polynyas in the pack ice. In spring and summer, they are found in coastal areas or the offshore pack ice.

For management purposes, five stocks are recognized in U.S. waters. The distinction is based on the stocks' discontinuous summer distribution and on mitochondrial DNA analyses that indicate clear genetic differences among animals using different summering areas. The five stocks are named after their primary summering areas, namely Cook Inlet, Bristol Bay, the eastern Bering Sea, the eastern Chukchi Sea, and the Beaufort Sea.

The most isolated population of beluga whales in U.S. waters is found in Cook Inlet, and it is geographically separated from the other four populations by the Alaska Peninsula. Because of their proximity to Anchorage, beluga whales in Cook Inlet are exposed to the largest urban coastal area in Alaska. Analyses by the National Marine Fisheries Service of beluga whale sightings in Cook Inlet over the past 30 years indicate that the stock's summer range has contracted substantially in recent years. Compared with sightings in the 1970s and 1980s, animals are rarely seen now in offshore waters or the lower reaches of the inlet. In June, when the National Marine Fisheries Service conducts aerial surveys of the population, beluga whales are concentrated in a few groups in the upper reaches of the inlet around the Susitna River delta, Knik Arm, Turnagain Arm, and Chickaloon Bay.

Aerial surveys of beluga whales in Cook Inlet have been conducted by the National Marine Fisheries Service annually in June or July since 1994. Data from those surveys indicate that the Cook Inlet beluga whale population declined from an estimated 653 (CV = 0.43) individuals in 1994 to 347 (CV = 0.29) in 1998. This constitutes about a 47 percent decline in four years. As discussed below, the high level of taking by subsistence hunters that contributed to this decline ended in 1998, and it was assumed that the population would show signs of increase once this source of mortality had been regulated. Based on abundance estimates collected over the past five years, this does not appear to be the case. The Service had predicted that the population would increase by between 2 and 6 percent per year in the absence of any hunting. An analysis conducted on behalf of the Commission, however, concluded that despite the fact that only three whales reportedly have been taken by subsistence hunters since 1998, there is a 75 percent probability, given the data through 2002, that the rate of increase, if any, has been less than 2 percent per year. Based on its 2003 surveys, the Service estimated the abundance of the Cook Inlet beluga whale population to be 356 (CV = 0.107). Although higher than the 2002 estimate, the difference is not statistically significant. Abundance estimates dating back to 1994, and the confidence limits around those estimates, are provided in Figure 5.

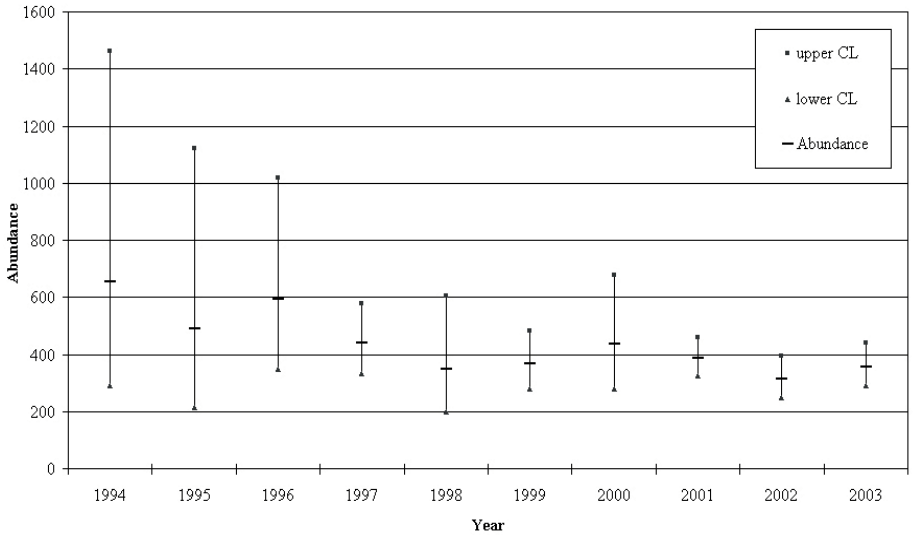

Figure 5. Abundance estimates, with upper and lower confidence limits, of the Cook Inlet stock of beluga whales. (Data provided by the National Marine Fisheries Service.)

Stock Assessment

Under the Marine Mammal Protection Act, the National Marine Fisheries Service is required to prepare a stock assessment for each marine mammal stock under its jurisdiction that occurs in U.S. waters. These assessments are to be updated annually for strategic stocks, such as the Cook Inlet beluga whale, which is considered strategic because it has been designated as depleted under the Marine Mammal Protection Act.

One issue that has been controversial for this stock is the recovery factor to use for calculating the stock's potential biological removal level. Congress inserted the concept of potential biological removals into the Act in 1994. It applies only to incidental marine mammal mortalities and serious inju-

ries related to commercial fishing. This calculation is based on the stock's estimated minimum population size, its maximum net productivity rate, and a recovery factor ranging from 0.1 to 1.0, depending on the status of the stock. The potential biological removal level is the maximum number of animals, not including natural mortalities, that can be removed from the stock while providing reasonable assurance that it will recover to or remain within its optimum sustainable population level.

As discussed in previous annual reports, the Alaska Regional Scientific Review Group, appointed by the Service to provide advice on the status of Alaska marine mammal stocks, has evaluated information on the Cook Inlet beluga whale stock. At its meeting in April 1999 the group concluded that the Cook Inlet beluga whales should be considered a "high risk" stock because of their low abundance, declining trend, limited range, and susceptibility to catastrophic events. As a result, the scientific review group recommended that the National Marine Fisheries Service use a recovery factor of 0.1 when calculating the potential biological removal level for this stock. Despite this advice, the 2000 stock assessment report used a recovery factor of 0.5. Subsequent reports, including the final 2002 report and the 2003 draft report, used a recovery factor of 0.3, which is roughly halfway between the 0.1 recovery factor generally used for endangered species and the factor of 0.5 associated with depleted and threatened stocks. Using this value and a minimum population estimate of 360 whales, the Service calculated a potential biological removal level of 2.2 whales for this stock in the 2002 assessment.

The Commission commented on the draft 2002 assessment reports by letter of 24 July 2002. One of the general observations made by the Commission was that many of the Service's stock assessment reports, particularly those for stocks in Alaska, drew conclusions that a particular effect was not occurring simply because affirmative evidence to demonstrate such an effect was lacking. The Commission pointed out that such conclusions depended, in part, on the power of the monitoring efforts being made to detect such effects and recommended that the reports discuss such efforts, rather than establishing a "no-effect" determination as the default conclusion. This was a problem noted by the Commission in its specific comments on the draft assessment report for Cook Inlet beluga whales. In this regard, the Commission pointed out that the report indicated that three large stranding events that had occurred between 1996 and 1999 had not resulted from human causes. However, the report did not discuss the nature and extent of the efforts undertaken to determine the cause or causes of the strandings. Similarly, the Commission noted, the conclusion that municipal, commercial, and industrial activities were not having adverse impacts on beluga whales may reflect the level of investigation of those factors rather than the fact that such effects were not occurring.

The National Marine Fisheries Service responded to the Commission's comments in a 14 April 2003 *Federal Register* notice announcing the availability of the final stock assessment reports for 2002. With respect to the stranding events, the Service noted that the "exact cause…cannot be determined," but that "[s]tranding records and a knowledge of the dynamics of Cook Inlet (e.g., tidal changes) indicate that human factors were not responsible… ." The Service acknowledged that no specific investigation had been carried out to determine whether municipal, commercial, or industrial activities were having adverse effects on the Cook Inlet beluga whale. Nevertheless, it believed "that the observed population decline could be explained solely by subsistence harvest levels." The Commission continues to believe that potential impacts on the stock from sources other than subsistence hunting need to be investigated (e.g., municipal and industrial development, recreational activities, predation, etc.), particularly in light of the apparent failure of the stock to recover as expected following the significant curtailment of Native hunting.

The Service published a notice of availability of its draft stock assessments for 2003 on 27 August 2003. The Commission provided comments on the draft assessments, including specific comments on the one for Cook Inlet beluga whales, by letter of 25 November 2003. The Commission noted that the estimate of population size was outdated in that it did not reflect the 2002 abundance estimate. The Commission recommended that, inasmuch as the population had shown no sign of recovery since hunting was limited in 1999, the Service revisit the rationale for its choice of the 0.3 recovery factor. The Commission also recommended that the final stock assessment state that the original assumptions about probable recovery of the stock have not proven correct and that factors other than subsistence hunting may be affecting recovery. In addition, the Commission took issue with the statement in the draft assessment that the "best available information indicates that [municipal, commercial, and industrial] activities, alone or cumulatively,

have not caused the stock to be in danger of extinction." The Commission believed that a more accurate portrayal of the situation was that the best available science is not sufficient to describe or explain the current population trend or to describe the importance of the various factors that may be affecting the stock. Further in this regard, the Commission recommended that the assessment include a list of ongoing and proposed developments that are of concern and describe what is being done to provide protection for belugas to support its statement that "[p]rotection from industrial development is being provided at most locations where beluga whales commonly occur."

Native Subsistence Hunting

Section 101(b) of the Marine Mammal Protection Act allows Alaska Natives to take marine mammals for subsistence purposes or for making and selling handicrafts, provided that the taking is not done in a wasteful manner. Only if a stock has been determined to be depleted or has been listed as endangered or threatened may any other limits be placed on such taking.

Estimates derived from a variety of sources indicate that high levels of subsistence hunting of Cook Inlet beluga whales occurred throughout much of the 1990s. These estimates and the reported take levels in more recent years are shown in Table 3. Part of the impetus for the increased number of beluga whales being taken during the early and mid-1990s was the availability of commercial outlets in Anchorage for beluga whale muktuk (a popular Native food composed of the skin and blubber of the whale). Such sales are allowed under the provision of section 101(b) of the Marine Mammal Protection Act that allows edible portions of marine mammals taken by Alaska Natives for subsistence purposes or for the creation of authentic Native handicrafts to be sold in Native villages and towns, which the National Marine Fisheries Service has interpreted to include Anchorage. These levels of subsistence taking are the most likely cause of the severe decline in the population observed in the 1990s.

The overharvest and precipitous decline of the Cook Inlet beluga whale have led to a number of actions to prevent further decline and to promote the eventual recovery of the stock. At first, action was limited to a decision by some hunters to refrain voluntarily from taking whales. Subsequently, a stopgap legislative provision was enacted as part of the 1999 Emergency Supplemental Appropriations Act, Public Law 106-31, that prohibited until 1 October 2000 the taking of a beluga whale from the Cook Inlet stock for subsistence purposes unless authorized by a cooperative agreement between the National Marine Fisheries Service and an Alaska Native organization. Congress passed a revised provision in December 2000 (section 627 of Public Law 106-522) that extended indefinitely the prohibition on hunting Cook Inlet beluga whales unless authorized by the National Marine Fisheries Service through a cooperative agreement. Shortly before that, in October 2000, the Service had published proposed regulations that would govern the hunting of Cook Inlet beluga whales under the Marine Mammal Protection Act. As discussed below, that rulemaking is still pending.

The Service has entered into cooperative agreements with the Cook Inlet Marine Mammal Council each year, beginning in 2000, authorizing limited

Table 3. Reported take of Cook Inlet beluga whales, 1993–2003

Year	Report Total Number Taken	Estimated Range of Total Take	Report Number Harvested	Estimated Number Struck and Lost
1993	30[1]	N/A	N/A	N/A
1994	21[1]	N/A	19[1]	2[1]
1995	70	N/A	42	26
1996	123	98–147	49	49–98
1997	70[2]	N/A	35[2]	35[2]
1998	42[2]	N/A	21	21
1999	0	0	0	0
2000	0	0	0	0
2001	1	—	1	0
2002	1	—	1	0
2003	1	—	1	0

[1] Estimated value (see 2002 stock assessment report)
[2] Represents a minimum value
Source: National Marine Fisheries Service

subsistence hunting. The agreements for 2000, 2001, and 2003 authorized a single strike in each of those years, with the understanding that the strikes would be allocated to the Native Village of Tyonek. The 2002 agreement authorized two strikes, with one being allocated to Tyonek and the other to the remaining community of Native hunters in the Cook Inlet area.

Under the strike limits agreed to by the parties to the rulemaking, it was anticipated that two strikes would be allocated to Native hunters for 2004. However, on 19 December 2003 the National Marine Fisheries Service's Alaska Regional Administrator wrote to the hunters explaining that an unusually high number of beluga whales were found dead in Cook Inlet during the year. Data compiled by the Service indicated that 20 dead whales, in addition to the one whale taken for subsistence, had been reported as of 12 December. Under a stipulation agreed to by the rulemaking parties (discussed below), all hunting is to be suspended if the number of "unusual mortalities" exceeds 18 in any year. As such, the Regional Administrator asked that Native hunters agree to refrain from taking any whales in 2004 and until the population has recovered from the effects of the unusual mortalities.

Regulation of Native Harvest

Section 101(b) of the Marine Mammal Protection Act provides authority for the Service to regulate the taking of depleted species of marine mammals by Alaska Natives when necessary for the conservation of the affected species or stock. Such regulations, however, may only be prescribed through formal rulemaking, which affords affected Natives and other interested parties the opportunity for a hearing on the record through which an administrative law judge develops the record of the proceeding and subsequently provides a recommended decision to the agency. Section 103(d) of the Act sets forth the rulemaking procedures and the information that must be published by the agency prior to, or concurrent with, the publication of a proposed rule. Among other things, the agency is to publish and make available to the public any recommendations provided to the Service by the Marine Mammal Commission that relate to the regulations.

Based in part on the Commission's advice, the Service published a proposed rule on 4 October 2000 to establish harvest limitations. At about the same time, the Service issued a draft environmental impact statement reviewing federal actions associated with the management and recovery of Cook Inlet beluga whales. The preferred alternative identified in the statement was the issuance of regulations to establish an annual strike limit of two beluga whales until the Cook Inlet stock is no longer depleted. This alternative was reflected in the proposed rule.

A formal hearing at which the proposed regulations were considered was held by the Service in Anchorage, Alaska, in December 2000. The Commission participated as one of seven parties at the hearing. Testimony presented on behalf of the Commission identified three primary problems with the harvest quota being proposed by the Service (1) there was appreciable uncertainty in the key variables forming the substantive basis of the proposed rule, (2) the analysis of the proposal in the draft environmental impact statement did not take sufficient account of that uncertainty, and (3) the proposed rule was not sufficiently precautionary in light of the uncertainty. The Commission believed that, although the proposal to allow no more than two strikes per year was a marked improvement over the unregulated harvest of the recent past, there was an unacceptably high risk that it would lead to an undue delay in recovery time for the stock.

At the conclusion of the hearing, the parties tentatively agreed to an interim quota of six beluga whales over the next four years, with four of the allowable strikes to go to the Native Village of Tyonek. They also agreed that the Service would convene a meeting of agency and other scientists to design a proposal for a longer-term, flexible management regime to be considered by the parties and to develop criteria for determining when the agreed-to harvest limits should be modified in response to unusual mortalities.

Subsequent to the hearing, the Commission, the National Marine Fisheries Service, and the Native Village of Tyonek continued to work to resolve the outstanding issues. Those efforts led to the adoption by the parties of several stipulations. Among other things, the parties agreed to formalize the agreement allowing six strikes over four years, subject to an emergency suspension provision if an unusual number of beluga whales dies in a given year. The parties also requested that the judge retain jurisdiction over the issue of strike limits for 2005 and beyond and agreed to a process for developing a long-term, science-based harvest regime that (1) provides reasonable certainty that the population will recover within an acceptable period of time, (2) takes into account

the uncertainty with respect to the population dynamics and vital rates of the Cook Inlet beluga whale population, (3) allows for periodic adjustments of allowable strike levels based on the results of abundance surveys and other relevant information, (4) provides assurance that the strike levels will not be reduced below those for 2001–2004 unless substantial information indicates that taking must be reduced to allow recovery of the stock, and (5) can be readily understood by diverse constituencies. The National Marine Fisheries Service was tasked with providing its recommendation for the long-term management regime to the judge by 15 March 2004.

The administrative law judge issued his recommended decision on 29 March 2002. A copy of the judge's recommended decision, the *Federal Register* notice soliciting comments thereon, and the comments received are available on the National Marine Fisheries Service's Web site (http://www.fakr.noaa.gov/protectedresources/whales/beluga/belugapr.htm). Also available on the Service's Web site is the final environmental assessment on the management of the subsistence harvest of Cook Inlet beluga whales, published in July 2003. Although the environmental impact statement has been completed, the Service has yet to finalize its regulations. Publication of those regulations is expected in the early part of 2004.

On 31 December 2002 the Commission wrote to the Service recommending that it take prompt action to develop a schedule for convening the agreed-to meeting for developing the long-term harvest regime. The Commission noted that considerable work needed to be done before the March 2004 deadline imposed by the judge. The Service responded on 25 June 2003 by scheduling a conference call with the parties to organize a workshop for designing the harvest regime to be submitted to the judge. During the call, the parties agreed to establish a science committee composed of representatives of the Service, the Commission, and the Native hunters and to hold a technical meeting of that committee in Seattle on 25–26 September. Participants at that meeting, which included three representatives of the Commission, considered a proposal circulated by the Commission. The Commission proposed that an overarching policy goal be established that would guide the establishment of strike limits. In this regard, the Commission suggested that three standards for governing the long-term harvest regime be adopted (1) that it provide a 99 percent probability that the stock will eventually recover to its optimum sustainable population, (2) that it provide a 95 percent probability that the stock will recover to its optimum sustainable population within 100 years, and (3) that it provide a 95 percent probability that the time to recovery will not be delayed by more than 25 percent. No consensus was reached by the participants as to what quantitative standards should govern the harvest or even if the adoption of specific, numerical recovery goals was desirable.

The Service convened a second meeting on the long-term harvest regime on 7 December 2003 in Anchorage. Although representatives of the Service, the Commission, and various hunter groups participated, only one member of the science committee was able to attend. Thus, progress on developing a "science-based" harvest regime, as called for by the stipulations, was limited. The Service and hunters tentatively agreed to extending the quota applicable for 2000–2004 for an additional five-year period, with two strikes being allowed in 2005, 2007, and 2009 and one strike being allowed in 2006 and 2008. The Commission could not agree to this proposal. Although willing to accept a quota of 1.5 whales per year at the outset, the Commission thought it essential that the harvest regime include an additional framework that would set appropriate triggers for increasing, decreasing, and suspending the harvest during that period. Further, the Commission noted that a proposal that addressed only a five-year period did not satisfy the judge's charge to develop a harvest management regime for 2005 and subsequent years. Another point made by the Commission was the desirability of targeting male whales in the harvest, which likely would have less of an impact on recovery of the Cook Inlet beluga whale stock.

The Service indicated that it would prepare and circulate a white paper based on the discussions at the two meetings that set forth its thoughts on the design of the long-term regime. The Service expected to complete the white paper promptly after the Anchorage meeting and provide the parties an opportunity to comment before sending a proposed regime to the judge.

Stock Status

As discussed in recent Commission reports, the National Marine Fisheries Service designated the Cook Inlet beluga whale as depleted under the Marine Mammal Protection Act on 31 May 2000. At that time, the Service was also considering the merits of two petitions to list the stock as endangered or threatened under the Endangered Species Act. The Service

determined that listing under the Endangered Species Act was not warranted at that time, primarily because it believed that overharvest by subsistence hunters, the primary threat to the stock, was being adequately addressed by limitations imposed by Public Law 106-31 and by regulations that the Service planned to propose pursuant to the depletion designation under the Marine Mammal Protection Act. The Service believed that, although the population had been reduced to a small size, a stock with at least 300 individuals and a positive intrinsic growth rate was unlikely to go extinct due to stochastic events. Although the petitioners for an Endangered Species Act listing challenged that determination, the reviewing court ruled that the Service had acted within the bounds of its discretion. The Commission, which had supported an Endangered Species Act listing, believes that the Service needs to revisit its rationale for determining that listing is not warranted in light of the lack of population growth since 1998.

Pressing Conservation Issues

- Developing a long-term, science-based harvest management regime that provides reasonable certainty that the population will recover within an acceptable period of time.
- Identifying possible factors other than subsistence hunting that may be causing or contributing to the apparent failure of the stock to recover despite low harvest rates.
- Revisiting whether listing under the Endangered Species Act is warranted in light of population trends detected since curtailment of subsistence hunting.
- Ensuring the availability of sufficient resources to continue annual population surveys and other needed research.

Bottlenose Dolphins in the Atlantic and Gulf of Mexico *(Tursiops truncatus)*

Bottlenose dolphins occur in most coastal areas in temperate and tropical regions of the world. They are the most common marine mammal along the U.S. southeastern and Gulf of Mexico coasts. In the western North Atlantic, bottlenose dolphins belong to either of two different ecotypes — coastal or offshore. These ecotypes are distinguished on the basis of their distribution, genetics, morphology, parasites, and prey. Relatively little is known about the distribution of the offshore ecotype, which typically occurs in deep waters of the continental shelf and inner continental slope. In coastal areas, dolphins occur along the outer coastline and in bays, sounds, inlets, estuaries, and other inland waters.

Within these ecotypes, bottlenose dolphins comprise different stocks — groups of animals that are more or less reproductively isolated from other groups within the same ecotype. The degree of reproductive isolation, a critical component of the definition of "stock," is important not only because it serves as a basis for genetic and evolutionary separation of stocks, but also because it is a determinant of a stock's vulnerability to, and ability to recover from, both natural and human-related threats. Efforts to distinguish stocks are complicated by the difficulty of studying marine mammals in their natural environment, by the fact that animals from different stocks cannot be separated on the basis of appearance, and by the fact that different stocks sometimes have geographic ranges that overlap temporally and spatially.

In 1987 and 1988 more than 740 bottlenose dolphins stranded along the eastern coast of the United States. The geographical pattern of the die-off was taken as evidence of a single coastal migratory stock. In 1993 the National Marine Fisheries Service designated that stock as depleted under the Marine Mammal Protection Act. In 1997, 10 years after the die-off, the Service established a research program to investigate stock structure, primarily using genetics but also using photo-identification, telemetry, stable isotope ratios, and information from strandings. Initial efforts have focused along the Atlantic coast because this region includes the depleted, provisional coastal migratory stock and because of documented high levels of incidental take in gillnet fisheries in the coastal waters of the mid-Atlantic.

Preliminary results have provided additional insights into possible stock structure along the Atlantic coast and suggest the possibility of at least seven stocks of the coastal ecotype (Fig. 6). These apparent stocks consist of migratory animals as well as year-round and seasonal residents in bays, sounds, and estuaries of the mid-Atlantic and southeastern states. Little work has been done to delineate stocks south of the North Carolina/South Carolina border; several additional stocks may occur along the coast and in the estuaries and bays of South Carolina, Georgia, and the east coast of Florida. The Bottlenose Dolphin Take Reduction Team, convened by the Service in 2001, has noted that data are insufficient to understand

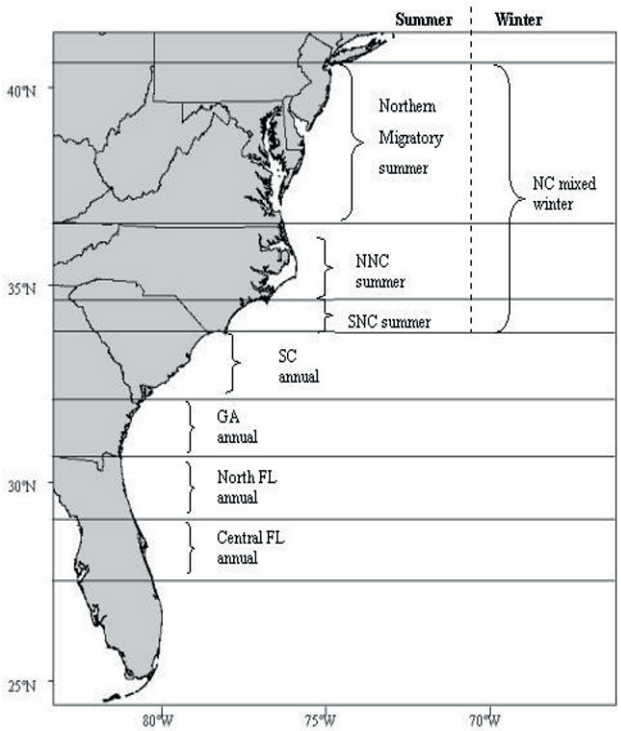

Figure 6. Current management unit delineations used by the Mid-Atlantic Bottlenose Dolphin Take Reduction Team.

stock structure fully but is operating under the assumption that seven coastal bottlenose dolphin stocks exist in coastal waters of the western North Atlantic. However, due to spatial overlap of some of the stocks off the coast of North Carolina in winter months, the team also devised management measures by seasonal management units (Fig. 6).

Between 1992 and 1998 the Service conducted six abundance surveys between New York and Florida; a comprehensive survey was carried out in 2002. Estimating the abundance of bottlenose dolphins is complicated by the difficulties associated with distinguishing coastal and offshore ecotypes, seasonal movement patterns that result in overlapping distribution of the coastal stocks, the difficulty of covering the majority of the Atlantic coast in a single survey, and uncertainty about the best analytic methods. The results of the most recent survey are presented in Table 4. Existing information is insufficient for trend analysis for any of the stocks in the coastal waters of the Atlantic coast. Offshore bottlenose dolphins in the western North Atlantic have an estimated population size of 30,633 based on two large-vessel surveys conducted in 1998, but this estimate is confounded by some of the same assessment problems noted above.

Similar issues arise in the Gulf of Mexico, where stock structure is even less clear. In March 2000 the Service hosted a meeting in Sarasota, Florida, to discuss the most efficient ways to resolve questions about the species' stock structure in the Gulf. Service personnel presented a brief report of that meeting to the Commission at its 2000 annual meeting in St. Petersburg Beach, Florida, and indicated that funds would be sought to begin a comprehensive research program similar to that now under way along the Atlantic coast. In a 12 December 2000 letter to the National Marine Fisheries Service, the Commission agreed that comprehensive studies along the Atlantic coast provided a good framework for future dolphin research in the Gulf of Mexico. The Commission commended the Service for its efforts in this regard and urged it to expedite funding for such research. At the end of 2003 the Service's Southeast Fisheries Science Center was seeking, but had not yet received, funding to conduct comprehensive bottlenose dolphin studies in the Gulf of Mexico. However, Congress appropriated funds to researchers in Mississippi and Florida to carry out regional studies.

Lacking better information, the Service currently recognizes 38 stocks in the Gulf of Mexico region (outer continental shelf, continental shelf edge and

Table 4. Estimated abundance of bottlenose dolphin stocks

Seasonal Management Unit	Abundance	n_{min}	PBR	Mortality
SUMMER				
Northern migratory	17,466	14,621	73	36
Northern North Carolina	7,079	4,083	20	26
Southern North Carolina	3,787	1,987	9.9	0
WINTER				
Mixed	16,913	13,558	68	79
ANNUAL				
South Carolina	2,325	1,963	20	?
Georgia	2,195	1,716	17	?
Northern Florida	737	455	4.6	?
Central Florida	10,652	7,377	74	?

continental slope, western coastal, northern coastal, eastern coastal, and 33 resident stocks in contiguous, enclosed, or semienclosed bodies of water adjacent to the Gulf of Mexico). For most of these stocks, abundance estimates are outdated and therefore unreliable. The National Marine Fisheries Service conducted abundance surveys throughout the Gulf of Mexico for multiple species of cetaceans. However, these surveys focused on pelagic waters (>200 m in depth), so they would only include bottlenose dolphins from the continental shelf edge and slope stock. As of the end of 2003 the Service had not completed analyses on the bottlenose dolphins sighted; however, they speculated that due to a small number of sightings of bottlenose dolphins during the surveys, any estimates generated would be imprecise. Existing information is insufficient for trend analysis for most currently recognized stocks of bottlenose dolphins in the Gulf of Mexico. However, the Sarasota Bay population has been monitored since 1978 and is considered to be stable.

Lack of information on bottlenose dolphin stock structure in these regions is a major impediment to assessment of their status and trends, which are most meaningfully described on the basis of reproductively discrete stocks. Similarly, the lack of information on stock structure impedes the analysis of effects from die-offs, fisheries interactions, coastal development, oil and gas operations, and other factors that pose potential threats to bottlenose dolphins. However, determining the status of and risks to stocks will be difficult even after stocks have been identified.

Threats to Bottlenose Dolphin Stocks

A variety of factors, both natural and human-related, may threaten the well-being of individual dolphins or the status of dolphin stocks. Natural factors include predation by large sharks, disease, parasites, exposure to naturally occurring biotoxins, changes in prey availability, and reduction or loss of habitat due to environmental variation. Human-related factors include loss of habitat due to coastal development, exposure to pollutants, disturbance, vessel strikes, entanglement in debris, noise and pollution related to oil and gas development, direct and indirect interactions with recreational and commercial fisheries, and injury, mortality, or behavior modification that may result from direct human interactions such as the feeding of wild dolphins. These factors may act independently or synergistically. For example, exposure to pollutants may reduce immune system function, thereby lowering resistance to disease; human-related contamination of coastal waters may increase the likelihood of phytoplankton blooms that result in increased concentrations of biotoxins; or direct interactions such as feeding of dolphins may increase the likelihood of dolphin injury or mortality due to vessel strikes. Compared with offshore bottlenose dolphins, coastal dolphins are at greater risk to human-related threats due to their greater proximity to human activities.

Die-Offs — The effects of various threats to bottlenose dolphins in the southeastern and mid-Atlantic United States have manifested themselves most obviously in a series of at least six die-offs observed over the past 15 years. Animals stranded on beaches provide the most obvious evidence of a die-off, but it is not clear that those animals provide a complete and reliable basis for characterizing total mortality during an event (e.g., some dead, stranded animals may not be found; some dead animals may not strand or wash ashore; and stranded animals may wash up great distances from the location of their death).

The most recent known die-off of bottlenose dolphins in the southeastern United States occurred from May to August 2001 in the vicinity of the Indian River Lagoon along the eastern coast of Florida. At least 35 animals died, and the cause of death is under investigation. During the height of the mortality event, fish, crab, and seabird kills also occurred in the lagoon. Scientists attributed these deaths to low levels of dissolved oxygen. Because of several cases of human illness due to the consumption of pufferfish containing saxitoxin, there have been subsequent investigations into whether the dolphin mortality event could be attributed to saxitoxin poisoning via pufferfish. Such events are of concern not only because of their impact on the local populations, but also because they may serve as general indicators of the health of coastal ecosystems.

The effect of a die-off on a particular stock of dolphins can only be determined if that stock has been identified and sufficient background information exists to put the die-off in perspective. Such information includes stock abundance, status and trends, and composition. Because the stock structure of bottlenose dolphins along the southeastern coast and in the Gulf of Mexico is poorly understood, as are the abundance, status, and trends of each stock, it is difficult to determine the significance of the observed die-offs.

Contaminants — Bottlenose dolphins, particularly those occurring in coastal and inland waters, are

exposed to contaminants from a variety of sources including agricultural and residential runoff, deposition of airborne pollutants, vessel discharges, pollution from oil and gas exploration and drilling, and sewage and other waste from coastal developments. Although a considerable number of studies have documented the presence of contaminants in marine mammal tissues (including those of bottlenose dolphins), the effects of those contaminants on the health of both individuals and marine mammal populations have been difficult to assess. Based on studies of other species, the potential effects of contaminants include, but are not limited to, direct health risks to individual animals (e.g., impairment of immune function) as well as impairment of their ability to reproduce. Contaminant loads for some chemicals may increase over time due to bioaccumulation, and some contaminants may be passed directly from mother to fetus.

Between 2001 and 2003 the Service has provided more than $145,000 for studies of the effects of organochlorine contaminants, emerging organic contaminants such as perfluorinated compounds, and mercury/selenium dynamics in the Sarasota Bay population of dolphins. Results from those studies indicate that concentrations of organochlorines in dolphin blubber, milk, and plasma are of potential health concern for firstborn calves and for males as they age and accumulate high concentrations of contaminant residues. Females that have given birth to more than one calf carry lower concentrations in their tissues as a result of passing contaminants to their calves via placenta and milk. Maximum ages of males are about 15 to 20 percent less than for females, and researchers continue to look for possible relationships between shorter life spans and contaminant burdens.

Tourism and Direct Human Interactions — In recent years, commercial ventures that encourage close and sometimes illegal interactions between humans and dolphins have proliferated in the southeastern United States (see also Chapter IX). Those ventures offer members of the public a variety of experiences ranging from watching animals to swimming with wild dolphins. In some cases, the activities constitute harassment, whereas in others the legal situation is less clear. The feeding of free-ranging dolphins, an activity explicitly prohibited under National Marine Fisheries Service regulations, also has persisted in various locations.

To document the extent, nature, and effects of such activities, the Commission contracted for a study to (1) review the literature on the topic of human-dolphin interactions, and (2) quantify and describe the development of swim-with-the-dolphin programs in the Florida panhandle. The study was completed in April 2000[4]. Although the report acknowledged a lack of information about the effects of human-dolphin interactions, it concluded that (1) dolphins are vulnerable to injury and death as a result of human contact, (2) animals appearing tolerant or even seeking such contact have already been placed at risk by extensive habituation achieved through considerable human effort, (3) such contact can disrupt important natural behaviors of wild dolphins, and (4) a precautionary approach is necessary to ensure the protection of wild dolphins from the adverse effects of human-dolphin interactions.

At the Commission's 2000 annual meeting, representatives of the Service reviewed the status of such activities in the southeastern United States and expressed concern about the individual and cumulative effects of close interactions between humans and dolphins. They advised the Commission that new draft regulations to address these interactions would soon be circulated to the Commission and other agencies for comment. The Commission has repeatedly urged the Service to consult with other involved agencies (e.g., the Fish and Wildlife Service and the public display industry) to ensure that a consistent message reaches the public. The Commission noted that patrons of public display facilities offering swim-with-the-dolphin or dolphin-feeding exhibits may be confused about what constitutes appropriate behavior with marine mammals in the wild and that regulations adopted by the Service should be consistent with those issued by the Fish and Wildlife Service for species under its charge.

In July 2001 the National Marine Fisheries Service consulted with the Commission regarding a draft policy developed to address the issue of interactions between the public and marine mammals in the wild. The policy was intended to clarify those interactions constituting harassment. The Commission expressed its understanding that the Service still intends to promulgate regulations clarifying those interactions between the public and wild marine mammals that constitute harassment. The Commission agreed that the policy would help provide the public with needed guidance regarding such activities until appropriate

[4] Samuels, A., L. Bejder, and S. Heinrich. 2000. A review of the literature pertaining to swimming with wild dolphins. Marine Mammal Commission Contract Report. 58 p.

regulations could be implemented. On 30 January 2002 the Service published an advance notice of proposed rulemaking in the *Federal Register* requesting comments on types of regulations and other measures that would be appropriate to prevent harassment of marine mammals. At the end of 2003 the Service had taken no further action on these regulations.

Enforcement is an important element of management efforts to avoid harassment of bottlenose dolphins (and other marine mammals) by direct human interaction. At the Commission's 2000 and 2002 annual meetings, representatives of the Service discussed problems relating to inadequate and ineffective enforcement of regulations intended to protect bottlenose dolphins, spinner dolphins in Hawaii, and other marine life. They noted that enforcement has been compromised by an inadequate number of enforcement officers, the extensive coastline to be covered, and the large number of competing, high-priority demands requiring attention (e.g., investigation of interactions between shrimp fisheries and turtles). In a subsequent letter, the Commission strongly recommended that staffing and efforts be increased significantly, not only for bottlenose dolphins, but also for other species for which the Service is responsible. The letter noted that the Commission also had urged both the Fish and Wildlife Service and the Florida Division of Law Enforcement to increase their enforcement capabilities. Finally, the letter recommended that the Service develop a coordinated enforcement strategy involving all three agencies in Florida. At the Commission's 2002 annual meeting in San Diego, the issue of inadequate enforcement in the face of blatantly inappropriate behavior arose again with respect to the harassment of Hawaiian spinner dolphins (see Chapter IX).

Fisheries Interactions and Take Reduction Efforts

Bottlenose dolphins interact with commercial and recreational fisheries throughout their range along the southeastern Atlantic and Gulf of Mexico coasts. They may be killed or seriously injured incidental to a variety of fishing operations and gear types including gillnets, crab pots, haul/beach seines, long-haul seines, pound nets, and stop nets. They also may be injured or killed by consuming fish caught by hook-and-line fisheries or taken as bycatch in fishery-generated debris such as lost netting and lines.

Evidence and estimates of fisheries interactions suggest that fishery-related mortality exceeds the potential biological removal level of several coastal stocks depleted by the 1987–1988 die-off and thus may be impeding their recovery. Therefore, the National Marine Fisheries Service convened a take reduction team in November 2001 to begin the process of developing a plan to reduce the fishery-related take of bottlenose dolphins along the U.S. Atlantic coast from New Jersey southward. The team consists of representatives of the different fisheries involved, the Atlantic States Marine Fisheries Commission, the Mid-Atlantic Fishery Management Council, the South Atlantic Fishery Management Council, the National Marine Fisheries Service, fishery management agencies of the affected states, universities in the regions affected, conservation organizations, animal welfare organizations, and the Marine Mammal Commission.

The take reduction team met four times in 2002. Progress was hampered by lack of scientific and observer data, particularly on abundance and incidental take mortality. Therefore, devising mitigation measures that were palatable to all stakeholders and that the Service could show would significantly decrease incidental take proved difficult. Despite these problems, the team reached consensus on a plan on 25 April 2002. The plan consisted of a mix of education and outreach programs, research needs, and regulatory measures, such as limits on mesh size and soak times. The take reduction team reconvened in April 2003 because the National Marine Fisheries Service notified team members that, for some of the management units, the regulatory measures were inadequate to reduce mortality and serious injury of bottlenose dolphins to below the potential biological removal level. At that meeting, the Service presented new abundance estimates and potential biological removal levels (Table 4). These new potential biological removal levels, which were for the most part higher than previous levels, left only one management unit above the potential biological removal level: the summer northern North Carolina management unit. At the April 2003 meeting, the team again reached consensus on a plan to reduce bycatch below the potential biological removal level for this management unit. The Service is required under the Marine Mammal Protection Act to release a draft plan for public comment within 60 days of its receipt. However, as of 31

December 2003 the Service had not released the take reduction plan. The Service anticipated releasing the plan in 2004.

On 4 November 2002 the Commission responded by letter to a *Federal Register* notice from the National Marine Fisheries Service requesting comments on its intent to prepare an environmental impact statement on the bottlenose dolphin take reduction plan. The letter highlighted the importance of obtaining adequate information to evaluate the alternatives in the environmental impact statement. Specifically, the Commission noted the need for reliable information on the stock structure of the affected bottlenose dolphins, abundance of each stock, potential biological removal levels, and levels of incidental mortality and serious injury in the fisheries after the implementation of take reduction measures. The Service replied to the Commission's letter on 11 September 2003, stating that it was in the process of developing a proposed take reduction plan; however, it did not provide anticipated release dates for the plan or the accompanying environmental impact statement.

The Commission reviewed the take reduction process in general and bottlenose dolphins in the mid-Atlantic in particular at its 2003 annual meeting. Service personnel described efforts to describe stock structure, estimate abundance, and quantify mortality. In addition, several participants in the take reduction team discussed their experiences with the process and suggested areas of improvement. The Commission sent a letter to the Service on 31 December 2003 reviewing the stock assessment and take reduction processes. The Commission commended the Service for recent studies of stock structure and abundance of mid-Atlantic coastal bottlenose dolphins. In addition, the Commission recommended continued investigation of bottlenose dolphin stock structure in the mid-Atlantic region to clarify stock relations between coastal dolphins and dolphins in inshore waters (i.e., estuaries and bays) and stock structure of coastal dolphins in the southern portion of their range (i.e., off South Carolina, Georgia, and Florida). The Commission also recommended continued surveys of mid-Atlantic bottlenose dolphins to confirm recent estimates of abundance and investigate bias from overlapping distributions of coastal and offshore dolphins. The Commission suggested that the Service conduct additional assessments of inshore dolphins to estimate abundance and fishery-related mortality and serious injury. These assessments should include nontraditional methods (e.g., photo-identification) and be expanded to cover a wider geographic range. Finally, the Commission recommended that the Service develop and implement standards for accuracy and precision for mortality and serious injury levels and, when the standards are not met by existing observer programs, either modify those programs or develop alternative assessment methods.

Conservation Plan

As described in previous annual reports, the Commission has recommended repeatedly that the National Marine Fisheries Service develop and implement a bottlenose dolphin conservation plan for the putative western North Atlantic coastal migratory stock. Such a plan is required under the Marine Mammal Protection Act for species designated as depleted. As noted above, this stock was declared depleted in 1993, based on estimates that it may have declined by more than 50 percent as a result of the 1987–1988 die-off. On 25 May 2001, almost 15 years after the die-off and 8 years after the depleted status designation, a draft plan was forwarded to the Commission for review and comment. The draft plan provided an overview of the species' history, a review of its natural history characteristics, a summary of known and possible human-related and natural factors that may threaten the population or impede its recovery, an outline of needed and prioritized research and conservation actions, a schedule for implementing those actions, and their projected costs. Necessary actions included (1) identification of stock structure of coastal bottlenose dolphins, (2) estimation of abundance for each stock, (3) assessment of human-related sources of mortality for each stock, (4) assessment of the overall status of each stock, (5) retrospective analysis of the 1987–1988 die-off, (6) establishment of a biomonitoring program to assess the incidence of disease, (7) examination and characterization of factors that could change carrying capacity for bottlenose dolphin stocks, and (8) establishment of a coordinator position to ensure implementation of the plan.

The draft plan also suggested that, in the absence of information to determine the stock's optimum sustainable population level (i.e., that level above which the population would no longer be considered depleted), the time to recovery could be estimated using model simulations if human-related mortality of dolphins remains below the potential biological removal level.

By letter of 15 June 2001 the Marine Mammal Commission commended the Service and its contrac-

tors on the overall quality of the conservation plan and provided comments. The Commission's two main questions were whether the Service has adequate funding to implement the plan and whether the Service would prepare a similar plan for bottlenose dolphins in the Gulf of Mexico where dolphin populations are threatened by many of the same problems observed along the Atlantic coast. The Commission also encouraged the Service to release the plan to the public for further comment. As of 31 December 2003 the Service was updating the plan with the new information on stock structure, abundance, and take reduction efforts. It anticipated release of the draft plan for public comment in mid-2004.

Pressing Conservation Issues

- Improving our understanding of stock structure and population trends in order to assess the greatest threats to bottlenose dolphins.
- Determining the signficance of periodic die-offs especially to relatively small, isolated populations of bottlenose dolphins.
- Assessing the impact of contaminants on marine mammals, particularly the repercussions of high contaminant loads in bottlenose dolphins on individual animals as well as their offspring.
- Measuring the effects of interactions between humans and dolphins in the wild, including behavioral disruption, habituation, injury, and death.
- Mitigating threats to bottlenose dolphins posed by entanglement in fishing gear.

Beaked and Bottlenose Whales (Family Ziphiidae)

Ziphiids, commonly known as the beaked and bottlenose whales, are one of the least-known families of marine mammals. This taxonomic family, referred to collectively as the beaked whales, includes 21 species in six genera (see Table 5). Although scientists described the first member of the family in 1770, these elusive deep divers are still poorly known. The most recent addition to the family, Perrin's beaked whale (*Mesoplodon perrini*), was not described until 2002 and is known from only five specimens that stranded on the coast of California between 1975 and 1997.

Beaked whales are found in all the world's oceans and are believed to prefer deep-water habitats, although this hypothesis is based largely on anecdotal evidence and has not been thoroughly tested for any species. The distribution of most beaked whale species is known largely from stranding records and limited surveys by the National Marine Fisheries Service and others, because these animals are notoriously difficult to find and identify at sea. Several species have never been reliably identified at sea, and knowledge of their distributions is limited to what can be inferred from a small number of stranded specimens. Analyses to date have shown a substantial variation in local distributions within and among species. In general, National Marine Fisheries Service marine mammal surveys and other studies have revealed distribution patterns that seem to reflect a preference for habitats such as shelf edges, submarine canyons, seamounts, and oceanographic features that may concentrate prey. The prey preferences for most species of beaked whales are not well understood although limited studies indicate that they feed on deep-water species of fish and squid.

Abundance, Status, and Threats

No beaked whales are listed as depleted under the Marine Mammal Protection Act or as threatened or endangered under the Endangered Species Act. For most ziphiids, no reliable estimates exist of the abundance, minimum population size, potential biological removal, or stock status. However, the National Marine Fisheries Service has produced stock assessment reports for some species. Results of these reports are summarized in Table 6.

Uncertainty in field identification of the ziphiids, especially for smaller species, has made it difficult to estimate their abundance. Studies to date have shown that beaked whales typically spend very little time at the surface, taking only 2 or 3 minutes to recover between 15- to 45-minute dives. In addition, most species are inconspicuous when at the surface, lacking a distinctive blow and rarely displaying their flukes before diving. This makes them generally hard to detect and distinguish from a distance. Underwater recordings of beaked whale vocalizations may help in the development of new methods to detect beaked whales while they are submerged, but much additional work is needed before such acoustic detection techniques can be applied.

Recent highly publicized mass strandings of beaked whales have increased concern about the status of beaked whale populations, with particular attention given to the role of anthropogenic sound

Table 5. Family Ziphiidae (the ziphiids), beaked, and bottlenose whales

Species	Common Name	Distribution
Berardius arnuxii	Arnoux's beaked whale	Subantarctic and Antarctic waters
B. bairdii	Baird's beaked whale, giant bottlenose whale, North Pacific bottlenose whale	Cold/temperate waters in the North Pacific
Hyperoodon ampullatus	North Atlantic bottlenose whale, northern bottlenose whale, bottle-nosed whale	Temperate, subarctic, and arctic North Atlantic
H. planifrons	southern bottlenose whale, Antarctic bottle-nosed whale, flatheaded bottlenose whale	Throughout the Southern Hemisphere
Indopacetus pacificus	Longman's beaked whale, Indo-Pacific beaked whale	Known from only six specimens; western tropical Pacific Ocean, tropical Indian Ocean
Mesoplodon bidens	Sowerby's beaked whale, North Atlantic beaked whale, North Sea beaked whale	Temperate North Atlantic
M. bowdoini	Andrews' beaked whale, deepcrest beaked whale	Known only from stranding records; southern Indo-Pacific
M. carlhubbsi	Hubbs' beaked whale, archbeaked whale	Temperate North Pacific
M. densirostris	Blainville's beaked whale, densebeaked whale, densebeak whale	Warm-temperate, subtropical, and tropical waters worldwide
M. europaeus	Gervais' beaked whale, Antillean beaked whale, Gulf Stream beaked whale	Warm-temperate and tropical Atlantic, including the Gulf of Mexico
M. ginkgodens	ginkgo-toothed beaked whale	Known only from stranding records; tropical and warm-temperate Indo-Pacific
M. grayi	Gray's beaked whale, Haast's beaked whale, scamperdown whale, small-toothed beaked whale	Temperate waters of Southern Hemisphere, Antarctic waters
M. hectori	Hector's beaked whale	Known only from stranding records; temperate waters of Southern Hemisphere, excluding southeastern Pacific
M. layardii	strap-toothed whale, Layard's beaked whale, long-toothed beaked whale	Southern Hemisphere
M. mirus	True's beaked whale	Temperate North Atlantic and Southern Hemisphere; apparent isolated populations
M. perrini	Perrin's beaked whale	Known from only five specimens off California; North Pacific
M. peruvianus	lesser beaked whale, pygmy beaked whale, Peruvian beaked whale	Known only from Gulf of California to Peru; probably eastern tropical Pacific
M. stejnegeri	Stejneger's beaked whale, Bering Sea beaked whale, saber-toothed whale	Cold-temperate and subarctic North Pacific
M. traversii	spade-toothed whale	Known from only three specimens; New Zealand and Chile
Tasmacetus shepherdi	Tasman beaked whale, Shepherd's beaked whale	Known from only few specimens and possible sightings; probably throughout temperate Southern Hemisphere
Ziphius cavirostris	Cuvier's beaked whale, goose-beaked whale, goosebeak whale	Worldwide; temperate, subtropical, and tropical waters

Table 6. Summary of NMFS stock assessment reports available for ziphiids[1]

Stock	Date of Report	Minimum Population Estimate	Current Population Trend	Potential Biological Removal
B. bairdii CA/OR/WA stock	2000	313[2]	Unknown	3.1
M. densirostris HI stock	2000	43[3]	Unknown	0.4
M. densirostris N. Gulf of Mexico stock	1995	Unknown[4]	For undifferentiated beaked whales: 1994 abundance estimates lower than in 1991–1993	Unknown
Z. cavirostris CA/OR/WA stock	2000	4309[2]	Unknown	43
Z. cavirostris HI stock	2000	29[3]	Unknown	0.3
Z. cavirostris N. Gulf of Mexico stock	1995	20[5]	Increased from zero in 1991–1992; likely due to sampling changes	0.2
M. europaeus N. Gulf of Mexico stock	1995	Unknown[4]	For undifferentiated beaked whales: 1994 abundance estimates lower than in 1991–1993	Unknown
Mesoplodon spp. CA/OR/WA stock	2000	2,734[2]	Unknown	27

[1] Minimum population estimates are based on the log-normal 20th percentile of available abundance estimates. Stock assessments were inconclusive for the AK stock of *B. bairdii* (1999), the Western N. Atlantic stock of *M. densirostris* (1995), the AK and Western N. Atlantic stocks of *Z. cavirostris* (1999 and 2002, respectively), the Western N. Atlantic stock of *M. europaeus* (1995), the Western N. Atlantic stock of *Mesoplodon* spp. (2002), the Western N. Atlantic stock of *H. ampullatus* (1998), the Western N. Atlantic stock of *M. bidens* (1995), the AK stock of *M. stejnegeri* (1999), and the Western N. Atlantic stock of *M. mirus* (1995).
[2] For 1991–1996 abundance estimate.
[3] For 1993–1998 abundance estimate.
[4] Data available only for undifferentiated Ziphiid spp.
[5] For 1993–1994 abundance estimate.

sources in these events. For further discussion of the potential impacts of anthropogenic sound on beaked whales, see Chapter VII of this report.

Few data are available on beaked whale mortalities from fisheries interactions. The National Marine Fisheries Service's stock assessment reports indicate that Baird's, Hubbs', Stejneger's, and Cuvier's beaked whales have been taken rarely in the California drift gillnet fishery, and undifferentiated beaked whales were killed in the now-defunct pelagic drift gillnet fishery off the Atlantic coast of the United States. Additional monitoring is needed to verify the extent to which fisheries interactions affect beaked whales because unreported takes may occur. Some beaked whale species were taken in whaling operations, including Baird's beaked whales off California and British Columbia, northern bottlenose whales off Atlantic Canada, and Cuvier's beaked whales off the Lesser Antilles. The long-standing coastal fishery for Baird's beaked whales off Japan once took up to 400 animals a year although more recent annual harvests have been approximately 20 whales. The population-level impacts of fisheries interactions and whaling operations on beaked whales are unknown.

Little is known about other potential threats to beaked whales. A variety of natural and anthropogenic factors may affect their health, survivorship, or behavior. Studies of their abundance, distribution, behavior, ecology, anatomy, and physiology are needed to assess their status and develop adequate monitoring, management, and (where necessary) mitigation strategies.

Beaked Whale Technical Workshop

The Commission is planning a technical workshop on beaked whales to take place in April 2004 in Baltimore, Maryland. The meeting will address the vulnerability of beaked whales to anthropogenic

sound. The workshop's goals are to (1) assess current knowledge of recent stranding events involving beaked whales and their biology and ecology, (2) identify and characterize factors that may have caused those strandings, (3) identify data needed to investigate possible causal relationships, and (4) recommend research, management, and mitigation strategies specific to beaked whales and acoustic impacts. After the meeting, the Commission will produce a workshop report that will inform the ongoing efforts of the Commission's Advisory Committee on Acoustic Impacts on Marine Mammals. For additional information about the Advisory Committee and the Commission's efforts related to anthropogenic sound and marine mammals, see Chapter VII of this report.

Pressing Conservation Issues

- Improving our information about the biology, ecology, and population status of beaked whale species in order to understand and manage current and future threats.
- Targeting research to determine how anthropogenic sound affects individuals and populations.

Hawaiian Monk Seal
(Monachus schauinslandi)

Hawaiian monk seals occur only in the Hawaiian Archipelago and are the most endangered pinniped in U.S. waters. Currently numbering about 1,300 animals, their abundance has declined by more than half since the late 1950s when the first monk seal counts were made. Until recently, Hawaiian monk seals occurred almost exclusively at remote atolls in the Northwestern Hawaiian Islands (Fig. 7), where six major breeding colonies are located (French Frigate Shoals, Laysan Island, Lisianski Island, Pearl and Hermes Reef, Midway Islands, and Kure Atoll). In the last decade, however, sightings of monk seals in the main Hawaiian Islands have increased considerably, with perhaps 10 percent of the population now occurring in that area.

Most of the population decline since the 1950s occurred before the 1990s (Fig. 8). Overall beach counts were relatively stable in the Northwestern Hawaiian Islands during the 1990s, but they appear to have declined slightly in 2001 and again in 2003. Causes of the decline include both human and natural factors. Those factors have changed over time and differ at each of the major colonies (see previous annual reports). Human-related factors include disturbance and displacement of hauled-out seals by military personnel stationed in the past at island atolls and their pet dogs, entanglement in marine debris (principally derelict trawl nets and line from fisheries outside the Hawaiian Archipelago), and depletion of prey species by commercial fishing at atoll reefs. Natural factors include shark predation, naturally occurring biotoxins, aggressive behavior by some adult males toward pups, juveniles, and adult females, and the effects of oceanographic changes on stocks of prey available within the small reef ecosystems that support monk seals.

The National Marine Fisheries Service has lead responsibility for monk seal research and management. Because of its highly endangered status, the Hawaiian monk seal has long been a species of special concern to the Marine Mammal Commission. As described in previous annual reports, the Commission has recommended and taken numerous ac-

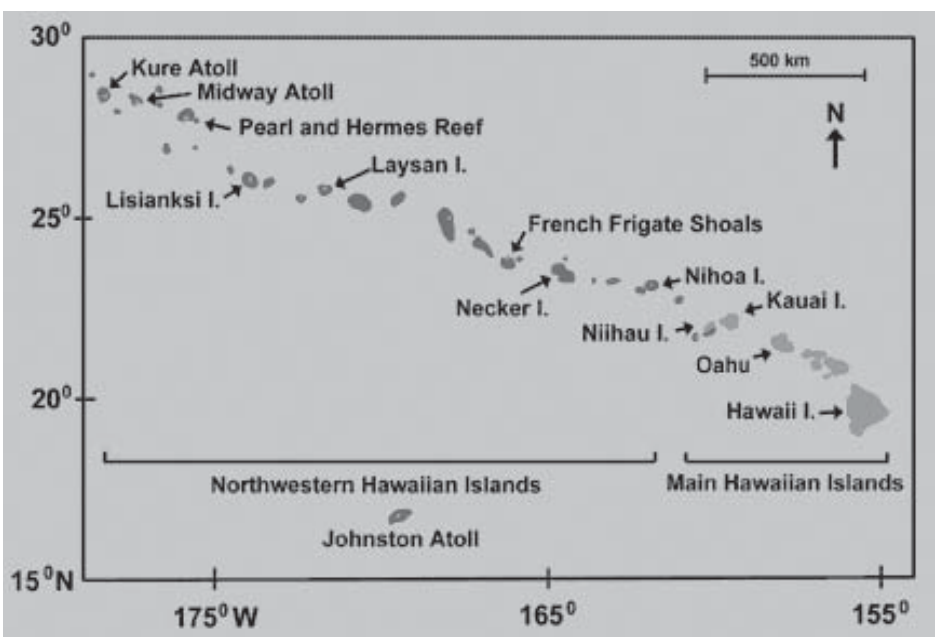

Figure 7. The Hawaiian Archipelago

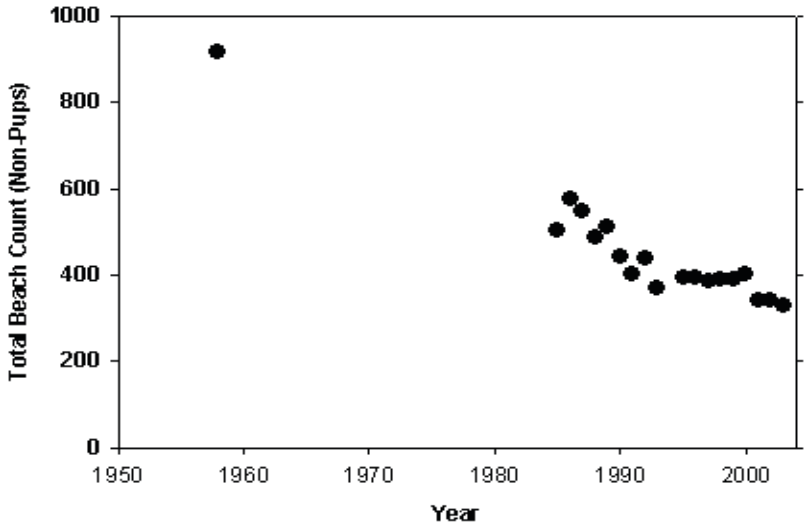

Figure 8. Combined mean total beach counts of Hawaiian monk seals (excluding pups) at all six major pupping colonies in the Northwestern Hawaiian Islands, 1958–2003. (Unpublished data provided by the National Marine Fisheries Service, Pacific Islands Fisheries Science Center.)

tions with regard to monk seals. Recommendations developed during reviews in 1978 and 1979 provided a basis for initiating the monk seal recovery program. Since then, the Commission has periodically held comprehensive reviews of the recovery program (i.e., 1987, 1989, 1991, 1995, and 2002) to reassess program priorities in light of progress and new developments.

Results of the 2002 review identified the need for actions including (1) better management of interactions between people and seals on beaches in the main Hawaiian Islands, (2) developing cooperative arrangements among agencies, particularly the State of Hawaii and the Fish and Wildlife Service, with management authority over lands and waters that are used by monk seals, and (3) further assessing monk seal feeding ecology and the potential for prey availability to limit population recovery.

Monk Seal Recovery Planning

As described in the previous annual report, a reconstituted Hawaiian Monk Seal Recovery Team met in March and December 2002. A primary activity of the team was work on a revision of the original recovery plan that had been approved in 1983. To assist in this effort, the Marine Mammal Commission funded a contractor to work with the team to help assemble and complete a draft plan.

The recovery team met in April and December 2003, and a representative of the Commission attended both meetings. At the April meeting, the team approved the basic contents of the biological background and threats sections of the plan that had been compiled and edited by the Commission's contractor. It then worked to develop the recovery recommendations portion of the plan, which will identify, describe, and prioritize actions that are needed to enable recovery of the population to the point that it can be removed from the list of endangered and threatened species under the Endangered Species Act. A schedule was devised for individuals and groups to work on various sections, with the intention of having a complete draft plan for submission to the Service in September. For various reasons the team did not meet this ambitious goal, but at the December meeting it had nearly completed a draft plan. At the end of 2003 it was expected that the remaining work on recommendations and actions in the draft plan would be completed early in 2004 and a final draft plan submitted to the Service in early to mid-2004.

Monk Seals in the Main Hawaiian Islands

The only large area of unoccupied habitat available to monk seals within their current range is the main Hawaiian Islands. The recent increase in both sightings and breeding in this area therefore represents encouraging prospects for the species' recovery. However, because many of the beaches in the main Hawaiian Islands are developed and intensively used by people, it also raises significant new management challenges. To date, most monk seal haul-out events in the main Hawaiian Islands have been on the western islands of Niihau (a privately owned island) and Kauai. To minimize disturbance of seals on heavily used Kauai beaches, local residents, in cooperation with officials of the National Marine Fisheries Service and state and local agencies, established a volunteer response network called the Kauai Monk Seal Watch Program. Participating members have responded to monk seal haul-out events by posting

Figure 9. Volunteers with the Kauai Monk Seal Watch Program help prevent disturbance to seals that haul out on popular Kauai beaches by posting signs and taping off temporary protection zones around resting and molting animals. (Photograph courtesy of Gretchen Johnson.)

temporary taped-off perimeters around seals (Fig. 9) and distributing educational materials to beach-goers about not disturbing the seals.

Main Hawaiian Islands Workshop — Recognizing the need to develop a cooperative mechanism for responding to haul-out events, the Commission, in cooperation with the Service and the State of Hawaii, convened a workshop in Koloa, Kauai, on 29–31 October 2002 to identify steps to better coordinate efforts to protect seals that haul out to rest, molt, and pup on main Hawaiian Island beaches, particularly on Kauai. As the workshop was being organized, the Service provided funds to the Hawaii Division of Aquatic Resources to contract with an individual to coordinate haul-out response and monitoring work on Kauai. As discussed in the previous annual report, workshop participants reviewed the results of the coordinator's work, volunteer efforts to respond to haul-out events, and possible responses to various situations (e.g., pupping on popular tourist beaches, entanglements, haul outs in remote areas, etc.). In early 2003 the Commission completed a report of the workshop, and on 14 March copies were transmitted to the Service and the Hawaii Division of Aquatic Resources along with Commission recommendations for follow-up work.

In its letter to the Service, the Commission noted that effective management of monk seal haul-out events in the main Hawaiian Islands would require the involvement of many people, including government officials, local residents, volunteers, and hotel operators. The Commission also noted its belief that leadership for such efforts should be shared jointly by the Service and the Hawaii Division of Aquatic Resources. To address Service responsibilities in this regard, the Commission recommended that the agency (1) provide at least one additional staff member and additional operational funds to oversee monk seal management activities in the main Hawaiian Islands, (2) encourage and assist the Division to develop a cooperative agreement and grant application under the provisions of section 6 of the Endangered Species Act to help manage monk seals and perhaps other protected species in the main Hawaiian Islands, (3) in consultation with the Division, take steps to maintain a permanent full-time monk seal coordinator on Kauai, (4) provide funding to its regional fisheries science center to study and monitor monk seals in the main Hawaiian Islands, and (5) establish a task force or coordinating committee in cooperation with the Division to oversee management activities related to monk seal protection in the main Hawaiian Islands.

In its letter to the Hawaii Division of Aquatic Resources, the Commission encouraged the agency to assume a joint leadership role with the Service to address monk seal management issues in the main Hawaiian Islands and to formalize related arrange-

ments through a cooperative agreement with the Service under section 6 of the Endangered Species Act. In particular, the Commission suggested that the agreement include steps for (1) sharing enforcement responsibility, (2) authorizing Division staff to help carry out management activities that could require authorization under the Marine Mammal Protection Act to take monk seals (e.g., disentangling seals, herding seals out of danger, retrieving and handling dead and injured seals, etc.), (3) funding a monk seal response coordinator for the island of Kauai, (4) participating on the monk seal recovery team, (5) assisting with public education and outreach efforts, and (6) serving as co-chair of a task force to oversee main Hawaiian Islands monk seal management activities.

Workshop Follow-up Activities — The workshop helped strengthen partnerships among governmental and nongovernmental groups interested in ensuring that monk seals and people are able to coexist in the main Hawaiian Islands. Following the workshop, the Service agreed to transfer money to the Division to support a full-time Kauai monk seal coordinator for one year. Unfortunately, because of time required to transfer the money and establish a new full-time position, the Division was unable to hire a coordinator during 2003. Recognizing the importance of having a coordinator on Kauai during the monk seal pupping season, the Commission, in consultation with the Service and the State of Hawaii, therefore contracted for a temporary Kauai coordinator for the spring and summer of 2003.

During this period, the coordinator worked closely with the Service, the Division, the Kauai Monk Seal Watch Program, and local officials. The coordinator documented 211 haul-out events (approximately 2.5 per day) involving 25 individual seals. Two pups were born at remote locations on Kauai during the contract period. For 129 haul-outs, temporary seal safety zones were posted around animals because of the potential for human disturbance. Ten moderate to serious cases of disturbance were reported. The coordinator also helped organize an island-wide education and training effort for local residents and tour operators to provide basic information about monk seal biology and protection needs. Information on the seals and their haul-out patterns was recorded and provided to the Service to help monitor population trends in the main Hawaiian Islands.

As of the end of 2003 the National Marine Fisheries Service had transferred money to the Hawaii Division of Aquatic Resources for hiring a new Kauai coordinator, and it was expected that the state would fill the position early in 2004.

To help address management needs at islands other than Kauai, the Commission also transferred funds to the Service's new Pacific Islands Regional Office in the fall of 2003 to develop monk seal response and monitoring networks throughout the main Hawaiian Islands. In part, the funding will help support work through the fall of 2004 to (1) prepare a written summary of responsibilities of volunteers and nonfederal agency participants in monk seal recovery work in the main Hawaiian Islands, (2) identify individuals and organizations to assume lead roles as coordinators of volunteer networks, and (3) develop a training manual and materials to educate the public about monk seals and monk seal protection.

During 2003 a record number of 10 monk seal births was documented in the main Hawaiian Islands on islands other than Niihau.

Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve

In late 2000 and early 2001 President Clinton signed two Executive Orders designating federal waters out to 50 nautical miles around the Northwestern Hawaiian Islands as the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve. In part, the orders directed that the area be managed using precautionary management principles and established caps and other restrictions on commercial fishing. The orders assigned responsibility for administering the reserve to the National Marine Sanctuary Program in the Department of Commerce's National Ocean Service and directed that steps be taken to consider designating the reserve as a national marine sanctuary. The Service appointed an advisory council consisting of 15 voting members and 10 nonvoting members, including the Marine Mammal Commission, to advise and assist reserve and sanctuary staff. In 2002 the Ocean Service began working with the advisory council to develop a draft reserve operations plan and also began soliciting comments on management needs for the potential sanctuary. As noted in its previous annual report, the Commission commented on both. Among other things, the Commission recommended that the operations plan and any sanctuary management plan explicitly reference directives in the Executive Orders requiring that precautionary management principles be used and that fishery management

measures for any sanctuary proposals supplement or complement restrictions established when the reserve was designated.

In 2003 a Commission representative participated in several meetings of the Reserve Advisory Council. The council worked with reserve staff to revise the draft Reserve Operations Plan, which was sent to the National Marine Sanctuary Program headquarters for approval in July. As of the end of 2003 the National Ocean Service planned to release a final Reserve Operations Plan early in 2004. Sanctuary program staff and the advisory council also worked on various aspects of sanctuary designation, including identifying and ranking management issues, developing alternatives for managing commercial fishing in the area, and statements of the possible sanctuary's vision, mission, management principles, goals, and objectives. Steps also were taken to begin developing a draft environmental impact statement for sanctuary designation. The draft statement is expected to be available for public review late in 2004 with a decision on designating the sanctuary expected to be made in late 2005.

In May 2003 the National Marine Sanctuary Program convened a meeting on "Information needs for conservation and management: a workshop on the Northwestern Hawaiian Islands." Approximately 100 scientists, managers, and other concerned parties, including two representatives from the Marine Mammal Commission, attended the workshop. After presentations describing the state of knowledge in the area, breakout groups identified information needs and developed strategies to fill those needs. The result was a long list of needs and strategies that will ultimately be used to develop a regional action plan for the Northwestern Hawaiian Islands. As of the end of 2003 Sanctuary program staff organized and condensed workshop results but had not made further progress on the action plan. Sanctuary program staff anticipate that meetings to resume work on the plan will be held early in 2004.

Monk Seal Prey Availability

Since the late 1980s the number of monk seals at French Frigate Shoals, the species' largest breeding colony, has declined by two-thirds. Based on the occurrence of underweight and emaciated pups and juveniles, very low juvenile survival rates, and adult females that tend to be smaller than those at other colonies, limited prey availability was believed to be the most likely cause of the colony's decline. Because monk seals are known to eat lobsters, octopuses, and crabs that are also targeted or taken as bycatch in the Northwestern Hawaiian Islands lobster fishery, the Commission recommended throughout the 1990s that the Service take precautionary steps to limit lobster fishing in foraging areas used by the French Frigate Shoals monk seal colony. Although the Service consistently rejected the Commission's recommendations on grounds that it was uncertain how important lobsters were in monk seal diets, the fishery currently is closed under measures establishing the Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve.

Notwithstanding the current prohibition on commercial lobster fishing in the reserve, the Western Pacific Fishery Management Council has expressed interest in reopening the lobster fishery. Improved information on monk seal diets therefore remains an important need for assessing the role of fisheries in past and ongoing monk seal declines, predicting effects of future fishing activity, and estimating monk seal carrying capacity levels at major breeding atolls.

Research on Monk Seal Prey Preferences — Although the National Marine Fisheries Service did not adopt the Commission's recommendations concerning management of the lobster fishery, it agreed with a recommendation to conduct a study to identify monk seal prey components using fatty acid signatures deposited in monk seal blubber. Research using this technique has been ongoing since 1996 but has proceeded slowly because of the need to sample and analyze fatty acids in a broad array of reef species that might be eaten by seals. Results of this research are expected to be available in 2005.

Another source of information on monk seal diets is scat analysis. Such studies identify prey species from the bones and other hard parts that pass through monk seal digestive tracts and are excreted in scats. Service researchers have collected monk seal scat samples throughout the species' range but have been unable to analyze them in a timely manner. To speed analyses of the backlog of scat samples, the Commission provided funds in 2003 to scientists at the Bishop Museum in Honolulu to develop a reference collection of hard parts from monk seal prey species that can be used to identify prey remains in scat samples and to analyze previously collected scat samples (see also Chapter VIII).

State Management Authority — Much of the Northwestern Hawaiian Islands lobster fishery occurred in state waters within three miles of the chain's islets and atolls. In May 1999 the Commission wrote to

the Hawaii Department of Land and Natural Resources recommending that it take precautionary management measures with regard to lobster fishing in state waters. At that time, the State of Hawaii did not have any regulatory measures in place to manage fishing in the Northwestern Hawaiian Islands. Concerned about the need to manage such activities, the Department's Division of Aquatic Resources proposed rules late in 2001 to establish a fishery management area within state waters in the Northwestern Hawaiian Islands to ensure sustainable use of the areas's living marine resources. The Commission commented in support of the action on 30 January 2002. In its letter, the Commission also recommended that measures be incorporated to require a precautionary management approach and to help ensure that management actions for the area would complement those for the adjacent Northwestern Hawaiian Islands Coral Reef Ecosystem Reserve and National Wildlife Refuges.

Based on comments it received, the Division took steps to revise its proposal, in part, to call for designating the area as a marine refuge instead of a fishery management area. Because of this and other changes, the Division determined that the revised proposal should be recirculated for public review and comment. As of the end of 2003 this was expected to be done in mid-2004.

Pressing Conservation Issues

- Preventing depletion of monk seal prey resources in the Northwestern Hawaiian Islands by commercial fishing.
- Minimizing human disturbance of seals hauled out to rest, molt, and pup on beaches in the main Hawaiian Islands.
- Minimizing interactions between monk seals and recreational divers, swimmers, and fishermen.
- Preventing the spread of infectious diseases from feral animals and pets in the main Hawaiian Islands to wild monk seals.
- Cleaning up contaminants that may affect monk seals and monk seal prey in the Northwestern Hawaiian Islands.
- Minimizing the mortality and injury of monk seal pups and adult females caused by aggressive behavior of some adult male seals.
- Minimizing shark predation on monk seal pups at the French Frigate Shoals monk seal colony.

Sea Otter
(Enhydra lutris)

Before commercial hunting began in the mid-1700s, an estimated 150,000 to 300,000 sea otters occurred in coastal waters throughout the rim of the North Pacific Ocean from northern Japan to Baja California, Mexico. In 1911 hunting was prohibited under the terms of an international treaty for the protection of North Pacific fur seals and sea otters signed by the United States, Japan, Great Britain (for Canada), and Russia. By then, only a few thousand otters remained. The survivors were scattered among small colonies in remote areas of Russia, Alaska, British Columbia, and central California.

After 1911 sea otters recolonized or were reintroduced into much of their historic range. By 1972, when the Marine Mammal Protection Act was passed, the California population had grown from as few as 50 to more than 1,000 individuals and had recolonized more than 370 km (200 mi) of the California coast. In Alaska, remnant groups had recolonized much of their historic range by the 1980s and increased in abundance to levels that may have approached historic levels. Several hundred otters were moved from Amchitka Island and Prince William Sound, Alaska, in the late 1960s and early 1970s to reestablish populations in southeastern Alaska and along the outer coasts of Washington and Oregon. However, by the early to mid-1990s surveys indicated that populations in certain regions of Alaska had experienced sharp declines and that growth and recovery had unexpectedly ceased in California. The Oregon translocation failed, but the Washington population has grown steadily after a slow start. This section reviews the status and major issues and events in 2003 pertaining to research and management of sea otters in Alaska and California.

Sea Otters in Alaska

The range of sea otters in Alaska extends from the southeastern tip of the state to Attu Island near the western end of the Aleutian Islands in a nearly continuous arc stretching nearly 2,000 miles. Research and management of sea otters present significant challenges due to the logistical difficulties and expense associated with working in remote sites over a vast geographic range. As a result, abundance and trends

Figure 10. Range of Alaska sea otter stocks.

of the species and the various factors affecting them are evaluated by combining information from various subregions to provide an overall assessment. The Fish and Wildlife Service recognizes three distinct stocks of sea otters in Alaska: southeast, south-central, and southwest (Fig. 10).

Abundance and Trends — *Southeastern Stock*: The Fish and Wildlife Service's most recent comprehensive estimate of sea otter abundance in southeastern Alaska (from Cape Yakataga to the Dixon Entrance) is based on a combination of adjusted boat and aerial surveys conducted between 1994 and 1996. They indicate a best estimate of 12,632 otters and a minimum estimate of 9,266 otters. The data are outdated and less reliable as indicators of current abundance. The current population descended from 412 animals translocated from Amchitka Island and Prince William Sound in the late 1960s, and the translocation undoubtedly has been a success. Unpublished results of surveys conducted in the Cross Sound/Icy Strait area and in Glacier Bay since 1994 indicate continued growth in these areas. It is not clear whether these observations are representative of trends throughout southeastern Alaska. Currently the overall trend in this region is uncertain.

South-central Stock: The Service's most recent estimate of sea otter abundance for south-central Alaska (from Cape Yakataga to Cook Inlet, including Prince William Sound, the Kenai Peninsula coast, and Kachemak Bay) is based on surveys conducted in the northern Gulf of Alaska in 1996, Prince William Sound in 1999, and the Cook Inlet/Kenai Fjords region in 2002. The sum of these surveys provides a best estimate of 16,552 otters and a minimum estimate of 13,955 otters. The 2002 estimate of sea otters in the Cook Inlet/Kenai Fjords area is slightly higher than an estimate from 1989. Based on these estimates, the Service believes that the number of sea otters in south-central Alaska is stable or increasing slightly.

Southwestern Stock: Estimates of sea otter abundance and trends for southwestern Alaska (Alaska Peninsula and Bristol Bay coasts and Aleutian, Barren, Kodiak, and Pribilof Islands) contrast markedly with those in other regions of the state. Surveys conducted throughout this region between 2000 and 2002 indicate a best estimate of the total population of 41,474 otters and a minimum estimate of 33,203 otters. Surveys in the late 1950s and early 1960s indicated that sea otters in this region were recovering from the exploitation before 1911. Data collected in the 1980s indicate that they may have reached 55,000 to 74,000 animals. Beginning in 1992, however, data show that sea otter numbers were declining in the southwestern part of the state. An aerial survey of the Aleutian Islands in 1992 revealed declines of more than 50 percent since 1965 in the central Aleutian Islands. Independent boat surveys in the central and western Aleutians in the 1990s and through 2003 corroborate these results. In 2000 the aerial survey was repeated and found an overall decline of 70 percent since 1992. Surveys of the Alaska Peninsula in 2000 and 2001 indicated that, since 1986, otter numbers had declined by more than 90 percent along the southern coast of the Alaskan Peninsula and by 30 to 50 percent along the northern coast. A 2001 survey of the Kodiak Archipelago indicated a decline of as much as 40 percent since 1994. In 2003 researchers from the Fish and Wildlife Service and the Alaska Sea Otter and Steller Sea Lion Commission conducted skiff-based surveys at six population trend sites in the Aleutian Island chain. They found that the population decline at these sites averaged 63 percent (range, 41 to 79 percent decline) between 2000 and 2003.

Shortly after its 2000 survey, the Fish and Wildlife Service designated the sea otter in the Aleutian Islands (Unimak Pass to Attu Island) as a candidate species for listing under the Endangered Species Act. The Service had not proposed a listing by the end of 2003. On 4 December 2003 the Center for Biological

Diversity filed a lawsuit against the Service for failing to list sea otters in southwestern Alaska.

Causes of the Declines — The causes of the decline in southwestern Alaska are uncertain. Some evidence suggests that in certain regions (i.e., the central Aleutian Islands) the decline is due to increased mortality, perhaps due to killer whale predation. One hypothesis put forth to explain the decline is that the harvesting of nearly 500,000 large whales in the North Pacific (including the Gulf of Alaska and the Bering Sea) in the 1950s to 1970s may have reduced the availability of prey for killer whales, which then shifted their foraging to Steller sea lions. Because sea lion numbers have declined by 85 percent or more since the 1970s, the killer whales may have again altered their foraging patterns to include sea otters, leading to their decline. The extent to which this hypothesis may explain the decline of sea otters is not clear. It is also not clear that the factors causing the decline are the same in all areas or have been the same throughout the period of the decline.

Marine Mammal Cooperative Management Agreements for Alaska Sea Otters — Under section 119 of the Marine Mammal Protection Act, the Fish and Wildlife Service entered into the seventh annual cooperative agreement with the Alaska Sea Otter and Steller Sea Lion Commission on 29 July 2003. This commission, established in 1988, is a tribal consortium representing 60 Alaskan tribes and tribal organizations on matters pertaining to sea otters from six Alaska Native regions: Kodiak Island, the Chugach region, the Aleutian and Pribilof Islands, Cook Inlet, Bristol Bay, and southeastern Alaska. Through the 2003 agreement, funded at $447,000, the Alaska Sea Otter and Steller Sea Lion Commission comanages the subsistence uses of sea otters and facilitates research by tribes and local residents on local sea otter populations. Included in the 2003 agreement is a project supporting local skiff surveys to determine sea otter population trends and a project to document local and traditional knowledge of sea otters in three Alaska communities.

During 2003 the Alaska Sea Otter and Steller Sea Lion Commission supported skiff surveys in eight communities with a geographic range from Prince William Island in southeastern Alaska to Unalaska Island in the western Aleutians. Additional activities supported by the sea otter commission include sea otter biosampling, winter mortality surveys, revisions to the Kodiak Island regional management plan, and funding a tribal proposal process. Through this request for proposals process, the Alaska Sea Otter and Steller Sea Lion Commission funded one project to document local and traditional knowledge of sea otters around Prince of Wales Island and four projects promoting the creation of handicrafts and the continuation of sea otter utilization for subsistence.

Pressing Conservation Issues

- Determining the causes of decline of the southwestern Alaska sea otter population and identifying ways to stop the declines and encourage recovery.
- Increasing monitoring and analysis of sea otter populations to improve the understanding of their stock structure.

Southern Sea Otters in California *(Enhydra lutris nereis)*

Pelt hunters nearly eliminated sea otters in California prior to the early 1900s. Only a remnant population of about 50 animals or fewer remained along the central coast near Big Sur when hunting of sea otters was prohibited by international treaty in 1911. Since then, the population gradually has spread north as far as Half Moon Bay, with occasional sightings near or north of San Francisco, and south to Point Conception and portions of the coast near Santa Barbara. Counts conducted since the early 1980s indicate that the population grew fairly steadily until 1995, then declined through 1999. The counts from 2000 to 2003 have fluctuated without a clear trend. The apparent decline in total numbers since 1995 was not expected, given recent estimates that the state's coastal ecosystem could support as many as 16,000 otters. The 2003 count indicated that the statewide population numbers about 2,500 animals (Fig. 11).

Factors Affecting Recovery — At the Marine Mammal Commission's 2002 annual meeting representatives of the U.S. Geological Survey, Fish and Wildlife Service, California Department of Fish and Game, and various stakeholder groups presented information on potential factors that may be impeding recovery of sea otters in California. The existing evidence suggests that the lack of recovery since 1995 is probably not due to a reproductive failure. Instead, the available data suggest that the lack of recovery is due to additional mortality of all age classes, including the prime age classes from age three to ten. Fac-

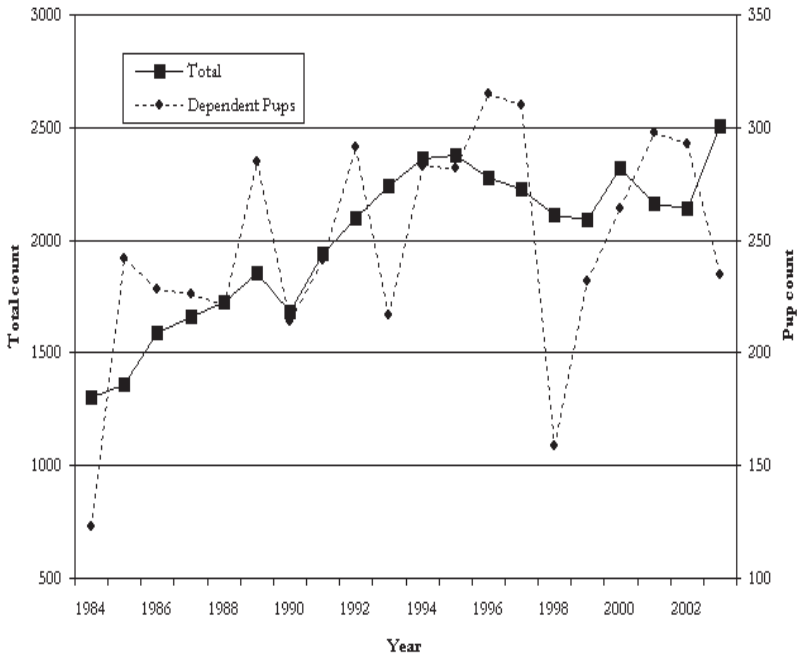

Figure 11. California sea otter population spring counts, 1984-2003. Source: U.S. Geological Survey.

tors known or suspected of causing mortality include entrapment or entanglement in fishing gear, disease, contaminants, sharks, and illegal shooting.

Two types of fishing gear have caused the most concern regarding bycatch mortality of sea otters in California waters. The first is large-mesh set gill and trammel nets. The California Department of Fish and Game banned the use of these nets throughout much of the southern sea otter's range in the mid-1980s and temporarily extended the ban to waters between Point Reyes and Point Arguello in September 2000. The ban was made permanent in October 2002. Similar closures are in effect both north and south of the southern sea otter's current range. In December 2002 a group of fishermen challenged the state's right to impose the Point Reyes and Point Arguello ban. In July 2003 the San Luis Obispo County Court found in favor of the state and acknowledged the state's right to regulate fisheries.

Pot traps are another type of fishing gear that may cause sea otter mortality. Along the central California coast, traps are used to catch several different species of nearshore rockfish and crabs. In southern California they target nearshore rockfish, lobsters, and crabs. The landings from trap fisheries in central California increased considerably and coincidentally with the halt of sea otter recovery after 1995. It is not clear that the two are related because little direct evidence is available to evaluate whether there is a cause-and-effect relationship.

Data from freshly dead animals indicate that disease was a significant factor in 35 to 45 percent of the deaths of animals found on the beaches. Protozoan infections by *Toxoplasma gondii* or *Sarcocystis neurona* accounted for 20 to 25 percent of the disease findings, and evidence from live animals indicates that these infectious agents are common, particularly in waters near human population centers. Such results should be viewed with some caution because it is not clear that the freshly dead carcasses found are reliable indicators of all deaths in the population. Nonetheless, disease appears to play an important role in the population dynamics of the California sea otters, and the evidence suggests that some of that disease results from human activities. The term "pathogen pollution" has recently been used to describe the prevalence of pathogens in certain areas due to human population or the translocation and introduction of nonnative or domestic fauna. The introduction or increasing prevalence of these pathogens may overwhelm the immune systems of native animals such as sea otters. Other diseases, such as acanthocephalan peritonitis (inflammation of the peritoneum due to infestation by acanthocephalan worms), and bacterial and fungal infections also were observed and their prevalence may vary geographically and temporally.

Contaminants also may affect sea otters by impairing reproduction or compromising immune function, thereby increasing susceptibility to disease. Potentially important contaminants include DDT and related compounds, PCBs, metals, and tributyltin. Because such contaminants often originate from or are concentrated by human activities, their effects may vary throughout the range of sea otters depending on human demographics.

Translocation Program and Zonal Management — The potentially serious consequences of an oil spill, and concerns about sea otter effects on fisheries that had developed in the absence of the otters, led to the development of a translocation program. In 1980, after consultation with the Fish and Wildlife Service and the California Department of Fish and Game, the Marine Mammal Commission recom-

mended to the Service that it address both concerns by developing a translocation program with zonal management.

The history of the program and the Marine Mammal Commission's involvement in it are described in detail in past annual reports. In 1987 the Fish and Wildlife Service and the California Department of Fish and Game established a "translocation zone" around San Nicolas Island and a "no otter" management zone south of Point Conception to the Mexican border. The goals were to (1) implement a primary recovery action for the southern sea otter, and (2) obtain data for assessing translocation and containment techniques, population dynamics, the ecological relationships of sea otters and the nearshore community, and the effects on the donor population of removal of individual sea otters for translocation.

The purpose of the management zone was to (1) facilitate the management of sea otters and the containment of the experimental population within the translocation zone, and (2) to prevent, to the maximum extent feasible, conflict with other fishery resources within the management zone by the experimental population.

From 1987 to 1990, 140 sea otters were released at San Nicolas Island. This number includes one sea otter pup that was born in the wild, abandoned by its mother and subsequently rehabilitated by the Monterey Bay Aquarium. From 1987 to 1993 the Fish and Wildlife Service removed 24 otters from the management zone. The translocated population has not grown as expected, and many of the translocated animals and their offspring either returned to the mainland parent population, moved to other locations where they were not observed, or died. The number of independent animals at the island dropped from 27–28 during 1987–1990 to a low of 13 in 1992–1993. From 1987 through 2003, 83 pups were born on San Nicolas Island. The number of animals currently at the island is approximately 33. No animals were removed from the management zone after 1993 due to several factors, including the deaths of animals in 1993 during capture and release efforts. In 1998 relatively large numbers of otters from the parent population began moving into the management zone. Tracking studies have demonstrated that these are male groups that seasonally move south from the parent range in winter and spring and return to the parent range each summer. This pattern is consistent with natural range expansion of the species. In 1998 and 1999 groups of up to 152 sea otters were observed in the management zone. In subsequent years, the number of otters visiting the management zone has been less than 50 animals per year. The Fish and Wildlife Service, in consultation with the California Department of Fish and Game, has decided not to remove these otters pending a full reevaluation of the translocation program. This is due to the expense and the difficulty of capturing the animals, the risk associated with moving them safely, and the potential for adverse impacts on the parent population. In 2000 the Service issued a biological opinion under the Endangered Species Act that concluded that moving otters under the translocation program would jeopardize the continued existence of the species.

In 2002 the Service continued its evaluation of the translocation program. In January 2003 the Service provided the Commission a copy of a draft "Evaluation of the Southern Sea Otter Translocation Program, 1987–2002." The Service advised the Commission that it was preparing an environmental impact statement that it expected to release in 2003. At the Commission's 2002 annual meeting, a Service representative indicated that the statement would consider three alternatives: maintaining the management zone, reducing the size of the management zone, or declaring the translocation program a failure. Within the third alternative, the Service was also considering three options: removing all sea otters from the management zone and from the translocation zone in accordance with Fish and Wildlife Service regulations implementing the translocation program, removing all the otters from the translocation zone but leaving those in the management zone, and leaving all otters in place, whether in the management zone or the translocation zone. The Commission provided comments on the draft evaluation on 11 February 2003. By the end of 2003 the Service had not distributed the environmental impact statement.

Recovery Planning — The California sea otter was listed as threatened under the Endangered Species Act in 1977. The Fish and Wildlife Service completed the first recovery plan in 1982. Among other things, the original plan recognized the threat posed by possible oil spills and aimed to minimize the associated risks; recommended the establishment of new sea otter colonies outside the then-existing sea otter range; advocated a reduction in vandalism, harassment, and incidental take; emphasized the importance of incorporating recovery measures into local coastal development plans; set the optimum sustainable population range as a target for recovery; and sought to establish

an effective research program to assess and monitor the status of sea otters and their habitat.

At the 2002 annual meeting the Service and the Commission discussed the importance of finalizing a revised recovery plan and the complications imposed by the lack of an up-to-date plan to guide the recovery effort. Both recognized that progress had been made in some important areas and that revision of the plan clearly had been confounded by the number of difficult and controversial management issues to be addressed and the multiple stakeholder groups involved or interested in sea otter recovery. In a December 2002 follow-up letter from the Commission to the Service, the Commission recommended that the Service make every effort to meet its schedule for completing the final revised recovery plan in January 2003 and ensure that the plan describes how the recovery effort will be implemented, including the role of the recovery team, tasks to be accomplished, agencies or parties responsible for each task, means of coordinating recovery efforts, and the staffing and other resources needed to carry out those efforts. The Commission also recommended that the Service reconstitute the recovery team and convene periodic meetings to discuss recovery-related issues and develop advice for the Service and, as needed, facilitate common-ground meetings for the affected parties to express their concerns and seek resolution of recovery-related issues.

In February 2003 the Service released its "Final Revised Recovery Plan for the Southern Sea Otter." The recovery plan concludes that the main threats to the southern sea otter are habitat degradation (including oil spills and other environmental contaminants) and human take (including shooting, entanglement in fishing gear, and harassment). Oil spills, which could occur at any time, could decimate the sea otter population. The reasons for the recent decline in abundance are unknown, but it may be in part related to one or more of the following factors (1) infectious disease resulting from increased immune deficiencies or elevated parasite and pathogen exposure, (2) incidental mortality caused by commercial fishing activities, or (3) food resource limitation. The population currently contains 2,150 animals between Half Moon Bay and Point Conception.

The Service adopted an Endangered Species Act recovery objective (delisting) of 3,090 animals and a Marine Mammal Protection Act objective (nondepleted) of 8,400 animals, which is the lower bound of the sea otter's optimal sustainable population, for the entire California coast. The recovery plan identifies the following actions that are needed —

- Monitor southern sea otter demographics and life history parameters to determine population size, rate of change, and distribution;
- Reduce or eliminate potential limiting factors related to human activities, including management of petroleum exploration, extraction, and tankering; minimizing contaminant loading and infectious disease; and managing fishery interactions to reduce incidental mortality;
- Conduct research to understand the limiting factor(s) affecting growth rate of the population;
- Evaluate failure criteria for the translocation program and experimental population at San Nicolas Island.

Unusual Mortality Event — Between January and April 2003 sea otter strandings along the central coast of California near Monterey exceeded the 10-year average. In April 44 otters stranded compared with the average of 20.2. On 28 April the Fish and Wildlife Service wrote the National Marine Fisheries Service requesting the Working Group on Marine Mammal Unusual Mortality Events to review available data and opine as to whether the information supported declaration of an unusual mortality event. On 7 May the National Marine Fisheries Service informed the Fish and Wildlife Service that it was "premature" to declare an unusual mortality event at that time because otter strandings did not seem unusually high for the spring, a mild El Niño was under way, and other reasons. On 23 May, after further consultation, the National Marine Fisheries Service determined that "…an unusual mortality event involving southern sea otters in California is occurring." The decision stated that the event overlapped geographically and temporally with a harmful algal bloom. Strandings during June and July were near average, but record levels of stranded animals were reported in September, October, and November. The National Marine Fisheries Service notified the Fish and Wildlife Service on 1 October that the unusual mortality event was over. Total strandings in 2003 were 256 animals, compared with the 10-year average of 166.3 animals. For additional discussion of this and other unusual mortality events in 2003, see Chapter VI.

Southern Sea Otter Recovery and Research Act — On 20 November 2003 Congressman Sam Farr introduced H.R. 3545, the Southern Sea Otter Recovery and Research Act. The bill would authorize

the Secretary of the Interior to carry out a comprehensive recovery program for southern sea otters based on the recovery plan (see above) with the assistance of a Southern Sea Otter Recovery Implementation Team that the Secretary would appoint after consultation with the Marine Mammal Commission. H.R. 3545 would also establish a competitive grant program for research based on goals of the implementation team. At the end of 2003 Congress had not scheduled a hearing on the bill.

Pressing Conservation Issues

- Completing and implementing the strategy for addressing the translocation program.
- Implementing the recovery plan, including appointing an implementation team.
- Determining the causes of increasing diseases within the population and finding ways to reduce the epidemic.

Florida Manatee
(Trichechus manatus latirostris)

The Florida manatee is a subspecies of the West Indian manatee found only in rivers and coastal waters of the southeastern United States. Located at the northern limit of the species' range, its geographic distribution is largely determined by water temperature. In winter, virtually all Florida manatees occur in the southern two-thirds of the Florida peninsula near localized warm-water sources — principally thermal discharges from power plant cooling systems and natural warm-water springs. As temperatures increase in spring, manatees disperse throughout Florida waterways, with a few animals migrating north along the Atlantic coast to estuaries in Georgia and the Carolinas and west along the Gulf of Mexico coast as far as Texas. Four "stocks," or subpopulations, centered in different parts of Florida have been identified. These are located in the upper St. Johns River, along the Atlantic coast, in northwestern Florida, and in southwestern Florida.

Currently, there are thought to be at least 3,276 manatees based on an actual count made during a statewide survey in Florida in January 2001. With no means of estimating how many animals are not counted during a survey, scientists have been unable to extrapolate such statewide counts into a total abundance estimate. They have, however, been able to assess some overall trends. In general, it is widely agreed that their current number is larger by some uncertain amount than it was 30 years ago when the first counts were made. Analyses of more recent trends, however, suggest that growth of the two largest population segments (i.e., subpopulations along the Atlantic coast and in southwestern Florida) may have leveled off and possibly even declined slightly in recent years. Two smaller subpopulations in the upper St. Johns River and northwestern Florida have continued to increase steadily over the past several decades.

Each year a large number of Florida manatees are found dead (Table 7). Since the recorded count in 2001, almost 700 manatees have been found dead, including 383 in 2003 — the second-highest annual total on record. Like the 1996 record of 416 deaths, the high total in 2003 was due in large part to a red tide event in southwestern Florida. In 1996 at least 149 animals died as a result of natural biotoxins associated with a red tide. In 2003 at least 98 animals died of this cause; more than 70 animals died during a springtime event, and the remainder died during an event in the fall and early winter. Historically, slightly more than a third of all manatee deaths have been directly human-related — primarily from collisions with watercraft. Between 1998 and 2002 vessels caused 24 to 31 percent of all deaths. It is encouraging that watercraft-related deaths declined to 75 in 2003. This was 25 percent below the record high of 98 reached in 2002 and the lowest total since 1998.

In the long term, a lack of available warm-water habitats essential for survival during cold winter periods may be the greatest threat to manatees. At least 60 percent of all Florida manatees now rely on thermal effluents from power plants built before the early 1970s. Many of those plants are reaching the end of their planned operational lives. Regulations adopted since they were built require that new facilities use technologies that minimize thermal discharges. Thus, retirement of old plants now used by manatees will reduce the availability of warm-water habitats and increase the risk of cold stress–related manatee deaths during winter.

The U.S. Fish and Wildlife Service and the Florida Fish and Wildlife Conservation Commission share lead responsibility for manatee recovery work. As noted in the previous annual report, intense controversy has arisen in recent years over efforts to expand boat speed zones and to limit the construction of new boating facilities in important manatee habitat. Some believe that greater protection is unwarranted and that it might even be relaxed given increased manatee

Table 7. Known manatee mortality in the southeastern United States (excluding Puerto Rico) reported through the manatee salvage and necropsy program, 1978–2003

Year	Vessel-Related Deaths No. (%)	Floodgate and Lock Deaths No. (%)	Other Human-Related Deaths[1] No. (%)	Perinatal Deaths No. (%)	Other Deaths[2] No. (%)	Total Deaths in the Southeastern United States
1978	21 (25)	9 (11)	1 (1)	10 (12)	43 (51)	84
1979	24 (31)	8 (10)	9 (12)	9 (12)	28 (36)	78
1980	16 (25)	8 (12)	2 (3)	13 (20)	26 (40)	65
1981	24 (21)	2 (2)	4 (3)	13 (11)	74 (63)	117
1982	20 (17)	3 (3)	2 (2)	14 (12)	78 (67)[3]	117
1983	15 (19)	7 (9)	5 (6)	18 (22)	36 (44)	81
1984	34 (26)	3 (2)	1 (1)	26 (20)	66 (51)	130
1985	35 (28)	3 (2)	3 (2)	23 (19)	59 (48)	123
1986	33 (26)	3 (2)	1 (1)	27 (22)	61 (49)	125
1987	39 (33)	5 (4)	4 (3)	30 (26)	39 (33)	117
1988	43 (32)	7 (5)	4 (3)	30 (22)	50 (37)	134
1989	51 (29)	3 (2)	5 (3)	39 (22)	78 (44)	176
1990	49 (23)	3 (1)	4 (2)	45 (21)	113 (53)	214
1991	53 (30)	9 (5)	6 (3)	53 (30)	54 (30)	175
1992	38 (23)	5 (3)	6 (4)	48 (29)	70 (42)	167
1993	35 (24)	5 (3)	7 (5)	39 (27)	61 (41)	147
1994	51 (26)	16 (8)	5 (3)	46 (24)	76 (39)	194
1995	43 (21)	8 (4)	5 (2)	56 (28)	91 (45)	203
1996	60 (14)	10 (2)	1 (0)	61 (15)	284 (68)[4]	416
1997	55 (22)	8 (3)	9 (4)	61 (25)	113 (46)	246
1998	67 (28)	9 (4)	7 (3)	52 (21)	108 (44)	243
1999	84 (30)	15 (5)	8 (3)	52 (19)	116 (42)	275
2000	79 (28)	7 (3)	9 (3)	58 (21)	126 (45)	279
2001	82 (24)	1 (0)	7 (2)	63 (19)	183 (45)	336
2002	98 (31)	5 (2)	9 (3)	53 (17)	150 (48)	315
2003[5]	75 (20)	3 (1)	7 (2)	72 (19)	226 (59)[6]	383

[1] Includes deaths due to entanglement and ingestion of marine debris, drowning in shrimp nets, poaching, vandalism, etc.
[2] Includes deaths due to cold stress, other natural causes, and undetermined causes.
[3] Includes 39 deaths attributed to a spring red tide event in southwestern Florida.
[4] Includes 149 deaths attributed to spring and fall red tide events in southwestern Florida.
[5] Data for 2003 are preliminary.
[6] Includes 98 deaths attributed to a spring red tide event in southwestern Florida.
Source: Florida Fish and Wildlife Conservation Commission

abundance in some areas. Others believe protection needs to be strengthened in light of the increasing number of watercraft using state waterways, the large number of watercraft-related manatee deaths, and impending threats to manatee habitat from the loss of warm-water refuges and ever-expanding development and human population growth. As public attitudes with opposing views became more polarized, interest groups on both sides filed lawsuits and petitions to compel involved federal and state agencies to either strengthen or relax manatee protection. During 2003 the Service and the State of Florida led attempts

to mediate some of the polarized views regarding vessel management and to address the long-term needs for warm-water manatee habitats.

Watercraft-Related Manatee Deaths

Agencies rely on two fundamental approaches to reduce watercraft collisions (1) regulations to limit boat speed and access, and (2) restrictions on the development of new boating facilities in key manatee habitats. As shown in Table 7, collisions with watercraft are the largest source of human-related manatee mortality. With most Florida manatees bearing propeller scars from one or more collisions with boats, watercraft are also the leading source of serious injuries. Despite intensive efforts led by the Florida Fish and Wildlife Conservation Commission and the Fish and Wildlife Service, watercraft-related manatee deaths increased steadily until 2003. Whether the decline in 2003 reflects a short-term aberration or a sign that increased conservation measures are finally beginning to have the desired effect is uncertain.

Florida implemented most boat speed zones under a 1989 directive by the Florida Governor and Cabinet. Aimed at slowing oncoming boats to allow time for manatees to avoid them, the resulting regulations include various types of site-specific seasonal and year-round speed zones (e.g., channel exempt, channel-inclusive, and shoreline speed zones with different speed limits). Access restrictions have been limited to very small areas (usually a few acres at most) at major warm-water refuges. Restrictions on new watercraft facilities (e.g., marinas, docks, and boat ramps) have been implemented mainly by the Army Corps of Engineers, after consultation with the Fish and Wildlife Service and the Florida Commission, as conditions on wetland construction permits required under the Clean Water Act. For a few counties with adopted manatee protection plans (i.e., plans urged for 13 key counties by the Florida Governor and Cabinet as part of the 1989 directive but not required under the Florida Growth Management Act), restrictions on the location of watercraft facilities also are implemented through county planning authority.

Proposed Incidental Take Rule — The Marine Mammal Protection Act prohibits both the intentional and unintentional taking of any marine mammal in U.S. waters. As an exception to this provision, section 101(a)(5) authorizes the Secretary of the Interior, upon request, to issue regulations for activities for up to five years to allow incidental, but unintentional, take that has a negligible impact on the population and involves small numbers of animals. In partial response to litigation seeking increased manatee protection, the Fish and Wildlife Service published proposed regulations on 14 November 2002 under section 101(a)(5) to help minimize watercraft-related manatee deaths. The proposal identified procedures the Service would follow to issue letters of authorization to government agencies to authorize the incidental taking of manatees by programs operating watercraft or watercraft facilities. Although the procedures could apply to any state or federal agency asking for such authorization, the proposal was intended to apply to the Army Corps of Engineers' permit program and the Fish and Wildlife Service's own vessel operations.

Under the proposed rules, the Service would review the agency's program to determine if manatee protection safeguards were adequate to ensure that taking by watercraft remained below negligible levels. For depleted species, such as manatees, generally accepted guidance defines negligible as taking that (1) does not exceed 10 percent of a population's annual net productivity, and (2) does not delay the projected time required to reach its optimum sustainable population level by more than 10 percent. To make these determinations in the future, the Service planned to use a population model still under development. If the Service concluded that the agency's program could cause taking that exceeds negligible levels, the Service would either be unable to issue a letter of authorization for the program or would identify required measures, such as new boat speed rules, added enforcement, or increased boater education, that the Service deemed necessary to reduce take below negligible levels.

With regard to the Corps of Engineers' permit program and its own vessel operations, the Service concluded that existing levels of take incidental to watercraft collisions were negligible for two regions of Florida where small manatee populations were increasing (i.e., the upper St. Johns River and northwestern Florida). Thus, for those areas it determined that no additional measures were required to continue the existing programs. For the Atlantic coast, the Service concluded that existing levels of watercraft-related deaths were slightly above negligible levels and that additional manatee protection measures were needed to continue issuing permits. For a fourth area (i.e.,

southwestern Florida), the Service concluded that it could not determine whether or not watercraft-related deaths were negligible because of limited data.

On 14 January 2003 the Marine Mammal Commission, in consultation with its Committee of Scientific Advisors, commented to the Service on the proposed rules and an accompanying environmental impact statement. The Commission noted that it was difficult to assess and justify the Service's findings regarding the negligible standard based on either biological grounds or legal standards. For example, with regard to one of the generally accepted standards for the term negligible (i.e., not more than 10 percent of a population's net productivity), manatee calf production would have to be more than 980 calves per year to be considered negligible given the 98 watercraft-related deaths in 2002. For a manatee population that may number little more than 3,276 animals with a reproductive rate of only a single calf every two to three years by mature females, such a high level of annual calf production is unrealistic.

The Commission therefore expressed concern that the Service had not provided an adequate rationale to justify its conclusions that the proposed regulations would ensure that take levels would remain below negligible levels. It also expressed concern that the Service had not (1) completed or sufficiently described the model or standards it planned to use to determine what constitutes a negligible level of take for manatees, (2) provided a full opportunity for public review and comment on the various findings that would be required to be made under the Marine Mammal Protection Act before small-take regulations were actually issued, or (3) adequately described the linkages between letters of authorization to be issued to government agencies and incidental take by individual boaters who are most directly responsible for incidentally taking manatees.

The Commission concluded that, rather than proceeding with the proposed regulations, a more appropriate and effective means of developing and implementing necessary manatee protection measures would be through the development of well-conceived county manatee protection plans as had been directed by the Florida Governor and Cabinet in 1989. Although the development of such plans would be a lengthy process, they could be used by all agencies and groups as a decision-making framework. Because it was the Commission's understanding that the Service planned to initiate a conflict resolution process that would bring together concerned parties to identify and develop an optimal manatee protection strategy, the Commission recommended that the Service proceed with that process immediately and urged that the process be used to reach agreement on procedures for developing effective county manatee protection plans.

On 8 May 2003 the Service published a *Federal Register* notice announcing that, based on comments received, new information, and significant questions about analytic methods for making necessary findings, the Service concluded it could not make the necessary finding that the incidental takings of Florida manatees by watercraft operations resulting from government activities would have a negligible impact. It therefore advised that it was withdrawing its proposed rule and no further action was planned.

Conflict Resolution — To resolve disagreements over manatee protection and to avoid further litigation, the Service, the Florida Commission, the two principal groups representing opposing views regarding manatee protection needs (the Save the Manatee Club and the Coastal Conservation Association of Florida), and other interested parties initiated discussions about entering into a conflict-resolution process. They met several times in 2003. Although discussions soon bogged down, participants continued informal discussions on ways to resolve their differences. Toward the end of 2003 progress was again being made, and it was expected that a more formal conflict-resolution process might be pursued in 2004.

New Manatee Sanctuaries and Refuges — In 1979 the Fish and Wildlife Service adopted rules authorizing the designation of manatee sanctuaries and refuges to protect manatees in areas needing special attention. Manatee sanctuaries are areas in which all human activities, including research, are precluded; manatee refuges are areas in which certain specified activities are regulated. Before 2002 these regulations had been used only to establish seven small manatee sanctuaries covering a combined total of about 50 acres in Kings Bay to protect manatees overwintering in the bay's warm-water refuges. As discussed in the previous annual report, the Service designated four new manatee sanctuaries and 11 new refuges in 2002. Those actions were taken as part of a settlement agreement for a lawsuit filed against the Service by several environmental groups in 2000. The four sanctuaries cover a combined total of about 70 acres and prohibit wintertime access by boats and divers in areas around Homosasa Springs and three power plant outfalls. The 11 manatee refuges cover about 7,800

acres and establish various types of speed limits in Florida waterways where the number of watercraft-related manatee deaths has been high.

To further address terms of the settlement agreement, the Service published a *Federal Register* notice on 4 April 2003 proposing rules to designate three new manatee refuges for the purpose of regulating boat speeds. The three areas covered a combined total of about 115 miles of Florida waterways in portions of the Caloosahatchee River in southwestern Florida, the lower St. Johns River in and around the city of Jacksonville, and the Halifax and Tomoka Rivers along the Atlantic coast in northeastern Florida. On 3 June the Commission recommended that the Service adopt the proposed rule, noting that watercraft-related manatee deaths had increased more rapidly than total manatee mortality in recent years. With some changes to its initial proposed rules, the Service published final rules and designated all three areas on 6 August.

As mentioned above, most boat speed zones to protect manatees have been developed and adopted by the Florida Fish and Wildlife Conservation Commission and its predecessor agencies. During 2003 the Florida Commission adopted new rules for various areas in Florida, including areas within two of the manatee refuges designated by the Service in 2002 — the Cocoa Beach Refuge on the east coast near Cape Canaveral and the Pansy Bayou Refuge in southwestern Florida near Sarasota. Measures adopted by the State of Florida differed slightly from those recommended by the Fish and Wildlife Service in both the types of speed zones and the areas covered; however, the Service determined that overall, the new state rules provided a comparable level of protection. Therefore, to avoid conflicting rules and to clarify enforcement, the Service published a proposal on 22 October 2003 to withdraw its designation and associated rules for those two manatee refuges.

At the end of 2003 final rules to withdraw designation of the Cocoa Beach and Pansy Bayou Manatee Refuges were expected to be published early in 2004. If adopted, the Service's remaining system of manatee protection would include 11 manatee sanctuaries, all of which protect overwintering manatees at confined warm-water sites, and 13 manatee refuges, all of which are designed to regulate boat speeds in manatee feeding areas or travel corridors.

Population Modeling

During the past three years, management and research agencies responsible for manatee protection have supported three different projects to model the species' population dynamics. The first project was related to a review of manatee population status under Florida state law (described below). Specifically, the purpose of that modeling effort was to determine if manatees should be downlisted from endangered to threatened or vulnerable — or delisted entirely — based on listing criteria used by the State of Florida. This effort was conducted by researchers from the Florida Marine Research Institute using Vortex, a commercially available software package for conducting population viability analyses. The most significant challenge for this effort was predicting and incorporating into the model those conditions that may affect manatee conservation in the foreseeable future. The Commission participated in meetings to establish realistic parameters for the model and to assess the overall utility of the model results for determining population status.

The second modeling project was part of the Fish and Wildlife Service's attempt to assess the amount of watercraft-related mortality that could be considered to have negligible effects on the four manatee populations (see the section on proposed incidental take rule, above). This effort was led by a modeler from the U.S. Geological Survey, working with biologists and analysts primarily from the Fish and Wildlife Service, U.S. Geological Survey, Florida Marine Research Institute, and Montana State University. The primary purpose of this model was to examine the potential population-level effects of different levels of boat-related mortality for the four manatee populations. The Marine Mammal Commission participated in reviews of this project during model development and in response to the associated incidental take rule.

The third modeling project pertained to a long-term study of manatee mortality and attempts to use the information collected from dead manatees to describe the characteristics of the living population. Each year, all recovered manatee carcasses are examined and studied to the extent possible to determine cause of death and other parameters pertinent to the species' population dynamics. Using this information for scientific and management purposes has been difficult because it has not been clear that the characteristics of dead manatees are reflective of the characteristics of the living population. For example, juveniles appear to be underrepresented in the collection of dead animals, which suggests that the collection is a biased sample of the living population. The Marine Mammal Commission provided support to the Flori-

da Marine Research Institute to contract for a study of the mortality database and relate that information to the living population. Initial results of that study are expected to be available in 2004.

Management Strategies for Warm-Water Refuges

As noted above, at least 60 percent of all Florida manatees rely on thermal discharges from power plants to survive cold winter periods. Some of these plants could be retired within a few years, and many could be decommissioned within a decade or two. Such retirements will significantly reduce warm-water habitats essential for many manatees. Most manatees that do not overwinter at power plants do so at natural warm-water springs (Fig. 12). The latter habitats also face serious threats due to increasing groundwater withdrawals for domestic, agricultural, and industrial purposes, as well as occasional droughts that can reduce rates of spring flow. Recognizing these threats and the limited number of warm-water refuges now used by most manatees, the Fish and Wildlife Service, in cooperation with Florida Power & Light Company and the Florida Game and Fresh Water Fish Commission, convened a workshop in August 1999 to evaluate research and management needs.

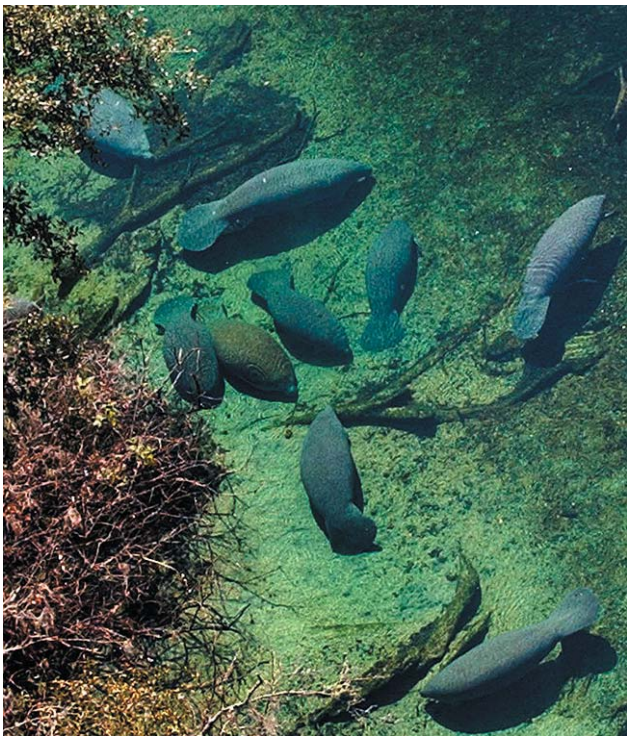

Figure 12. Florida manatees aggregating at Blue Spring during the winter months. (Photograph by David Tucker, courtesy of the Daytona Beach *News-Journal.*)

As a result of the workshop, the Service established a Warm Water Task Force to help plan and oversee related work. Composed of representatives from the electric utility industry, environmental groups, the boating industry, manatee researchers, and concerned federal and state agencies including the Marine Mammal Commission, the task force has met several times since 1999. Its focus to date has been on collecting additional information concerning manatee use of different power plants, and little progress has been made on identifying or evaluating possible management actions.

Identification of Research and Management Needs — In light of the need for further work on developing possible management actions, the Commission's representatives on the task force organized a study to help initiate planning to ensure the long-term availability of essential warm-water manatee habitats. The study involved efforts to (1) compile and evaluate information on winter habitats and habitat-use patterns, (2) assess the role of warm-water habitats in determining manatee distribution and abundance, and (3) identify possible research and management actions. Preliminary results of the study were provided to members of the task force late in 2003.

The review found that there are at least two fundamental types of warm-water habitats used by overwintering manatees (1) warm-water refuges formed by thermal discharges from springs and power plants, and (2) thermal basins where delays in cooling processes form temporary pockets of relatively warm water. Warm-water refuges are far more important than thermal basins for sustaining manatees during extremely cold periods. In the January 2001 survey, 75 percent of all observed Florida manatees were found at 14 major warm-water refuges, including 10 power plants and 4 springs (Fig. 13).

Although some people believe that manatees could move south to avoid cold stress if power plants were closed, the review found that during the coldest winter periods, water temperatures even in southernmost Florida can decline to levels lethal for manatees. Evidence of cold stress–related deaths in southernmost Florida also suggest that thermal basins (i.e., the principal warm-water habitat in that part of Florida) have a limited capacity for sustaining manatees through especially cold periods. In addition, patterns of manatee site fidelity to specific power plants indicate that, despite effects of cold stress, manatees

Figure 13. Natural and artificial warm-water refuges with at least one count of 50 or more Florida manatees (power plants are in Roman and springs in italics). (Figure by Leslie Ward, courtesy of the Florida Marine Research Institute.)

likely remain near their preferred power plants rather than search outside their familiar range for alternative warm-water sources. The results also suggest that, before the effects of human hunting, which began with Florida's earliest Paleo-Indian hunters some 10,000 years ago, the winter range of Florida manatees was centered around warm-water springs in northern and central Florida. Human alterations, such as dams, locks, and fences, now restrict or preclude manatee access to springs that may once have provided important habitat.

Based on preliminary analyses, potential research and management actions were identified. In part, the results suggest that studies should be undertaken to identify human alterations that may limit manatee use of warm-water springs now unused or little used. They also suggest conducting telemetry studies in southernmost Florida to identify thermal basins and behavior patterns used by manatees to survive cold winter periods in that region. With respect to possible management actions, identified possibilities include weaning manatees off power plants gradually in hopes that they will move to other available warm-water sites on their own; ensuring that flow rates and characteristics of warm-water springs now used by large numbers of manatees are maintained; removing obstructions or impediments to use of warm-water springs now unused or little used by manatees; dredging deep holes in coastal areas that could serve as new thermal basins for manatees; and constructing nonindustry–dependent warm-water refuges to maintain or alter the existing winter range of Florida manatees.

As of the end of 2003 the Commission expected the review to be completed in 2004 and submitted for publication in a peer-reviewed journal.

Assessment of Nonindustry–Dependent Warm-Water Refuges — As noted above, one possible response to power plant closures is the creation of alternative nonindustry–dependent warm-water refuges. As noted in the Commission's previous annual report, Florida Power & Light Company sponsored a modeling study to assess the feasibility of developing such a refuge using solar water heating technology. The results of the study, completed in 2001, suggested that it would be possible to maintain a small embayment in Palm Beach County at a temperature necessary to support manatees using available technology. The study concluded, however, that further modeling analyses should be done using more detailed climate data.

In light of the study's findings and the importance of investigating possible responses to power plant closures, the Commission took steps to undertake a follow-up study. During a June 2003 meeting of the Service's Warm Water Task Force, representatives of the Commission raised the possibility of further work to assess this alternative. Based on the discussions and subsequent letters from both the Service and the Florida Commission in support for further modeling work, the Marine Mammal Commission, in consultation with both agencies and the Florida Power & Light Company, contracted for a study (see also Chapter VIII) to assess the feasibility of using solar-powered water-heating technology to create reliable warm-water refuges with minimal thermal discharges to adjacent waters. The study will examine refuges at three locations along the Atlantic coast where Florida manatees now rely almost entirely on power plant outfalls to survive winter. Results of the study are expected to be available in 2004 and will be provided to the Warm Water Task Force for consideration.

The Florida Manatee Recovery Team

The Endangered Species Act authorizes the Secretary of the Interior to designate recovery teams to help oversee and implement recovery programs for

listed endangered and threatened species. The teams generally include scientific experts, agency officials, and representatives of groups with a special interest in the species' conservation. In the mid-1990s the Service suspended meetings of the manatee recovery team for unspecified reasons. Because manatee recovery work requires cooperative actions by many federal, state, and nongovernmental partners, the Commission has long believed that the team served a valuable function in exchanging information and views on recovery needs and overseeing and coordinating recovery activities. After team meetings were suspended, cooperative efforts among groups deteriorated, and the Commission recommended to the Service on several occasions that the recovery team be reactivated. In late 1998 the Service did so to help draft an updated Florida Manatee Recovery Plan. After completing work to draft a new plan in 2000, the Service again suspended the team and cooperative efforts continued to deteriorate. After a review of manatee recovery efforts at its 2000 annual meeting, the Commission again urged the Service to reconvene the team, but no action was taken at that time.

In October 2003 the Service wrote to the Commission and other involved agencies and groups inviting representatives to participate on a reconstituted and restructured Florida Manatee Recovery Team. To emphasize implementation of recovery tasks and to be inclusive of all interested parties, the Service established the team as 12 separate committees, working groups, and task forces (Table 8), each charged with addressing a specific set of tasks in the recovery plan. Whereas the previous recovery teams involved 10–15 members from key agencies and groups, the new team involves more than 120 members from some 60 agencies and groups who were invited to participate on specific committees, working groups, and task forces. Some invited participants serve on two or more subgroups.

On 12 November the Commission responded to the Service accepting an invitation to participate on 3 of the 12 subgroups (i.e., the Steering Committee, the Warm Water Task Force, and the Population Status Working Group). As of the end of 2003 some groups had met at least once.

Table 8. Subgroups of the Florida Manatee Recovery Team reconstituted by the U.S. Fish and Wildlife Service in October 2003

Steering Committee
Education Working Group
Entanglement Working Group
Habitat Working Group
Interagency Task Force for Water Control Structures
Manatee Protection Working Group
Population Status Working Group
Protection Coordination Working Group
Regulatory Working Group
Rescue, Rehabilitation, Release Program
Warm Water Task Force
Comprehensive Everglades Restoration Plan Interagency Task Force

Petition to the State of Florida to Reclassify Manatees

Florida manatees are currently listed as "endangered" under the State of Florida's Administrative Code. In light of the January 2001 count of 3,276 manatees, the Coastal Conservation Association of Florida petitioned the Florida Fish and Game Commission to examine the merits of downlisting or delisting Florida manatees under state law. Under amendments adopted in 1999, the Florida code provides various degrees of protection for species in three categories: "endangered," "threatened," and "species of special concern." Simultaneously, the State of Florida was in the process of redefining the categories, and it planned to evaluate manatee designation as a test case. The proposed new definitions were based on criteria used by IUCN — The World Conservation Union — to classify species as "critically endangered," "endangered," and "vulnerable," and equated the state's "endangered" designation with IUCN's "critically endangered," "threatened" with IUCN's "endangered," and "species of special concern" with IUCN's "vulnerable." The new criteria for these categories include complex and stringent definitions that are ill-suited for species such as marine mammals that are long-lived, wide-ranging, and slow to reproduce. For example, criteria under the state's new endangered species definition include species with a population size of 50 or less, a distribution of less than 40 square miles, or a projected population decrease of at least 80 percent within 10

years. In adopting the new criteria, no efforts were undertaken to evaluate or reclassify species such as the manatee that were already on the state list.

The Commission wrote to the Florida Commission on 9 August 2002 noting that, given population parameters for manatees, the species did not appear to satisfy criteria under any of the three categories. The Commission also noted that definitions for the three criteria were entirely inappropriate for assigning marine mammals and certain other species, such as sea turtles, to the various protection categories. The Commission therefore recommended that the Florida Commission revise its definitions for the three categories to take into account life history characteristics that typify marine mammals and that, pending those revisions, Florida manatees remain listed as endangered.

At its 22–24 January 2003 meeting the Florida Commission considered the petitioned action. The Chairman of the Marine Mammal Commission provided testimony during the meeting, and the Florida Commission staff provided a biological status review that concluded that Florida manatees met the definition of "threatened" based on a modeling study that projected the probability of Florida manatee abundance declining by 50 percent over the next 45 years. However, the staff also recommended that action on the matter be deferred to allow concerned parties time to evaluate the model. The Florida Commission agreed and deferred the matter until its May 2003 meeting. At that time, a slightly modified biological status review was provided, and the Florida Commission requested that the document undergo peer review for consideration at its November 2003 meeting. This was done, but at its November meeting, the Florida Commission decided to defer listing actions on manatees and other species until November 2004. The deferral will allow time for the Florida Commission's staff to develop recommendations for resolving issues related to the proper alignment of the species listing categories used by the World Conservation Union with those used by the state. Regardless of any decision to change the Florida manatee's classification under state law, the subspecies would remain protected at the federal level under both the U.S. Endangered Species Act and the Marine Mammal Protection Act.

Pressing Conservation Issues

- Reducing watercraft-related manatee mortality.
- Securing a long-term network of warm-water habitats to replace refuges now provided by outfalls from power plants likely to be retired.
- Maintaining and enhancing availability of warm-water springs used by overwintering manatees.
- Preventing contaminants and other perturbations from affecting manatee health.

Chapter IV

MARINE MAMMAL/FISHERIES INTERACTIONS

Fishing operations disturb, harass, injure, or kill marine mammals, both accidentally and deliberately. Conversely, marine mammals may take or damage bait and fish caught on lines, in traps, or in nets; damage or destroy fishing gear; or injure fishermen trying to remove them from fishing gear. Further, marine mammals and fishermen sometimes compete for the same fish and shellfish resources.

Congress amended the Marine Mammal Protection Act in 1994 to establish a new regime governing the take of marine mammals incidental to commercial fishing operations. The incidental take of dolphins in the eastern tropical Pacific tuna fishery continues to be regulated under separate provisions of the Act. Implementation of the 1994 fisheries regime is discussed in this chapter. Also discussed are amendments enacted in 1997 pertaining to the eastern tropical Pacific tuna fishery and actions being taken to implement those amendments. Fishery interactions affecting specific species, including right whales, Hawaiian monk seals, and bottlenose dolphins, are discussed under the individual species' sections in Chapter III.

Implementation of the Incidental Take Regime for Commercial Fisheries

Since its enactment in 1972, the Marine Mammal Protection Act has contained provisions for authorizing the taking of marine mammals incidental to commercial fishing operations. However, in 1987 a ruling in *Kokechik Fishermen's Association* v. *Secretary of Commerce* called into question whether, under then-existing provisions, such permits could continue to be issued to many other fisheries known to take marine mammals. In response, Congress passed a five-year interim exemption to govern taking incidental to commercial fishing operations, during which time a new long-term incidental take regime was to be developed. Efforts to design the regime, including development of recommended guidelines by the Commission, are discussed in previous annual reports.

These efforts led to the amendment of the Marine Mammal Protection Act in 1994 to establish a new regime to govern the taking of marine mammals incidental to commercial fishing operations. Three new sections (117, 118, and 120) were added to the Act to address interactions between commercial fisheries and marine mammals. The new regime includes a mechanism for authorizing a limited incidental take of marine mammals listed as endangered or threatened under the Endangered Species Act, something the original statute and the interim exemption did not provide. Such authorizations may be issued under section 101(a)(5)(E), provided the National Marine Fisheries Service (or the Fish and Wildlife Service for manatees and southern sea otters) determines that (1) the incidental mortality and serious injury will have a negligible impact on the species or stock, (2) a recovery plan has been or is being developed under the Endangered Species Act, and (3) if required, a monitoring program for relevant fisheries has been established under section 118 (see List of Fisheries, below).

Stock Assessments

Section 117 of the Marine Mammal Protection Act requires the Secretaries of Commerce and the Interior to prepare and periodically update stock assessment reports for each marine mammal stock that occurs in U.S. waters. The assessments are to provide a scientific basis for the incidental take regime. This provision also requires that three regional scientific review groups be established to assist in the development of the reports. These groups were established in 1994 for Alaska, the Pacific coast, including Hawaii,

and the Atlantic coast, including the Gulf of Mexico. Their membership includes experts in marine mammal biology, commercial fishing technology and practices, and, in the case of Alaska, Native subsistence uses. Based on the advice of the scientific review groups and public comment on draft stock assessments, the Secretaries are to publish a final assessment report for each stock. The Act directs that each assessment do the following —

- describe the geographic range of the stock;
- provide a minimum population estimate, the stock's current and maximum net productivity rates, and current population trend, including the basis for those findings;
- estimate the annual human-caused mortality and serious injury, by source, and, for stocks determined to be strategic stocks, describe other factors that may be causing a decline or impeding recovery of the stock;
- describe the commercial fisheries that interact with the stock, including estimates of fishery-specific mortality and serious injury levels and rates; describe seasonal or area differences in incidental take; and analyze whether incidental-take levels are approaching a zero mortality and serious injury rate;
- assess whether the level of human-caused mortality and serious injury would cause the stock to be reduced below its optimum sustainable population level or, alternatively, whether the stock should be categorized as a strategic stock; and
- estimate the potential biological removal level for the stock.

As defined in the Act, a stock's potential biological removal level is the maximum number of animals, not including natural mortality, that can be removed from the stock while allowing it to reach or remain at its optimum sustainable population level. The potential biological removal level is calculated by multiplying together three variables: the stock's minimum population estimate, one-half of its theoretical or estimated maximum net productivity rate at a small population size, and a recovery factor of between 0.1 and 1.0, depending on the status of the population. Strategic stocks are those that (1) have a level of direct human-caused mortality exceeding the calculated potential biological removal, (2) are designated as depleted under the Marine Mammal Protection Act, (3) are listed as endangered or threatened under the Endangered Species Act, or (4) are likely to be listed as endangered or threatened in the foreseeable future.

In 1996 the National Marine Fisheries Service convened a workshop to develop guidelines to assess marine mammal stocks, commonly referred to as GAMMS. The guidelines have been used over the past eight years in development of the stock assessment reports. In September 2003 the Service convened a follow-up workshop (GAMMS II) to determine if the guidelines needed to be revised. Among other things, discussion focused on mechanisms for identifying stocks with or without adequate genetics information, reporting of prospective stocks (those for which existing evidence indicates a separate stock but the information is not definitive or final determinations have not yet been made), defining the potential biological removal level for stocks that are declining even in the absence of excessive fisheries-related mortality, and assignment of mortality among fisheries when killed animals may originate from two or more stocks. As of 31 December 2003 the Service had not published a report from the second workshop but indicated that they would do so in 2004.

At its 2003 annual meeting, the Commission heard from personnel from the National Marine Fisheries Service on the directed effort by the Service to improve its stock assessment process. The Service reported that 165 stocks of marine mammals have been identified in U.S. waters. Of those, only 31 have been adequately assessed; there is insufficient information for the other 134 stocks in terms of stock identification, abundance estimation, mortality estimation, and/or assessment quality. However, the Service noted that there have been dramatic improvements since the 1994 amendments. In a letter dated 31 December 2003, the Commission commended the Service for their efforts to improve the stock assessment process.

Actions by the National Marine Fisheries Service

As discussed in previous annual reports, the National Marine Fisheries Service published its original stock assessment reports in 1995. Assessments are to be reviewed at least annually for strategic stocks and at least once every three years for other stocks. Revisions made to stock assessments by the National Marine Fisheries Service are discussed in previous annual reports. The Service published a notice of availability of the final stock assessments for 2002 in the *Federal Register* on 14 April 2003. The reports for the Atlantic, Pacific, and Alaska stocks may be accessed on the Service's Web site at http://wwww.nmfs.noaa.

gov/prot_res/PR2/Stock_Assessment_Program/sars.html.

The National Marine Fisheries Service announced the availability of draft revised stock assessment reports for 2003 in a *Federal Register* notice on 27 August 2003. The Service proposed revisions to 37 of the 57 assessment reports on Atlantic and Gulf of Mexico stocks and a change in the status of three stocks. The common dolphin in the western North Atlantic and the short-finned pilot whale in the northern Gulf of Mexico would be changed from strategic to nonstrategic in light of revised mortality estimates and abundance estimates, respectively. Cuvier's beaked whale in the northern Gulf of Mexico would be changed from nonstrategic to strategic due to new abundance and mortality estimates.

The Service proposed revisions to 41 of the 56 marine mammal stocks occurring in U.S. waters along the Pacific coast and Hawaii in 2002. The harbor porpoise in Monterey Bay would be changed from strategic to nonstrategic status due to reductions in mortality. The California/Oregon/Washington stock of short-finned pilot whales would change from nonstrategic to strategic status in light of revised abundance estimates.

Of the 33 marine mammal stocks that occur in Alaska waters, revisions to the assessment reports for 14 were proposed in 2003. Changes were made based primarily on new estimates of abundance or human-related mortality. None of the 14 stocks whose assessments were revised would have their status changed.

The Commission reviewed the draft stock assessments and provided comments to the Service by letter of 25 November 2003. The Commission recommended that the Service develop consistent standards for observer coverage and conduct quantitative assessments of the ability to detect mortality and serious injury of marine mammals. Readers of the stock assessment reports need to be able to gauge the reliability of mortality and serious injury estimates and to distinguish those cases where mortality and serious injury are actually low from those cases where they may appear to be low due to inadequate monitoring. The Service's regions have been inconsistent in determining and reporting mortality. The Commission noted, for example, that the report for humpback whales in the central North Pacific did not include an observed take of a humpback whale in the mortality estimate because observer coverage was less than 1 percent in the pertinent fishery. However, the Atlantic region consistently uses observer coverage of less than 1 percent to estimate mortality.

The Commission also noted, as it has in past reviews of the stock assessment reports, that reports sometimes assumed that the absence of evidence was itself evidence that no effects had resulted, even when there was no effective monitoring. For example, reports of some beluga whale stocks in Alaska suggested that there was no evidence that the stocks were declining even when abundance and trends could not be characterized reliably.

The Commission also commented specifically on the draft assessments for 40 stocks. In particular, the Commission noted that the stock assessments for harbor seals in Alaska have not been substantially revised since 1998. Although decisions about revisions of stock structure have been delayed, the Commission concurred with the participants at the second workshop on guidelines for assessing marine mammal stocks that assessment reports should include data on prospective stocks.

At the end of 2003 final stock assessment reports for the marine mammal stocks under the jurisdiction of the National Marine Fisheries Service had not been completed but were expected to be available in 2004.

Actions by the Fish and Wildlife Service

The Fish and Wildlife Service published initial assessment reports for the eight stocks of marine mammals under its jurisdiction on 4 October 1995. Three stocks, the Florida and Antillean stocks of the endangered West Indian manatee and the threatened California stock of sea otters, were determined to be strategic stocks.

As discussed in last year's annual report, the Fish and Wildlife Service published revised stock assessments for Pacific walruses, polar bears, and sea otters occurring in Alaska in October 2002. The Service issued draft revised stock assessments for sea otters in California and Washington and the Florida and Antillean stocks of West Indian manatees in April 1997. The final reports for those stocks were never published, and they have not been updated.

The Incidental Take Regime

Section 118 of the Marine Mammal Protection Act sets forth the regime governing the take of ma-

rine mammals incidental to most commercial fishing operations. It requires classification of all U.S. fisheries according to the frequency with which marine mammals are taken, registration by fishermen participating in fisheries that frequently or occasionally take marine mammals, monitoring and reporting of incidental taking, and reduction of incidental mortality and serious injury of marine mammals in commercial fisheries to insignificant levels approaching zero within seven years. The section also requires the preparation of a take reduction plan for each strategic stock subject to frequent or occasional mortality or serious injury in fishing operations. Each plan is to include recommended regulatory or voluntary measures to reduce incidental mortality and serious injury and recommended dates for achieving specific objectives. The immediate goal of the plans is to reduce, within six months, incidental mortality and serious injury to levels less than the potential biological removal level calculated in the stock assessment. The long-term goal of the plans is to reduce incidental mortality and serious injury to insignificant levels approaching a zero rate within five years, taking into account the economics of the fishery, existing technology, and applicable state or regional fishery management plans.

Zero Mortality Rate Goal

As discussed in previous annual reports, the National Marine Fisheries Service published regulations implementing section 118 in 1995. Although the original proposed rule published by the Service in 1994 included a proposed definition to be used to determine when the zero mortality and serious injury rate goal of the Act had been achieved, this element of the regulations was not finalized. This is an important omission because section 118(b) of the Act requires that commercial fisheries reduce incidental mortality and serious injury of marine mammals to insignificant levels approaching a zero mortality and serious injury rate by April 2001. More specifically, take reduction plans developed under section 118 are to be designed to achieve the zero mortality and serious injury rate goal for the covered fisheries within five years of a plan's implementation. Toward this end, the amendments require that the National Marine Fisheries Service review the progress of commercial fisheries in meeting this zero mortality rate goal and report its findings to Congress by 30 April 1998. However, the Service has yet to complete the report.

This lack of action prompted the Center for Biological Diversity and other organizations to file suit against the National Marine Fisheries Service on 13 August 2002 in U.S. district court alleging violations of the Marine Mammal Protection Act. The plaintiffs sought to have the court compel the Service to complete and transmit its report to Congress on the progress being made to achieve the zero mortality rate goal. In April 2003 the Service settled the lawsuit by, among other things, agreeing to publish an advanced notice of public rulemaking defining the zero mortality rate goal within 60 days of the settlement and to publish the final rule defining the zero mortality rate goal within 14 months.

The Service published the advanced notice of proposed rulemaking for defining the zero mortality rate goal on 9 July 2003. The notice highlighted that there are two elements in the zero mortality rate goal (1) the number itself (insignificance threshold), and (2) the stipulation that the Service consider available technology and economic feasibility. The Service offered three options for the insignificance threshold (1) mortality and serious injury is less than 10 percent of the potential biological removal level, (2) mortality and serious injury would not cause more than a 10 percent delay in recovery, or (3) mortality and serious injury would not cause more than a 5 percent delay in recovery. In situations in which there are not enough data to calculate (2) or (3) for individual stocks, the default value would be equivalent to a recovery factor of 0.1 or 0.05, respectively.

In a letter dated 10 September 2003 the Commission evaluated the three options using three considerations (1) did the options take advantage of the information available on the species or stock involved, (2) were the options relatively straightforward to implement, and, most important, (3) were the options suitably protective and consistent with the statutory mandate? The Commission concluded that all three options took advantage of the information available and were relatively straightforward to implement when using default values. However, the most important consideration was whether the options provided the level of protection and the incentive to move toward zero mortality and serious injury rates intended by Congress. Under default conditions, all three of the options satisfied the criteria established for the potential biological removal level. However, if Congress intended to provide an additional level of protection to marine mammals by requiring fisheries to approach a zero mortality and serious injury rate, then option (1) was the most conservative (i.e., it identifies more stocks where improvement is needed). In

addition, the Commission noted that only option (1) increased the level of protection provided as a stock's status worsens. The Commission did note, however, that any of the options could allow a relatively high level of mortality and serious injury under some circumstances (e.g., stocks with high potential biological removal levels). Therefore, the Commission recommended that the Service adopt a modified version of option (1) that would have a second component that compels further reductions in mortality and serious injury for those stocks with high potential biological removal levels. Finally, the Commission commented on the question outlined in the *Federal Register* notice of whether the Service should determine that a fishery had met the zero mortality rate goal if the level of mortality and serious injury exceeded the threshold but suitable technological solutions were not available. The Commission noted that such determinations should not be made because they would undermine the long-term objective expressed by Congress that fisheries approach a zero mortality and serious injury rate. Therefore, the Commission recommended that the Service determine that a fishery had met the zero mortality rate goal only if it results in a level of mortality and serious injury below the threshold established for the goal.

As of 31 December 2003 the Service had not published a proposed rule; however, Service personnel indicated that it plans to issue a proposed rule early in 2004. According to the settlement, the Service must publish the final rule by 30 June 2004.

Serious Injury/Mortality

Several provisions of the incidental take regime for commercial fisheries are aimed at reducing marine mammal mortalities and serious injuries to certain levels. As such, there needs to be some mechanism for differentiating between serious and nonserious injuries. Regulations promulgated by the Service in 1995 define serious injury as any injury that will likely result in the mortality of a marine mammal. However, it is not always apparent at the time a marine mammal is released from fishing gear whether its injuries are life-threatening. To address this issue, the Service convened a workshop in April 1997 to consider ways to determine what injuries are to be considered serious. Representatives of the Marine Mammal Commission participated in the workshop.

The workshop report, published in 1998, identified the different ways in which marine mammals may be injured by various types of fishing gear and assessed the likelihood that different types of marine mammals would survive such injuries. The workshop report included general guidelines for determining when injuries should be considered serious. For large whales, participants generally agreed that any entanglement that resulted in an animal trailing gear such that its mobility or ability to feed was impeded should be considered a serious injury. For small cetaceans, animals that ingest hooks, are trailing gear when released, or swim away abnormally after being released should be considered seriously injured. For pinnipeds, animals should be considered seriously injured if they are trailing gear or are hooked in the mouth. The Service has drawn on the report to develop internal guidelines for determining what constitutes a serious injury but has yet to publish draft guidelines for public review and comment.

In its letter of 25 November 2003 commenting on the draft stock assessment reports, the Commission raised this issue again. The Commission commented on the lack of consistency and transparency in assessing serious injury. Specifically, the Commission noted that, for North Atlantic right whales, a determination of serious injury is made only after the death of an injured animal can be confirmed and that doing so biases estimates of mortality and serious injury downward. Furthermore, such an approach is inconsistent with that of the Service's other regions and science centers, which consider an animal "seriously injured" when it is entangled in fishing gear, particularly when gear is wrapped around the animal's rostrum.

List of Fisheries

A key feature of the incidental take regime is the annual publication of a list of fisheries placing each U.S. fishery into one of three categories based on the frequency with which marine mammals are killed or seriously injured. Vessel owners participating in category I or category II fisheries must register and are subject to certain other requirements. Those participating in category III fisheries need not register for an incidental take authorization but are required to report any marine mammal mortality or serious injury that occurs incidental to their operations.

Under regulations published by the National Marine Fisheries Service, a category I fishery is one in which annual mortality and serious injury of animals from any marine mammal stock are equal to or greater than 50 percent of the stock's potential biological removal level. A category II fishery is one in which annual mortality and serious injury are be-

tween 1 and 50 percent of the stock's potential biological removal level, provided that the total number of mortalities and serious injuries from all fisheries combined is greater than 10 percent of the stock's potential biological removal level. All other fisheries (i.e., those that, combined with other fisheries, do not take more than 10 percent of a stock's potential biological removal level or that individually take less than 1 percent of any stock's potential biological removal level) are placed in category III. In the absence of reliable information concerning the frequency with which marine mammals are killed or seriously injured incidental to a fishery, the National Marine Fisheries Service assesses the proper placement of the fishery by evaluating factors such as fishing techniques and gear used, available deterrence methods, target species, seasons and areas fished, stranding data, the species composition and distribution of marine mammals in the area, and comparisons with similar fisheries.

The Service published the proposed list of fisheries for 2003 on 10 January 2003. The Commission recommended several changes to the list. In general, the Commission felt that the way in which data from the stock assessment reports were used to make category determinations was unclear. Mortality or serious injury estimates for a fishery may be outdated or unreliable if the fishery has not been observed in recent years or observer coverage is low. For those reasons, the Commission recommended that in the list of fisheries the Service describe the information upon which rankings are based. The Commission specifically commented on several fisheries. The Commission questioned why the Service did not use the published minimum population estimate for the western North Pacific stock of humpback whales when evaluating the Alaska Bering Sea/Aleutian Islands groundfish trawl fishery. It therefore recommended that the Service review its categorization of this fishery as a category II fishery. The Commission also recommended that the Service provide more complete justification for classifying the Alaska Cook Inlet salmon drift gillnet fishery as category III and determine whether the level of observer coverage is adequate for this fishery. With respect to the Gulf of Mexico blue crab trap/pot fishery, the Commission noted that in the 2001 proposed list of fisheries this fishery was proposed to be elevated to category II due to observed strandings of bottlenose dolphins. However, in the final list of fisheries for 2001 this fishery was listed as category III with no explanation. Therefore, the Commission recommended that the Service review the evidence regarding the mortality and serious injury of bottlenose dolphins in this fishery. Because there was evidence of high takes of bottlenose dolphins in the Gulf of Mexico menhaden purse seine fishery, yet no dedicated observer program, the Commission recommended that the Service designate that fishery as a category I fishery and institute an observer program to obtain more reliable information. Finally, the Commission noted that there are known entanglements of bowhead whales from the western Arctic stock in crustacean pot lines, yet these are not included in the corresponding stock assessment report. Therefore, the Commission recommended that the Service obtain entanglement information from the North Slope Borough, incorporate that information into the stock assessment report, and use it to categorize this fishery.

In the final list of fisheries for 2003 published on 15 July 2003 the Service concurred with the Commission's recommendation to retain the category II classification of the Alaska Cook Inlet salmon drift gillnet fishery, based on incidental take of harbor porpoises. However, for all the other Commission recommendations, the Service either disagreed or did not respond to comments. With respect to the Gulf of Mexico blue crab trap/pot fishery and menhaden purse seine fishery, the Service cited lack of information on mortality and stock structure as a reason to not make changes at this time and pointed to research programs being conducted to clarify stock structure of bottlenose dolphins in the Gulf of Mexico. Similarly, the Service promised to reevaluate the classification of the Alaska Bering Sea/Aleutian Islands groundfish trawl fishery in 2004 with better fishery delineations and mortality estimates. Finally, the Service did not address the Commission's recommendation that they obtain information on entanglements of bowhead whales in the western Arctic in the Alaska crustacean pot fishery.

Take Reduction Teams

Section 118 of the Marine Mammal Protection Act requires the National Marine Fisheries Service to develop a take reduction plan for each strategic stock that interacts with a category I or II fishery (i.e., a fishery that frequently or occasionally kills or seriously injures marine mammals). That section directs the Service to establish take reduction teams to assume the lead in developing plans. The teams are to include members representing federal agencies, affected coastal states, appropriate fishery management councils, interstate fishery commissions, academic and scientific organizations, environmental groups,

the commercial and recreational fishermen that incidentally take the species or stock, and any affected Alaska Native or Native American tribal organizations. Representatives of the Commission have participated as members of most of the take reduction teams.

Where human-caused mortality and serious injury of a stock are believed to be equal to or greater than the stock's potential biological removal level, a take reduction team is to prepare and submit to the Service a draft take reduction plan within six months of the team's establishment. Within 60 days of receiving a draft take reduction plan, the Service is to publish the plan in the *Federal Register*, along with any proposed changes in regulations to implement the plan, for public review and comment. After a public comment period of no more than 90 days, the Service has 60 days in which to publish a final take reduction plan and implement regulations. After publication of the final plan, take reduction teams are to continue to meet to monitor the plan's implementation.

Currently the Service has five active take reduction teams — the Gulf of Maine Harbor Porpoise Take Reduction Team, the Pacific Offshore Take Reduction Team, the Atlantic Large Whale Take Reduction Team, the Mid-Atlantic Harbor Porpoise Take Reduction Team, and the Mid-Atlantic Bottlenose Dolphin Take Reduction Team.

In the lawsuit settlement between the Center for Biological Diversity and the National Marine Fisheries Service in April 2003 (see discussion of zero mortality rate goal), the Service agreed to convene two take reduction teams over the next three years (1) Atlantic longline fishery no later than 30 June 2005, and (2) Atlantic squid, mackerel, butterfish trawl fishery no later than 30 September 2006. Both fisheries interact with pilot whale and common dolphin stocks.

Activities of the Pacific Offshore Take Reduction Team and the Mid-Atlantic and Gulf of Maine Harbor Porpoise Take Reduction Teams are discussed in previous annual reports. Activities of the Mid-Atlantic Bottlenose Dolphin Take Reduction Team are discussed in the bottlenose dolphin section in Chapter III. Actions taken by the Atlantic Large Whale Take Reduction Team regarding the take reduction plan for endangered whales taken in gillnet and lobster pot fisheries along the Atlantic coast are discussed in the North Atlantic right whale section in Chapter III.

At its 2003 annual meeting the Marine Mammal Commission reviewed the take reduction process, using the large whale and bottlenose dolphin take reduction teams as examples. Representatives from the National Marine Fisheries Service and several members of the two take reduction teams presented their perspectives on the successes and failures of the teams.

Based on this review, the Commission sent a letter to the Service on 31 December 2003 with commendations and recommendations regarding the stock assessment process and take reduction teams. The Commission commended the Service for its ongoing efforts to investigate stock structure in marine mammals, to improve stock assessments, and to improve the take reduction process. In addition, the Commission commended the Service for recent studies of stock structure and abundance of mid-Atlantic bottlenose dolphins and recommended additional studies to undertake regarding mid-Atlantic bottlenose dolphins (see the discussion of bottlenose dolphins in Chapter III). The Commission also recommended that the Service make a fundamental change in the management strategy for reducing entanglement-related mortality and serious injury of North Atlantic right whales (see the discussion of North Atlantic right whales in Chapter III).

The Commission also made the following general recommendations (1) the Service should set standards for accuracy and precision of estimates of abundance and mortality/serious injury and develop alternative assessment methods when observer programs do not provide reasonably precise estimates of mortality/serious injury, and (2) the Service should review and improve coordination of fishery management efforts with conservation and take reduction efforts among its Office of Sustainable Fisheries, Office of Protected Resources, and the regional fishery management councils. This increased coordination would ensure that fisheries managers assume responsibility for adopting measures to regulate fishing in ways that provide needed protection for marine mammals.

Pacific Longline Workshop

Depredation by marine mammals has long been perceived by fishermen as a serious threat to their livelihood. Depredation occurs when a marine mammal removes fish from fishing gear. As the swordfish and tuna longline fishery has expanded in the South Pacific Ocean, increased interactions between cetaceans and longline gear have occurred. Therefore, the Marine Mammal Commission helped fund a workshop on interactions between cetaceans and longline fisheries held in Samoa in November 2002. Among

other things, workshop participants developed an action plan that assessed and identified key issues on research and mitigation. In addition, the participants developed priorities for research to reduce cetacean depredation on fish caught on longlines. The New England Aquarium, a cosponsor of the workshop, published the report from the workshop in 2003.

The Tuna-Dolphin Issue

For reasons not fully understood, schools of large yellowfin tuna (those greater than 25 kg [55 lbs]) tend to associate with dolphin schools in the eastern tropical Pacific Ocean. This area covers more than 18.1 million km^2 (5 million mi^2), stretching from southern California to Chile and westward to Hawaii. Late in the 1950s U.S. fishermen began to exploit this association by deploying large purse seine nets around dolphin schools to catch the tuna swimming below. Despite efforts by fishermen to release the dolphins unharmed, some animals become trapped in the nets and are killed or injured. Estimated dolphin mortality in the early years of the fishery was in the hundreds of thousands per year. Efforts to reduce the incidental mortality of dolphins in this fishery have been a primary focus of the Marine Mammal Protection Act since it was enacted in 1972. More recently, efforts have focused on identifying the possible effects of chasing and encircling large numbers of dolphins in the tuna fishery each year — effects that may not be reflected in the reported mortality figures but that may be impeding the recovery of depleted dolphin stocks.

The International Dolphin Conservation Program

Representatives of the United States and 11 other nations signed the Declaration of Panama on 4 October 1995. By doing so, these nations declared their intention, contingent on the enactment of changes in U.S. law, to formalize an earlier agreement (the La Jolla Agreement), under which significant reduction in dolphin mortality had occurred, as a binding international agreement and to incorporate additional dolphin protection measures. The envisioned changes to U.S. law included allowing access to the U.S. market for all tuna, whether caught by setting on dolphins or not, provided that it was caught in compliance with the agreement. The Declaration of Panama also called on the United States to redefine the term "dolphin-safe" to include any tuna caught in the eastern tropical Pacific by a purse seine vessel in a set in which no dolphin mortality was observed, rather than applying that term only to tuna caught on trips during which no sets on dolphins were made. Among other things, the new international agreement was to establish annual stock-specific quotas on dolphin mortality based on minimum population estimates and to limit overall mortality to no more than 5,000 animals per year. The international agreement envisioned by the parties to the Declaration of Panama, the Agreement on the International Dolphin Conservation Program, was concluded in May 1998 and entered into force on 15 February 1999.

Under the Agreement on the International Dolphin Conservation Program, each vessel of greater than 400 short tons of carrying capacity is required to carry an observer on each fishing trip made in the eastern tropical Pacific Ocean. At least 50 percent of the observers placed on a nation's vessels are to be from the Inter-American Tropical Tuna Commission's observer program, with the remainder coming from a parallel national program, should the nation decide to establish one. Among other things, the observers are to report the number of dolphins killed and seriously injured in purse seine sets. Data from these reports are reflected in the estimates of dolphin mortality provided in Table 9. Estimated dolphin mortality, particularly for the early years of the fishery, are based on significantly lower levels of observer coverage. The United States achieved 100 percent observer coverage beginning in 1989. Full observer coverage on the foreign fleets was not achieved until 1995.

Since 1993 dolphin mortality incidental to the eastern tropical Pacific tuna fishery has remained at a level believed by most to be biologically insignificant. Nevertheless, as discussed below, available data indicate that those dolphin stocks that were depleted over the years by the tuna fishery are not recovering at a rate that one would expect in light of the reported mortality levels.

Although still a preliminary estimate, it appears that reported dolphin mortality in 2003 will be slightly lower than in 2002 and the second lowest since monitoring was begun. This apparent reduction in mortality occurred despite the fact that fishing effort on dolphins again increased in 2003. The Inter-American Tropical Tuna Commission's preliminary estimate of the number of dolphin sets made during 2003 rose to 13,841, an increase of about 10 percent over the number of dolphin sets in 2002.

Table 9. Estimated incidental kill[1] of dolphins in the tuna purse seine fishery in the eastern tropical Pacific Ocean, 1972–2003

Year	U.S. Vessels	Non-U.S. Vessels
1972	368,600	55,078
1973	206,697	58,276
1974	147,437	27,245
1975	166,645	27,812
1976	108,740	19,482
1977	25,452	25,901
1978	19,366	11,147
1979	17,938	3,488
1980	15,305	16,665
1981	18,780	17,199
1982	23,267	5,837
1983	8,513	4,980
1984	17,732	22,980
1985	19,205	39,642
1986	20,692	112,482
1987	13,992	85,185
1988	19,712	61,881
1989	12,643	84,403
1990	5,083	47,448
1991	1,002	26,290
1992	439	15,111
1993	115	3,601
1994	105	4,095
1995	0	3,274
1996	0	2,547
1997	0	3,005
1998	24	1,853
1999	0	1,348
2000	0	1,636
2001	0	2,129
2002	0	1,513
2003	0	1,501[2]

[1] These estimates, based on kill per set and fishing effort data, are provided by the National Marine Fisheries Service and the Inter-American Tropical Tuna Commission. They include some, but not all, seriously injured animals released alive.
[2] Preliminary estimate.

The International Dolphin Conservation Program Act

Efforts to amend U.S. law as called for by the Declaration of Panama culminated in enactment of the International Dolphin Conservation Program Act on 15 August 1997. The new law made several changes to the U.S. tuna-dolphin program. Among other things, changes to section 304 of the Marine Mammal Protection Act directed the Secretary of Commerce, in consultation with the Marine Mammal Commission and the Inter-American Tropical Tuna Commission, to conduct a study of the effects of chase and encirclement on dolphins and dolphin stocks taken in the course of purse seine fishing for yellowfin tuna in the eastern tropical Pacific. The study was to consist of abundance surveys and stress studies designed to determine whether chase and encirclement are having a "significant adverse impact on any depleted dolphin stock in the eastern tropical Pacific Ocean." Specifically, the amendments required the National Marine Fisheries Service to survey the abundance of depleted dolphin stocks during calendar years 1998, 1999, and 2000. The stress studies were to include (1) a review of relevant stress-related research and a three-year series of necropsy samples from dolphins killed in dolphin sets, (2) a one-year review of relevant historical demographic and biological data related to dolphins and dolphin stocks, and (3) an experiment involving the repeated chasing and capturing of dolphins by means of intentional encirclement.

The amendment directed the Service to make an initial finding by March 1999, based on the preliminary results of the research program and any other relevant information, as to whether the intentional encirclement of dolphins was having a significant adverse effect on any depleted dolphin stock. A final finding was to be made between 1 July 2001 and 31 December 2002 and a report of that finding submitted to Congress. If the Service determined that there is no significant adverse effect, the dolphin-safe labeling standard for tuna was to change to include all tuna harvested in sets in which no dolphin mortality or serious injury was observed.

The amendments took effect on 3 March 1999, the date that the Secretary of State certified to Congress that a binding international agreement establishing the International Dolphin Conservation Program

had been adopted and was in force. The parties to that agreement, other than the United States, are Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru, and Venezuela. In addition, Bolivia, Colombia, the European Union, and Vanuatu are applying the agreement provisionally.

Implementation of the 1997 Amendments

As summarized above and as discussed in greater detail in previous annual reports, amendments enacted to the Marine Mammal Protection Act in 1997 by the International Dolphin Conservation Program Act (Public Law 105-42) made significant changes to the U.S. tuna-dolphin program. Most controversial have been the amendments providing for a change in the dolphin-safe labeling standard, contingent on the results of research into the effects of chase and encirclement of dolphins associated with the tuna purse seine fishery. The Service's findings and litigation generated by those findings and other aspects of the Service's implementation of the amendments are discussed below.

Initial Finding — Under the terms of the International Dolphin Conservation Program Act, the Service was to make an initial finding by the end of March 1999 as to whether the intentional encirclement of dolphins is having a significant adverse effect on any depleted dolphin stock in the eastern tropical Pacific. The Service made its initial finding on 29 April 1999 and concluded that although the northeastern offshore stock of spotted dolphins and the eastern stock of spinner dolphins did not appear to be increasing at the expected rates, there was insufficient evidence to conclude that chase and encirclement are having a significant adverse impact on those stocks. The rationale for the finding, a summary of the data on which it was based, and litigation that invalidated the finding are discussed in past annual reports.

Science Report — Before finalizing a report summarizing the findings of the research conducted under the International Dolphin Conservation Program Act, the Service sought extensive input from outside reviewers. Among other things, it established two expert panels and solicited comments from the Marine Mammal Commission and the Inter-American Tropical Tuna Commission.

As detailed in the previous annual report, the Commission, by letter of 25 October 2002, provided extensive comments on a draft science report prepared by the National Marine Fisheries Service, which summarized the results of its tuna-dolphin research program. The Commission concluded that (1) generally accepted density-dependence population theory supports the view that depleted dolphin stocks in the eastern tropical Pacific are not exhibiting the recovery that would be expected in light of the considerable reduction in observed mortality incidental to the tuna fishery, (2) although environmental/ecosystem changes may have occurred in the eastern tropical Pacific, and may have affected dolphin recovery, large-scale changes that would explain the lack of growth of depleted dolphin stocks were not detected by the Service's research program and, consequently, the nature and extent of any such ecosystem effects remain hypothetical, (3) unobserved fishery-related effects need not be large (when viewed on a per-set basis) to prevent or significantly impede dolphin population recovery, and (4) the practice of chasing and encircling dolphins to catch tuna may have a number of unobserved and indirect effects that have not yet been adequately characterized or quantified but that, in combination, could be impeding population recovery. For these reasons, the Commission believed that there was an insufficient basis for making a determination that the practice of chasing and encircling dolphins with purse seine nets in the eastern tropical Pacific tuna fishery is not having a significant adverse impact on depleted dolphin stocks. The Commission further indicated that the results of the Service's research program, although not conclusive, provided evidence that the practice of chasing and encircling dolphins is having adverse effects on the recovery of depleted dolphin stocks and that the magnitude of those effects, at both the individual and population levels, may be significant.

The science report, which can be found on the Service's Web site at http://www.nmfs.noaa.gov/prot_res/PR2/Tuna_Dolphin/tunadolphin.html, formed the basis for the Secretary of Commerce's final determination on the effects of chase and encirclement. The report was made available to the public in conjunction with the issuance of the finding.

Final Finding — The Service issued the final finding required under the International Dolphin Conservation Program Act on 31 December 2002. The finding stated that "…[b]ased on the information reviewed, …the intentional deployment on or encirclement of dolphin[s] with purse seine nets is not having a significant adverse effect on any depleted dolphin stock in the [eastern tropical Pacific]." The Service published that finding in the *Federal Register* on 15 January 2003, providing additional information on

the information reviewed, the process followed, and the criteria used to make that decision. The notice indicated that the final finding became effective on 31 December 2002, meaning that, as of that date, suppliers could begin labeling tuna caught by encircling dolphins as being dolphin-safe, provided that no dolphins were killed or seriously injured during the sets in which the tuna were caught.

Litigation

Since the Marine Mammal Protection Act was enacted in 1972, the tuna-dolphin provisions have spawned more litigation than any other issue. As discussed in previous annual reports, environmental groups successfully challenged the Service's initial finding on the effects of chase and encirclement. A separate lawsuit was filed in the Court of International Trade by environmental groups challenging certain aspects of the regulations promulgated by the Service to implement the International Dolphin Conservation Program Act. During 2003, two cases involving the tuna-dolphin program were active. One of these involved a challenge to the Service's final finding on the effects of chase and encirclement. The other involved an appeal of the trade court's ruling upholding the Service's regulations.

***Earth Island Institute* v. *Evans* —** Within hours of the release of the final finding, environmental organizations filed suit in the U.S. District Court for the Northern District of California challenging the finding, claiming that it was not supported by the research findings and other information and therefore that it was arbitrary and not in accordance with the applicable law. The agency stipulated to a temporary stay of its final finding, pending consideration by the court of a motion for a preliminary injunction filed by the plaintiffs, so that more expedited consideration of the matter could be avoided. In a *Federal Register* notice published on 29 January 2003, the National Marine Fisheries Service announced the issuance of the stay order by the court. As for tuna shipped to the United States between the date of the final finding and the effective date of the court order (23 January 2003), the period in which the revised definition of dolphin-safe tuna was in place, the Service indicated that this tuna had already entered the U.S. market and could be legally sold with a dolphin-safe label.

The plaintiffs' motion for a preliminary injunction came before the court on 7 April 2003. Three days later, the district court issued an order granting a preliminary injunction. Under that order, the defendants are enjoined from taking any action under the International Dolphin Conservation Program Act to allow any product to be labeled as dolphin-safe that was harvested using purse seine nets intentionally set on dolphins in the eastern tropical Pacific.

In its ruling, the court first considered the plaintiffs' likelihood of success on the merits of the case — that is, had the Secretary of Commerce acted contrary to the Administrative Procedure Act in issuing the final finding. To meet this burden, the plaintiffs needed to demonstrate that the agency (1) relied on factors that Congress did not intend it to consider, (2) entirely failed to consider an important aspect of the problem, (3) offered an explanation for its decision that runs counter to the evidence, or (4) made a decision that is so implausible that it could not be ascribed to a difference of view or the proper exercise of the agency's expertise. The court's ruling focused on the first and third factors.

With respect to the first factor, the court indicated that the plaintiffs had raised serious questions as to whether the Secretary had relied on factors other than those specified in the International Dolphin Conservation Program Act. Although noting that the Secretary had "wisely refrained…from expressly invoking trade policy concerns as grounds for…[the] final finding," the court concluded that "there is little doubt that he has continued to face pressure to consider factors beyond the scientific evidence."

The court also explained that the plaintiffs had raised a serious question about the integrity of the agency decision-making process. In this regard, the court noted that so little had been accomplished by the National Marine Fisheries Service with respect to two of the three stress-related projects mandated by the International Dolphin Conservation Program Act that they had effectively been rendered meaningless. Specifically, the judge cited the fact that only 56 necropsies had been completed despite the fact that the Service had determined that a minimum sample size of 300 was necessary to provide scientifically valid results. The court was unswayed by the agency's claims of logistical difficulties in obtaining the necessary samples, finding that it had not explained why these difficulties were insurmountable or would justify the failure to fulfill an express statutory mandate. As for the chase and capture experiment, the court concluded that "the Secretary also did not complete this study in a manner sufficient to yield usable results." As it had in its 2000 ruling in the case challenging the initial finding under the International Dolphin Conservation

Program Act (see previous annual reports for a full discussion of that case), the court found that it would be improper for the agency to fail to carry out the required studies fully and then conclude that there was insufficient evidence to warrant a finding of significant adverse impact on the affected dolphin stocks.

The court next considered whether the agency determination was consistent with the best available scientific evidence. The court noted that the best available scientific evidence before the agency (as reflected by the final science report and the findings of the two expert panels' reviews) showed that "(1) dolphin stocks were still severely depleted and not recovering as they should in light of low reported death rates, (2) some force was acting to suppress their recovery, (3) adverse indirect effects of the purse seine fishery are probable, and could plausibly account for the failure of the dolphin stocks to recover, and (4) it is *unlikely* that the competing theory — a large-scale change in the ETP ecosystem — explained the failure of the dolphins to recover" [emphasis in original]. The court believed that this "best available evidence…, while not conclusive, is all suggestive of a significant adverse impact." The judge therefore concluded that the plaintiffs had demonstrated a likelihood of proving that the Secretary's finding is contrary to the best available evidence, which would constitute an abuse of discretion under the Administrative Procedure Act.

To obtain preliminary injunctive relief, the plaintiffs must not only demonstrate that they have a likelihood of succeeding on the merits of their case, but that there is the possibility that they will suffer an irreparable injury if an injunction is not issued. In the court's view, the plaintiffs had sufficiently demonstrated that allowing a temporary change in the dolphin-safe tuna label would likely cause irreparable injury to dolphins, create consumer confusion as to the meaning of that label, and involve significant administrative efforts to implement the new standard. The court was unpersuaded by the defendant's competing argument that delaying a change in the dolphin-safe labeling provisions if the injunction were issued would result in greater harm to dolphins by causing the dissolution of the International Dolphin Conservation Program.

Further consideration of the merits of this case by the district court is expected during 2004. A hearing on the matter has tentatively been scheduled for 29 March 2004.

Defenders of Wildlife* v. *Hogarth — Section 303 of the Marine Mammal Protection Act, as amended by the International Dolphin Conservation Program Act in 1997, requires the National Marine Fisheries Service, in consultation with the Department of State, the Marine Mammal Commission, and the U.S. commissioners to the Inter-American Tropical Tuna Commission, to issue regulations to implement the International Dolphin Conservation Program. The Service published an interim final rule implementing the provisions of the International Dolphin Conservation Program Act on 3 January 2000.

As discussed in previous annual reports, environmental groups filed suit in the U.S. Court of International Trade challenging several aspects of the regulations shortly after they became effective. The plaintiffs contended that certain provisions of the interim final rule were inconsistent with the underlying statutory provisions. Among other things, they argued that a provision of the regulations specifying that, for sets encircling dolphins, the backdown procedure must be completed no later than one-half hour *after* sundown could not be reconciled with the underlying statutory provision. Under section 303(a)(2)(B)(v) of the Marine Mammal Protection Act, the regulations were to include provisions "ensuring that the backdown procedure…is completed…no later than 30 minutes *before* sundown" [emphasis added]. The plaintiffs also claimed that the Service had violated the National Environmental Policy Act by not preparing an environmental impact statement and by omitting or misinterpreting crucial information in the environmental assessment the agency did prepare. In addition, the plaintiffs challenged the affirmative finding made by the Service that Mexico was meeting its obligations under the International Dolphin Conservation Program. Such a finding is required before yellowfin tuna harvested by a nation's fleet in the eastern tropical Pacific using purse seine nets may be exported to the United States.

The Court of International Trade issued its decision on 7 December 2001, ruling in favor of the National Marine Fisheries Service on all claims. With respect to the provision pertaining to sundown sets, the court found that, although the regulation at issue conflicts with the wording of the statutory provision, it does not conflict with the intent of Congress, which is paramount in matters of interpretation. Citing numerous references to the completion of sets no later than 30 minutes after sundown, both in the

preexisting provisions of the Act and in the international agreement, the court was not convinced that the use of the word "before" was a true expression of Congressional intent. The court also found that the Service's environmental assessment was adequate to meet the requirements of the National Environmental Policy Act. In making this ruling, the court noted that, although the Act demands that accurate information be used in preparing the assessment, there was no requirement that the Service use the "best available scientific evidence," as plaintiffs had contended. Further in this regard, the court determined that the Service was not required to include in the assessment the information set forth in the 1999 report to Congress on the initial finding of the effects of chase and encirclement.

The plaintiffs appealed the trade court's ruling on 5 February 2002, seeking review of two issues — whether the regulatory provision concerning the cutoff time for completing sundown sets is consistent with the statutory requirement and whether the environmental assessment prepared in conjunction with the rulemaking was sufficient to meet the requirements of the National Environmental Policy Act. The Court of Appeals of the Federal Circuit heard the appeal and issued its ruling on 4 June 2003.

All members of the three-judge panel disagreed with the trade court's rationale for upholding the regulatory provision concerning the completion of backdown relative to sunset. They found that the International Dolphin Conservation Program Act clearly required that the backdown procedure be completed one-half hour before sunset and that there was insufficient basis for concluding that the express statutory language constituted a drafting error or did not represent Congressional intent. Nevertheless, a majority of the panel upheld the Service's regulation on different grounds.

Section 303(a)(2)(C) of the Marine Mammal Protection Act grants the Secretary of Commerce authority to "make such adjustments as may be appropriate to requirements of subparagraph (B) that pertain to fishing gear, vessel equipment, and fishing practices to the extent the adjustments are consistent with the International Dolphin Conservation Program." The judges noted that the international agreement creating that program states that the backdown procedure must be completed no later than 30 minutes after sunset. They concluded that the "sunset rule" was a fishing practice that could be adjusted by the Secretary to bring it into conformance with the international agreement.

The third judge on the panel filed a dissenting opinion on this point. He noted that the statute only authorized the Secretary to make "such adjustments as may be appropriate." In his view, it was not appropriate for the Secretary to make an adjustment when the statute clearly sets forth a provision that requires no additional interpretation. Moreover, the dissenting judge believed that applicable precedent did not allow the court to affirm the agency's rule based on grounds on which the agency did not rely. In his view, "[s]ince the Secretary's decision was based on the erroneous conclusion that Congress made a mistake, the court cannot rehabilitate the agency's action on some other ground."

All three members of the appellate court panel ruled that the agency had met its responsibilities under the National Environmental Policy Act through the preparation of an environmental assessment. In reaching this conclusion, they noted that Congressional determinations, such as whether to allow tuna caught with purse seines in the eastern tropical Pacific to be imported into the United States, are not subject to the requirements of the National Environmental Policy Act. Thus, the question before the court was whether the agency, in deciding whether to prepare an environmental impact statement, had taken a "hard look" at the dolphin mortality problem and at the effect of the regulations that implemented Congress' determinations. In the court's view, the National Marine Fisheries Service had met this burden.

Defenders of Wildlife filed a petition for a writ of certiorari on 24 December 2003, seeking Supreme Court review of the appellate court ruling with respect to the sundown set issue. The government has until 1 March 2004 to file its response.

Report on the International Dolphin Conservation Program

The Consolidated Appropriations Resolution, 2003 (Public Law 108-7), enacted on 20 February 2003, required that the Department of Commerce, in consultation with key U.S. stakeholders, evaluate and document any lack of compliance by the non–U.S. parties to the International Dolphin Conservation Program. The Department was to collect information through site visits and discussions with government officials, observers, and others with firsthand knowledge of country practices, and report its findings to Congress by 1 May 2003. Congress expected the re-

port to include an evaluation of compliance with (1) the programs pertaining to onboard observers, with a focus on national programs (as opposed to the Inter-American Tropical Tuna Commission observer program), (2) the reporting of dolphin interactions and mortality, (3) international requirements for vessels, and (4) actions by parties to follow up on infractions identified by the international review panel established under the International Dolphin Conservation Program. The required report was transmitted to Congress on 8 August 2003 and is available on the National Marine Fisheries Service's Web site (http://www.nmfs.noaa.gov/prot_res/PR2/Tuna_Dolphin/tunadolphin.html).

In general, the agency found the level of compliance with the conservation provisions of the International Dolphin Conservation Program to be "quite high." However, the report indicated that the level of compliance is not equal among all fleets. For example, of 195 possible major infractions identified by the international review panel in 2001, more than 100 occurred on the vessels of a single country, Bolivia. This was the case despite the fact that Bolivia accounted for only about 3 percent of the fishing effort that year. The agency noted that Bolivia is not a party to the Agreement but is applying it provisionally.

The report expressed concern over apparent discrepancies in the data collected by observers under the Inter-American Tropical Tuna Commission's international program and the three national observer programs run by Ecuador, Mexico, and Venezuela. Analyses conducted by the Inter-American Tropical Tuna Commission have indicated that some national programs may have reporting rates of dolphin sets, dolphin mortality per set, alleged infractions, and other data that are lower than those reported under the international program. Although the reasons for these differences are unknown, the National Marine Fisheries Service advocated further efforts to understand and address this issue as quickly as possible.

Another area of concern noted in the report involved possible infractions by small purse seine vessels (those under 400 short tons), which are prohibited under the Agreement from setting on dolphins. Historically, these less-powerful vessels were considered to be incapable of setting on schools of dolphins. However, recent reports indicate that some newer, more powerful small vessels are capable of successfully chasing and encircling dolphins. Because these vessels are not subject to the observer requirements of the International Dolphin Conservation Program, the ability of the parties to the Agreement to monitor their activity is limited. The report also documented a trend by which some fleets are adding vessels that are just under the size required to carry observers. For example, the number of small vessels in the Mexican fleet increased from 6 in 2000 to 21 in 2002. The report also noted that the fleet from Ecuador now included 18 smaller vessels.

The report also discussed U.S. efforts to address the potential problem of smaller vessels setting on dolphins. In this regard, the United States has encouraged the parties to the Agreement to require observers to be placed on small vessels as well as those in excess of 400 short tons carrying capacity. As a first step, the parties adopted a proposal in October 2002 requiring small vessels that have been reported to the international review panel as having set on dolphins to carry observers.

Affirmative Findings and Embargoes

The regulations implementing the International Dolphin Conservation Program Act set forth procedures and criteria for making affirmative findings for tuna-harvesting nations. Nations with purse seine vessels in excess of 400 short tons carrying capacity harvesting yellowfin tuna in the eastern tropical Pacific Ocean are required to obtain an affirmative finding in order to import into the United States yellowfin tuna and yellowfin tuna products. During 2002 affirmative findings were made for Mexico and Ecuador, giving them access to the U.S. market through 31 March 2003. On 3 July 2003 the National Marine Fisheries Service published a notice in the *Federal Register* that it had renewed the affirmative finding for Ecuador, allowing tuna imports to continue through 31 March 2004. El Salvador received an affirmative finding on 31 December 2003, allowing tuna imports through 31 March 2004. As of the end of 2003 a renewal of the affirmative finding for Mexico, which expired on 1 April 2003, was under review by the Service but had yet to be made.

Once an affirmative finding is made, it may be renewed up to four times based on an annual review of documentary evidence from the Department of State, the Inter-American Tropical Tuna Commission, and the government of the harvesting nation sufficient to demonstrate that the criteria for an affirmative finding are still being met. However, every five years each exporting country must submit a new application describing its tuna-dolphin program and its compliance with the International Dolphin Con-

servation Program. Both Mexico and Ecuador will need to submit new applications to obtain affirmative findings for 2005 and the subsequent four-year period; El Salvador will need to submit a new application in 2008. Currently all other harvesting nations with purse seine vessels in excess of 400 short tons and harvesting yellowfin tuna in the eastern tropical Pacific are embargoed. Those nations include Belize, Bolivia, Colombia, Guatemala, Honduras, Nicaragua, Panama, Peru, Spain, Vanuatu, and Venezuela. Tuna embargoes are also to be imposed against nations that import yellowfin tuna from harvesting countries that are embargoed from importing tuna directly to the United States. Such embargoes prevent nations from gaining access to the U.S. market for their tuna by shipping through a secondary nation. Currently, no intermediary nation embargoes are in place.

Chapter V

INTERNATIONAL ASPECTS OF MARINE MAMMAL PROTECTION AND CONSERVATION

The Departments of Commerce, the Interior, and State, in consultation with the Marine Mammal Commission, are instructed by section 108 of the Marine Mammal Protection Act to protect and conserve marine mammals under existing international agreements, and to negotiate additional agreements as needed to achieve the purposes of the Act. Furthermore, section 202 of the Act requires that the Marine Mammal Commission recommend to the Secretary of State and other federal officials appropriate policies regarding international arrangements for protecting and conserving marine mammals.

During 2003 the Commission continued to advise the U.S. delegations to the International Whaling Commission and the Arctic Council. In addition, the Commission provided advice to the Department of the Interior on implementation of the United States–Russia Bilateral Polar Bear Agreement and consulted with other federal agencies on the capture of bottlenose dolphins in the Solomon Islands. These activities are discussed below.

International Whaling Commission

The International Whaling Commission (IWC) is the implementing body of the International Convention for the Regulation of Whaling of 1946 (the Convention). The Convention's primary objective is the proper conservation of world whale stocks, thus making possible the orderly development of the whaling industry. The Convention established the IWC to provide for a continuing review of the condition of whale stocks and for such additions to or modifications of the agreed conservation measures as might be desirable. There are currently 52 member nations.

The IWC's 55th annual meeting was held in Berlin, Germany, 16–19 June 2003. The meeting was marked by controversy surrounding the adoption of a resolution establishing a conservation committee for the IWC. The United States supported the creation of the committee as a good-governance measure to handle the numerous conservation-related resolutions introduced at the IWC annual meeting each year. The United States supported the view that the Convention recognizes the principles of both conservation and management. Pro-whaling countries, led by Japan, Norway, and Iceland, opposed the creation of the committee.

During the meeting, a commissioners-only meeting on the Revised Management Scheme was held. No progress was made toward resolving the prolonged stalemate. However, the IWC agreed to allow the chairman to invite selected countries to participate in a "Friends of the Chair" group to seek ways to reach compromise on such a management scheme. At the end of 2003 the IWC members had made some progress.

At each of the annual IWC meetings from 1998 to 2002, Japan has sought a commercial whaling quota from the North Pacific for 50 minke whales for coastal whaling villages. Each year the request has been defeated on the grounds that the quota would be in violation of the commercial whaling moratorium, and the quota had not been reviewed by the IWC Scientific Committee. At the 2003 annual meeting, Japan put forward two proposals for resuming commercial whaling to take 150 minke whales in a coastal whaling program and 150 Bryde's whales in a pelagic whaling program. Japan put forward these proposals as a means to test the operation of the RMS (which, as noted above, is still being negotiated). Both proposals were defeated.

Early in 2003 Iceland announced that it would begin a research whaling program and proposed to take 250 whales, including minke, fin, and sei whales.

The United States expressed disappointment with Iceland's decision, similar to its long-standing policy of opposition to Japan's research whaling program. At the 2003 annual meeting Iceland's proposal to initiate scientific whaling was criticized by the Scientific Committee as lacking scientific merit. In August 2003 Iceland initiated this program and subsequently took 36 minke whales.

Also at the 2003 meeting, Australia and New Zealand again proposed to establish a new whale sanctuary in the South Pacific, and Argentina and Brazil again proposed to establish a sanctuary in the South Atlantic. Both proposals failed to gain the necessary support.

The IWC continues to maintain the moratorium on commercial whaling that was adopted in 1982. However, because Norway lodged an objection to the moratorium, it is not bound by that decision and continues to authorize the commercial take of more than 600 minke whales from the northeastern Atlantic. Japan continues to conduct scientific research whaling in Antarctica and the North Pacific and annually takes up to 700 whales of four species — minke, Bryde's, sei, and sperm.

The 56th annual meeting will be held in July 2004 in Sorrento, Italy.

The Arctic Council

Human activities in the Arctic may have adverse effects on marine mammals and their habitats. In addition, human activities outside the Arctic may be adversely affecting Arctic food webs, including marine mammals and people who rely on fish and wildlife for subsistence. Recent studies indicate that a variety of persistent organic compounds and other pollutants originating from human activities in the middle latitudes are being carried by air and water currents to the Arctic, where they accumulate in the tissues of species throughout the food chain, including humans. To address issues of common concern, representatives of the eight Arctic countries — Canada, Denmark (for Greenland), Finland, Iceland, Norway, Russia, Sweden, and the United States — meet biennially as the Arctic Council. Previous Marine Mammal Commission annual reports give detailed accounts of the history and development of the Arctic Council.

Federal agency interest in and contributions to the work of the Arctic Council are increasing, due in part to growing recognition of both the global and regional importance of the issues. The Commission will continue to take part in domestic discussions of Arctic Council issues, to send representatives to working group and other meetings bearing on marine mammals under the aegis of the Arctic Council, and to make recommendations as appropriate concerning the organization and content of the work of the Arctic Council.

Chairmanship of the Council for 2002–2004 is held by Iceland. The Marine Mammal Commission worked with the Department of State, other federal agencies, Alaska Native organizations, and the Alaska Governor's office to develop U.S. positions on matters pertaining to the Council. The United States maintains the view that it is inappropriate for the Arctic Council to be involved in issues relating to the take of marine mammals and other living resources and trade in products made from them. This policy was developed in 1997 in reaction to an attempt by Canada to address takings of marine mammals in the Council. The Bush Administration reconfirmed the position in August 2001.

The Arctic Council working group that addresses contaminants and pollution, the Arctic Monitoring and Assessment Program, delivered in 2002 a nontechnical summary report, Arctic Pollution 2002. The scientific reports on which the summary was based were published as five volumes beginning in 2003. In 2003 the working group continued to collaborate with another working group, the program for Conservation of Arctic Flora and Fauna, to develop a system for monitoring contaminants and biodiversity around the Arctic. These two working groups are also producing, in cooperation with the International Arctic Science Committee, the Arctic Climate Impact Assessment. The assessment is a comprehensive review of the extent, magnitude, and impacts to ecosystems and human activities of climate change and increased ultraviolet radiation in the Arctic. It will be published, in a technical volume and accompanying nontechnical summary, in the fall of 2004. A scientific symposium to present the findings of the assessment is planned for Reykjavik, Iceland, in November 2004, just prior to the Arctic Council meeting that will mark the end of Iceland's chairmanship.

Polar Bear Agreements

Alaska is home to two stocks of polar bears: the western or Chukchi/Bering Seas stock, shared with

Russia, and the southern Beaufort Sea stock, shared with Canada (Fig. 14). In addition, there are several other stocks that occur throughout the Arctic in Canada, Greenland, Norway, and Russia. Polar bears can traverse great distances, often crossing national boundaries and into international waters. As such, efforts to conserve polar bears require international cooperation, especially for those stocks that cross international boundaries. Recognizing this, and because of concern over the increase in the number of polar bears being taken by hunters in the 1950s and 1960s, the United States and other countries where polar bears occur negotiated the international Agreement on the Conservation of Polar Bears. The Agreement was concluded in 1973 by the governments of Canada, Denmark (for Greenland), Norway, the Soviet Union, and the United States and entered into force in 1976. Among other things, the Agreement limits the purposes for which polar bears may be taken, prohibits certain methods of taking, and requires the parties to protect habitat components that are important to polar bears, such as denning and feeding sites and migratory corridors. It also requires signatory countries to maintain national research programs. Implementation of the Agreement by the United States relies on domestic legislation, primarily the Marine Mammal Protection Act.

In response to concerns raised by the Marine Mammal Commission and others that existing U.S. laws may not be sufficient to implement fully all provisions of the Agreement on the Conservation of Polar Bears, Congress amended section 113 of the Marine Mammal Protection Act in 1994 to require the Secretary of the Interior, in consultation with the Secretary of State and the Marine Mammal Commission, to review the effectiveness of U.S. implementation of the Agreement, particularly with respect to habitat protection. A report based on the review was to be submitted to Congress by 1 April 1995. The amendments also required the Secretary to initiate a multilateral review of the effectiveness of the Agreement and to work with the four other parties to establish a process by which future reviews of the Agreement would be conducted. Although the Fish and Wildlife Service completed most of the work on the two reviews called for by the 1994 amendments, reports of the reviews have yet to be completed and transmitted to Congress.

A third new provision added to the Act in 1994 called on the Secretary of the Interior, acting through the Secretary of State, and in consultation with the Marine Mammal Commission and the State of Alaska, to consult with Russian officials on the development and implementation of enhanced cooperative

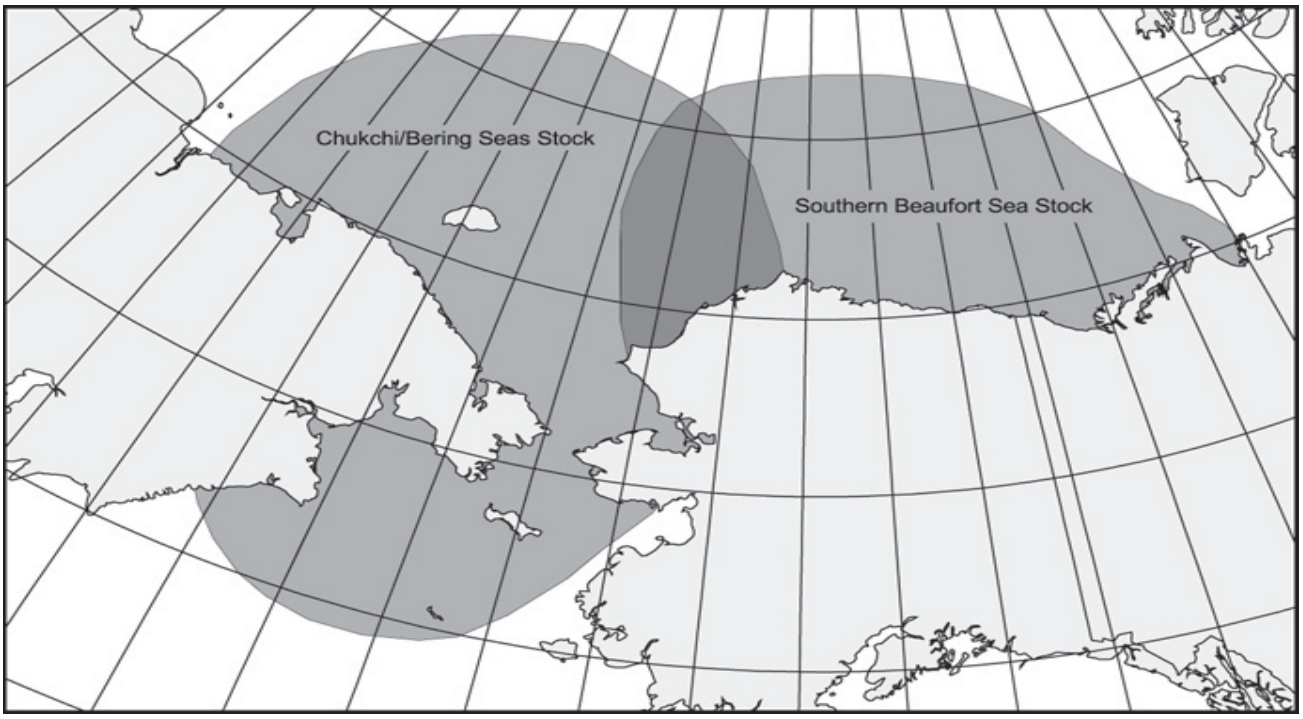

Figure 14. Distribution of Alaskan stocks of polar bears. (Figure courtesy of U.S. Fish and Wildlife Service.)

research and management programs for the shared polar bear stock.

Efforts to pursue greater cooperation between the United States and Russia with respect to the Chukchi/Bering Seas polar bear stock culminated in the signing of the Agreement between the Government of the United States of America and the Government of the Russian Federation on the Conservation and Management of the Alaska–Chukotka Polar Bear Population in October 2000. Provisions of the agreement, and steps taken toward its implementation, are discussed in detail in the Commission's previous annual report.

The Agreement specifies that subsistence taking by Native residents of Alaska and Chukotka is to be the only allowable consumptive use of the affected stock of polar bears. Under the Agreement, a joint commission composed of four members — a governmental official and a representative of its native people from each jurisdiction — is to establish annual taking limits that may not exceed the sustainable harvest level determined for the stock. The allowable take will be divided equally between the two parties, but, subject to approval by the joint commission, either party may transfer a portion of its allowable take to the other party. Once in place, the joint commission will establish a scientific working group to assist in setting annual sustainable harvest levels and identifying scientific research to be carried out by the parties.

Other provisions of the Agreement prohibit the taking of denning bears, females with cubs, or cubs less than one year old, and the use of aircraft and large motorized vessels for hunting polar bears. Also, the Agreement directs the parties to undertake all efforts necessary to conserve polar bear habitats, particularly denning areas and those areas where polar bears concentrate to feed or migrate. Implementation of these provisions is expected to help ensure that the United States is in full compliance with the provisions of the multilateral 1973 polar bear treaty. The full text of the Agreement and related information can be found at the Web site maintained by the Fish and Wildlife Service's Alaska Region (http://www.r7.fws.gov/mmm/pbsigning/agreement.html).

Before the Agreement can take effect, it must be ratified by the parties. Russia has already done this. In the United States, a key step in the ratification process is securing the advice and consent of the Senate. The Senate unanimously passed a resolution providing its advice and consent on 31 July 2003, subject to one condition. That condition requires the Secretary of State to provide prompt notification to the Senate Committee on Environment and Public Works and Committee on Foreign Relations if, pursuant to Article 3 of the Agreement, the parties modify the boundaries of the area covered by the Agreement.

In addition, the United States has recognized that legislation to implement certain provisions of the Agreement domestically will be needed. The Department of the Interior, in consultation with the Marine Mammal Commission and the State Department, has developed draft implementing legislation, which, pending interagency review and clearance, is expected to be transmitted to Congress in 2004.

Under regulations promulgated by the Fish and Wildlife Service in 1988, Alaska Native hunters are required to report the taking of polar bears and present the skin and skull of the bear to an authorized agent for marking and tagging. Those regulations, codified at 50 C.F.R. § 18.23(f), also apply to sea otters and walruses, the two other Alaskan marine mammal species under the Service's jurisdiction. The marking and tagging program was established to enable the Service to obtain better information on the numbers of marine mammals being taken and to help control possible illegal trade in marine mammal products.

Data on the number of polar bears taken by Alaska Natives are provided in Table 10. Although the harvest monitoring program has improved since a marking and tagging requirement was instituted in 1988, a recent review of the monitoring program in the Beaufort Sea indicates that there is room for improvement in obtaining timely information concerning all polar bears taken for subsistence.

The reported numbers of takes for the Chukchi/Bering Seas stock provide an incomplete picture of the impact of subsistence hunting, because no comparable data concerning take levels in Russia are available. Nevertheless, anecdotal information suggests that hunting is occurring, although taking polar bears in Russia has yet to be authorized. In a fact sheet published in June 2003, the Fish and Wildlife Service noted that, "[w]hile the magnitude of Russian harvest from the Chukchi Sea population is not quantified, persistent reports of high harvest from local experts and hunters are of serious concern." The Service noted that estimates of the number of polar bears being taken in Russia vary by year but that some estimates place the harvest as high as 200 to 400 bears per year. Perhaps the most reliable estimate is that recently provided by Ovsyanikov to the Fish and

Table 10. Numbers of polar bears reported taken in Alaska Native harvests, 1980–2003

Harvest Year[1]	Total Taken	Chukchi/ Bering Seas Stock	Beaufort Sea Stock
1980–1981	109	71	38
1981–1982	92	69	23
1982–1983	88	56	32
1983–1984	297	235	62
1984–1985	120	67	53
1985–1986	133	103	30
1986–1987	104	68	36
1987–1988	125	91	34
1988–1989	142	83	59
1989–1990	103	78	25
1990–1991	82	60	22
1991–1992	61	34	27
1992–1993	80	42	38
1993–1994	127	77	50
1994–1995	95	72	23
1995–1996	46	12	34
1996–1997	92	38	54
1997–1998	61	33	28
1998–1999	107	84	23
1999–2000	65	35	30
2000–2001	92	51	41
2001–2002	108	76	32
2002–2003	62	24	38

[1] Harvest year is 1 July to 30 June.
Source: U.S. Fish and Wildlife Service

Wildlife Service, who reported the annual harvest in Russia at between 100 and 250 bears. The Service's fact sheet also noted that large numbers of polar bear hides are being listed for sale in Russia over the Internet. Although speculative and subject to several caveats, preliminary population modeling conducted by the Service suggests that an annual harvest of 180 polar bears from the Chukchi Sea population is unsustainable and projects that consistent taking at such a level will result in a 50 percent decline in the stock's abundance within 18 years.

Dolphin Captures in the Solomon Islands

Early in August 2003 the Fish and Wildlife Service contacted the Commission about an ongoing live capture of dolphins for export being conducted in the Solomon Islands and the export of 28 dolphins taken in that operation to a Mexican public display facility on 22 July 2003. The Service noted that the Cetacean Specialist Group of the IUCN — The World Conservation Union — had recently learned of the events. In light of the fragmentary and contradictory information concerning the activity, group members believed that there was a need for a team of experts to visit the Mexican facility and/or the Solomon Islands to investigate both animal welfare and conservation issues. The Commission was asked to suggest individuals who could serve on such a team.

In mid-September 2003, at the invitation of the Solomon Islands government, a two-person team conducted a fact-finding visit to the Solomon Islands. The team included an expert on the biology and systematics of small odontocete cetaceans, representing the Cetacean Specialist Group, and a marine mammal veterinarian with broad experience in pathology, husbandry, and rehabilitation, representing IUCN's Veterinary Specialist Group. The team visited dolphin-holding pens at facilities in Gavutu and Honiara and met with the staff of the Solomon Islands' Marine Mammal Education Center, the company operating the dolphin facilities. The team also met with the Environmental Concerns Action Network of Solomon Islands, a nongovernmental group. The visit was limited to two days because of travel advisories related to political instability in the Solomon Islands. The team therefore focused on —

- determining the numbers and species of dolphins currently held in captivity in sea pens in the Solomon Islands;
- obtaining information about the circumstances surrounding captures (e.g., where, how, when) with a view to assessing, at least qualitatively, the potential impacts (e.g., mortality and injury) of the capture operations on the local populations;
- obtaining information on any population assessment(s) conducted before the initiation of live-capture operations;

- obtaining information on the current status of dolphin drive hunts in the Solomon Islands;
- ascertaining plans for further captures and exports (i.e., how many dolphins, to what countries and institutions);
- assessing the health and living conditions of the dolphins currently in captivity in the Solomon Islands; and
- determining how the captive dolphins are being fed and specifically the extent to which destructive fishing practices (e.g., reef dynamiting) are being used to obtain fish for them.

With respect to these issues, the team found that determining the overall number of dolphins captured and retained or released in the operations was difficult. Available information indicates that from 10 June to 11 September 2003, a minimum of 94 animals was held in the Gavutu and Honiara facilities, of which at least 27 were released. Two dolphins had died over this period. During the site visit, 41 dolphins were observed (24 animals at Gavutu on 10 September and 17 dolphins at Honiara on 11 September). The reasons and timing for releasing animals is unknown, but according to facility personnel, captured males were being released because they were considered unsuitable for long-term captivity and training. Of the 24 animals observed at the Gavutu facility, two species of bottlenose dolphins were identified (i.e., common bottlenose dolphin [*Tursiops truncatus*], and Indo-Pacific bottlenose dolphin [*T. aduncus*]). The species of two dolphins was uncertain. A single male pantropical spotted dolphin was being held at Gavutu. According to the Solomon Islands Marine Mammal Education Center, this animal was apparently the only survivor of the 417 animals that were taken in a traditional drive hunt in April 2003 at the Malaitian village of Fanclei. The Center indicated that it intended to return it to the wild once the weather cleared and a pod of the same species was located.

No information was available as to the date that the captures began, and there was no written record of a population assessment before the initiation of operations. The animals were captured in Honiara using seine nets and held in pens there. The team stated that based on the numbers of animals observed and reported, approximately 100 dolphins have been collected thus far. Center personnel stated that there were no dolphin mortalities associated with the capture operations.

Traditional drive fishery hunts apparently take place about three times a year, primarily in the Malaita area, and 100 to 200 animals may be taken per hunt. Spinner dolphins and pantropical spotted dolphins are the most important species in the drive fishery. Other species that may be taken include Fraser's dolphins, melon-headed whales, false killer whales, striped dolphins, and common dolphins.

Center personnel told the investigation team that they currently have no plans to export additional dolphins under their permit (the permit authorizes the export of 100 dolphins and it is valid until May 2004). Subsequent to the export of 28 dolphins to Mexico, 72 animals remain available for export under the permit. The Center stated that it intended to use these animals in a swim-with-the-dolphin program.

The animals observed by the team appeared to be in good body condition and within normal weight ranges. According to the Center, the animals are fed up to 8 kg fish daily, which are purchased from local fishermen. Although some fishermen in Gavutu use dynamite to catch fish, Center personnel stated that they do not buy fish taken in this manner. The team subsequently accompanied local fishermen to sites where dynamite had been used to collect fish. These sites were coral reefs with patches of broken and discolored coral. Several of the areas examined at the three sites were virtually barren of corals, suggesting that the blasting had crumbled the coral structure. In some areas adjacent to the blast sites, corals were present but there were few fish.

The team concluded that guidelines are needed for the capture and use of small cetaceans in Solomon Islands waters, and such guidelines should be based on a solid understanding of cetacean biology and ecology. The team noted the social and economic value of marine resources to the Solomon Islands and urged that management officials consider the conservation of local marine resources as a high priority. They urged implementation of the Solomon Islands Wildlife Act as essential for conserving small cetaceans in the region and that it be expanded to include other marine resources. The team expressed concern that the continued use of dynamite to collect fish off coral reefs will create an ongoing and long-term problem in the Solomon Islands through the destruction of reef habitat, depletion of food resources for local human populations, and potentially the loss of opportunities to obtain income from tourism.

The team stated that there was no scientific assessment conducted of the population-level effects of the removals of bottlenose dolphins in the Solomon Islands in advance of the dolphin live-capture oper-

ations. The team noted that until data are available concerning the numbers and population structure of bottlenose dolphins in the region, it is impossible to make a credible judgment about the impacts of the operations and, thus, impossible to arrive at a non-detriment finding necessary under Article IV of the Convention on International Trade in Endangered Species of Wild Fauna and Flora. Consequently, the team concluded that Convention Parties should not issue permits to import dolphins from the Solomon Islands at this time.

Endangered Marine Mammals in International and Foreign Waters

In addition to those species of special concern discussed in Chapter III, significant numbers of marine mammal species and populations in other areas of the world also face major conservation challenges. Some are in danger of extinction in the foreseeable future and others are being extirpated in parts of their range or consist of multiple populations that are being serially extirpated. Although the Marine Mammal Commission has not been involved in oversight or management of many such non–U.S. species and populations, we briefly discuss them in this report to provide the reader with a broader perspective on the conservation problems facing marine mammals globally.

The Commission selected the following such species based on the severity of the threat of extinction. We lack a clear and consistent basis for a global ranking due to the paucity of information about many stocks and species. We refer the reader both to IUCN — The World Conservation Union — for its well-known international classification scheme and to the list of endangered and threatened species under the U.S. Endangered Species Act for an example of a national scheme.

Yangtze River Dolphin (Baiji)

The Yangtze River dolphin or baiji (*Lipotes vexillifer*) is almost certainly the world's most endangered marine mammal and could conceivably go extinct in the next decade. Surveys by Chinese scientists in 1997, 1998, and 1999 resulted in observations of 17, 7, and 4 animals, respectively. Actual abundance is not clear but may well be in the tens of individuals. The baiji has already disappeared from large sections of the Yangtze River and associated lakes and waterways. To date, efforts to recover the species by captive maintenance and breeding have failed. Factors leading to the decline of the species and, perhaps, its extinction in the near future include direct and indirect fisheries interactions (e.g., illegal electrical fishing, entanglement and hooking, competition for prey), vessel strikes, habitat degradation and loss due to waterway management (e.g., damming, explosions for establishing or maintaining channels), and contaminants.

North Pacific Right Whale

The North Pacific right whale (*Eubalaena japonicus*) may be the world's most endangered large cetacean. Its historical (prewhaling) abundance has been estimated at about 11,000 whales, but whaling in the nineteenth and twentieth centuries severely reduced its abundance. The species is thought to consist of two populations — the western population, now probably numbering in the low hundreds, and the eastern population, likely numbering below 100 animals. Whaling records indicate that the species was originally distributed across the North Pacific, primarily north of 35° N latitude. Although the western population is thought to calve in coastal waters, the calving area for the eastern population is unknown and may occur offshore. The species is thought to make seasonal north–south migrations.

From 1958 to 1982 only 32 to 36 sightings of right whales were documented in the central North Pacific and Bering Sea. From 1990 to 1994 only 29 sightings were documented south of 50° N latitude in the eastern North Pacific. Since 1996 a small number of whales have been observed in summer months in the southeastern Bering Sea. Photographic records suggest that about one dozen individuals have been observed. The majority of animals that have been biopsied were males, which likely bodes poorly for the population's reproductive potential. In October 2000 the Center for Biological Diversity petitioned the National Marine Fisheries Service to designate critical habitat for the North Pacific right whale in the southeastern Bering Sea. In February 2002 the Service denied the petition on the grounds that it lacked sufficient information on the essential biological elements of the species' habitat. Surveys and other methods to investigate the abundance and distribution of the North Pacific right whale are clearly needed but, in spite of efforts by various individual scientists, there

is no systematic or consistently supported research effort dedicated to the conservation of this species.

Mediterranean Monk Seal

The Mediterranean monk seal (*Monachus monachus*) has been referred to as Europe's most endangered marine mammal, and it may be the most endangered pinniped in the world. It is listed as critically endangered by the IUCN — The World Conservation Union — and endangered under the U.S. Endangered Species Act. The Mediterranean monk seal is one of three species recognized in the genus Monachus — the Caribbean monk seal (*M. tropicalis*) is considered extinct, and the Hawaiian monk seal (*M. schauinslandi*) numbers about 1,400 and is also highly endangered.

Recent estimates suggest a total population of perhaps 450 to 525 Mediterranean monk seals with estimated numbers by country as follows: Cyprus, 5; Turkey, 50; Greece, 200–250; Libya, 5–10; Algeria, 10–20; Madeira, 24; Morocco, 5–10; Western Sahara, 100–150; Mauritania, 2, and Gambia, 4. Before 1997 the largest single colony was in waters off Western Sahara on Africa's northwest coast. A mass mortality at that site in 1997, attributed possibly to morbillivirus or toxic algae, reduced the colony by one-half to two-thirds.

The Mediterranean monk seal has been extirpated through much of its range, and the population is now highly fragmented. Certain populations will almost certainly go extinct in the near future. Significant threats to the species include fisheries interactions (entanglement in fishing gear and, particularly, shooting by fishermen who perceive the monk seal to be a competitor), disease (e.g., morbillivirus), harmful algal blooms, disturbance, habitat degradation and loss, and lack of international cooperation and coordination with respect to management and research.

Vaquita

The vaquita (*Phocoena sinus*) is a small porpoise currently found only in the northern reaches of the Gulf of California (Sea of Cortez). The species is listed as critically endangered under the IUCN — The World Conservation Union and as endangered under Appendix I of the Convention on International Trade and Endangered Species, the Mexican list of rare and endangered vertebrate species, and the U.S. Endangered Species Act.

Abundance in 1997 was estimated to be 567 (95 percent confidence limits of 177 to 1,073). Current abundance of the population is unknown, but the population is suspected to have declined since 1977 due to bycatch in gillnet fisheries, primarily for shrimp and totoaba, an endangered species of fish. Bycatch estimates derived from data collected between 1993 and 1995 suggest that 39 vaquitas were killed annually (95 percent confidence limits of 14 to 93) during that period. Such high levels of human-related mortality would clearly be unsupportable for a population of this size with its life history characteristics. Other factors that have been considered as possible contributors to the decline include the effects of contaminants, inbreeding depression, and decreased productivity (and therefore food availability) due to reduced flow of the Colorado River into the northern Gulf. None of these currently appear to be important factors because contaminant levels in vaquita are relatively low, the existing evidence does not indicate inbreeding depression, and the animals that have been assessed all appear to be in good condition, suggesting that they are not stressed by lack of prey.

Recovery efforts are being led by scientists from the Mexican National Marine Mammal Program in Ensenada, Mexico, working collaboratively with the International Committee for the Recovery of the Vaquita (Comité Internacional para la Recuperación de la Vaquita, CIRVA), which was appointed by the Mexican government in 1996 and met in 1997 and 1999 and, at the end of 2003, was preparing for a third meeting early in 2004. In addition, the Mexican government established a Biosphere Reserve of the Upper Gulf of California to facilitate recovery efforts. CIRVA focused initially on scientific research to assess abundance, distribution, and potential threats. Beginning with its second meeting, CIRVA has focused almost entirely on the need to reduce fishery bycatch. At the second meeting, it recommended phasing out all gillnet and trawl fisheries in the Biosphere Reserve in the Upper Gulf of California and extending the reserve to ensure that it encompassed all known vaquita habitat. Attempts to eliminate fishery bycatch have been delayed by concerns regarding the potential socioeconomic consequences of needed changes in the fisheries and their management. Potential solutions under consideration include buyouts of gillnet and trawl fishermen, development of safe fishing gear, and development of alternatives to fishing that will provide socioeconomic choices for fishermen from the three main fishing communities in the upper Gulf. Since 2001 the Marine Mammal Commission has provided support for research on the

distribution and abundance of vaquita as well as the CIRVA meeting scheduled for January 2004.

Western North Pacific Gray Whale

The western North Pacific population of gray whales (*Eschrichtius robustus*) was thought to be extinct during the mid-1900s but was subsequently resighted off Sakhalin Island in the Sea of Okhotsk. The distribution of this population is not well known, but its primary feeding habitat appears to be along the eastern shore of Sakhalin Island. Photo-identification studies suggest a population of about 100 animals in that region during the summer months. Although other foraging areas have not been identified, additional animals may occur in other regions of the Okhotsk Sea in the summer. The winter distribution of these animals and their calving grounds are not known. Limited observations suggest that they may winter in coastal waters off southern China, but further study is needed to investigate their distribution, movement patterns, important habitat areas, and threats to them in different geographical regions. During its migration to and from foraging areas in the vicinity of Sakhalin Island, the population is exposed to a number of threats, including ship strikes, entanglement in fishing gear, and exposure to contaminants. The population and its critical feeding habitat are also potentially threatened by oil and gas exploration and drilling in the waters around Sakhalin Island. Oil and gas operations were begun in this region in the late 1990s and a number of oil and gas companies are now expanding or planning to expand their activities in the region. Such operations pose potential threats from oil spills, ship strikes, disturbance by noise, exposure to contaminants, and loss of primary feeding areas and prey.

Ganges and Indus River Dolphins

The taxonomic status of the Ganges and Indus River dolphins is not clear; currently scientists consider them subspecies (*Platanista gangetica gangetica* and *P. gangetica minor*, respectively), but they also have been, and may again be, considered separate species (*P. gangetica* and *P. minor*) after further review. They occur separately in the Ganges River and its tributaries (Ganges dolphin) and the Indus River (Indus dolphin). Both are considered critically endangered. Data collected in 2001 indicate a population of at least 1,000 Indus dolphins. No population estimate is available for the Ganges dolphin although it is considered more abundant than the Indus dolphin.

The Indus dolphin has been extirpated from about 80 percent of its historical habitat, and the Ganges dolphin has been nearly extirpated in Nepal. Threats to these river dolphins include fisheries interactions (e.g., entanglement in fishing gear, competition for prey); habitat fragmentation, degradation and loss by development, pollution (e.g., agricultural runoff, human sewage), and waterway management (barrages, damming, and diversion for agriculture and other human activities); and direct killing for various purposes (e.g., for meat and oil to use as bait for fisheries or medicinal purposes).

Marine Otter

The marine otter (*Lutra felina*) is distributed along the western coast of South America from central Peru to the southern tip of Chile. Its historical distribution included the southern coast of Argentina, but it is now rare or extirpated from that region. It occurs in rocky coastal areas with strong winds and heavy surf or rough shoreline conditions. Although its range is still relatively substantial, it has been extirpated from much of the area within that range and now occurs in fragmented, isolated populations. Its current abundance is undetermined. Threats to the marine otter include poaching for its fur, fisheries interactions (entanglement in fishing gear and shooting by fishermen who consider the otters to be competitors for fish and shellfish), and reductions of prey due to kelp harvesting.

West African Manatee

The West African manatee (*Trichechus senegalensis*) is currently considered the most threatened of the three manatee species and is listed as vulnerable by the IUCN — The World Conservation Union. It is distributed in coastal regions, estuaries, and rivers from Senegal to Angola, occurring in saltwater, brackish, and freshwater areas. These animals are herbivorous and consume floating, overhanging, and emergent vegetation rather than submerged vegetation. Abundance is unknown, but the species is thought to be declining throughout much of its range and may have been extirpated in some countries. Factors causing decline or threatening the species' future include hunting, bycatch or entanglement in fishing gear, habitat degradation and loss (e.g., mangrove clearing, forest clearing with resulting siltation and filling of estuaries and lagoons), and waterway management (e.g., building of dams and flood control structures).

Bowhead Whale

All of the five stocks of bowhead whales recognized by the International Whaling Commission were severely depleted by commercial whaling. All but one (the Beaufort Sea/western Arctic stock) have failed to recover. Estimates suggest that four of the stocks may still number fewer than 500 animals. The Svalbard/Barents Sea (Spitzbergen) stock may number less than 100 animals with fewer than 50 reproductively mature animals and is therefore classified as critically endangered by the IUCN — The World Conservation Union. The Okhotsk Sea stock may number fewer than 200 and is classified as endangered, as is the Davis Strait/Baffin Bay stock, which appears to number at least 350. The Hudson Bay/Foxe Basin stock may number fewer than 300 animals and is classified as vulnerable. Bowhead whales are migratory and associate closely with Arctic sea ice. Threats to bowhead stocks include fisheries interactions (i.e., entanglement in fishing gear), changes to habitat due to global warming, disturbance due to human-generated noise, ship strikes, and contaminants from pollution.

Finless Porpoise

The finless porpoise (*Neophocaena phocaenoides*) has generally been recognized as one species with three forms (subspecies) but may actually consist of two species, each with its own subspecies. They are distributed in shallow, coastal waters from Japan to the Persian Gulf and south to East Timor and are known to enter estuaries and rivers. One form occurs in the Yangtze River and associated lakes. The finless porpoise is listed by the IUCN — The World Conservation Union — as "data deficient," and the Yangtze River population is listed as endangered. The species' overall abundance is unknown, but evidence suggests that it is severely reduced and may have been extirpated in parts of its range. The primary threat appears to be fisheries bycatch, particularly in gillnets. Other potential factors include other forms of fisheries interactions (e.g., electrical fishing in the Yangtze River, reductions in prey from overfishing), habitat degradation, and high levels of contaminants.

Saimaa Seal

The Saimaa seal (*Phoca hispida saimensis*) is a subspecies of ringed seal found only in Lake Saimaa in southeastern Finland. Current abundance is estimated at 200 to 250 seals, including 50 to 65 mature females. The subspecies is listed by the IUCN — The World Conservation Union — as endangered. Hunting of seals was allowed prior to 1955 and was considered the primary threat to their conservation. In the 1960s and 1970s the potential effects of contaminants, including mercury, DDT, and PCBs, were viewed as a significant threat and potential explanation for observed reduction in pup survival. The portion of still-born pups and pups found dead in lairs reached as high as 39 percent. Entanglement in recreational fishing gear (gillnets) has more recently become a significant source of mortality. In addition, development around the lake, associated disturbance, and water management practices are thought to pose a threat by degrading habitat, altering ice conditions, and threatening birthing lairs. Various protective measures have been implemented with some success to control fishing seasons and locations, establish protected areas, manage water levels more conservatively, and raise awareness of conservation needs. As a result, the Saimaa seal population has recently shown some signs of recovery.

Okinawan Dugong

The dugong (*Dugong dugon*) is the only extant member of the family Dugongidae. It is distributed from East Africa to Vanuatu in shallow coastal waters between 26° N and 26° S latitudes. On a global basis, it is listed as vulnerable to extinction by the IUCN — The World Conservation Union. Although it can still be found in many regions of its historical range, it has been extirpated throughout much of that range and now generally occurs in fragmented, declining populations. Its nearshore habitat and dependence on sea- grass beds for food (it is herbivorous) make it particularly vulnerable to human-related mortality and habitat degradation. A small population still occurs along the northeastern coast of Okinawa. Abundance of this population is unknown, but recent surveys have sighted less than a dozen animals. The government of Japan has been considering possible sites on Okinawa for a new U.S. Marine Corps Air Station to replace the existing base at Futenma. To date, the primary site under consideration is within the habitat used by the Okinawan dugong. Construction of the base poses threats to this population due to disturbance, loss of sea-grass beds, pollution, noise, and watercraft activities. Before any replacement base is constructed, the government of Japan is responsible for completing a review of the potential environmental effects. At the end of 2003 that review had not been completed.

Chapter VI

MARINE MAMMAL MORTALITY EVENTS

Unusual mortality events involving marine mammals appear to have increased in frequency and scale over the past several decades. The apparent increase may be due to actual increases in mortality, more extensive observation, better reporting, or some combination of these. Events have been documented in the United States and around the world for a wide range of species and may involve from a few to tens of thousands of animals. Unusual mortality events can have devastating impacts on marine mammal populations, particularly those that are already threatened or endangered.

Mortality events are triggered by a variety of factors, both natural and human-related. The distinction between human-related and natural factors is difficult to discern because human activities may indirectly affect the occurrence of otherwise natural factors, causing mortality events. For example, the frequency, severity, and location of toxic algal blooms may be changing as a consequence of global warming and marine pollution.

Some mortality events are caused by disease. Morbilliviruses (which cause distemper in dogs, measles in humans, and rinderpest in hoofed mammals) are thought to be responsible for several recent events involving Mediterranean monk seals, harbor seals, bottlenose dolphins, and striped dolphins. Severe outbreaks may have occurred because cetaceans and pinnipeds have been exposed to these viruses only recently and thus have not acquired immunity to them. Alternatively, more virulent forms of the viruses may be evolving.

High levels of environmental contaminants also may contribute to mortality events. Contaminants have been found especially in top-level predators such as killer whales and polar bears. Levels of polychlorinated biphenyls in killer whales exceed levels found to have adverse effects in harbor seals and that have been correlated with changes in reproductive hormone levels in polar bears. Because contaminants can reduce immune system function, they may predispose marine mammals to disease and indirectly increase levels of mortality. Human-related activities and events, such as oil spills and possibly operation of powerful sonars, also may cause mortality events. Thus, mortality events may be caused by single or multiple factors.

Unusual Mortality Events in 2003

At least five separate incidents involving unusually high levels of mortality of marine mammals occurred during 2003. The events and the species affected are described below.

Multispecies Mortality Event in California

The previous annual report described a multispecies mortality event from February to August 2002 in which hundreds of marine animals stranded along the central and southern coasts of California and a smaller number were observed along the west coast of Baja Mexico. A similar event occurred along the central and southern coasts of California in 2003. More than 100 common dolphins (*Delphinus delphis*) and 1,100 California sea lions (*Zalophus californianus*) were reported stranded, with the majority occurring in the period from April to June. Sea otters (*Enhydra lutris*) also may have been involved.

As was the case in 2002, the 2003 event appears to have been due to domoic acid poisoning. Affected animals exhibited signs of lethargy and disorientation, experienced seizures, or were comatose. The majority of them died. Chemical analyses of urine and stomach samples indicated the presence of domoic acid in some affected animals, and necropsy results showed

evidence of neuronal necrosis. Degeneration of neurons in the hippocampal region of the brain is one of the diagnostic indicators of domoic acid poisoning.

Domoic acid is produced by the diatom *Pseudonitzchia australis* and is passed up the food chain through both fish and shellfish, becoming more concentrated as it passes through trophic levels. Similar, but smaller, mortality events linked to domoic acid poisoning were reported in California in 1998 and 2000.

Domoic acid may also pose a threat to human health. It was first linked to human illness in 1987 when more than 100 people on Prince Edward Island, Canada, became ill and several died after eating tainted blue mussels. In California in 2002 state officials advised the public against eating sport-caught shellfish, crabs, sardines, and anchovies because of the potential for poisoning. No related human illnesses were reported in 2002 or 2003.

At the end of 2003 a review and report of this multispecies event had not yet been completed.

Sea Otters in California

In 2003 the reported sea otter strandings in California were above the monthly averages in almost all months. At the end of this period, a total of 262 otters had been reported stranded, about half of which were adults. All but eight animals were dead when found or died during rehabilitation. For the preceding 10 years, an average of 166 animals stranded annually. (See also the discussion on sea otters in Chapter III.)

The animals stranded in 2003 were afflicted with multiple ailments and died from multiple causes. More than 60 percent suffered some form of disease, including encephalitis from infections of *Toxoplasma gondii* and *Sarcocystis neurona*, peritonitis from acanthocephalan parasites, and cardiac disease. Shark bites and boat strikes also caused some mortality. Shark bites appeared to be more common in animals with encephalitis. The incidence of these causes varied geographically, with increased occurrence of encephalitis in Estero Bay, increased occurrence of acanthocephalan peritonitis in southern Monterey Bay, and increased shark attacks in the area from Santa Cruz to Point Año Nuevo. Parasitic infestations were more prevalent in juveniles, whereas other forms of disease, shark bites, and boat strikes were more common in adults. Many of the stranded animals were found in areas of human occupation, but the significance of that finding is not altogether clear—it could mean that the probability of finding a stranded animal was greater, and it also could mean that human activities were directly or indirectly related to the observed mortality. A mild El Niño was reported for 2003, although its role in the increased mortality is not clear in view of the fact that a large portion of the affected animals were adults that should have been more resilient to El Niño conditions. Domoic acid poisoning may have contributed to or caused some deaths, but analyses were inconclusive as of the end of 2003.

The determination of whether this was, in fact, an unusual mortality event was difficult because animals were found stranded over a relatively long period, strandings did not increase markedly or abruptly, and multiple causal factors were implicated. The Fish and Wildlife Service first requested consultation with the Working Group on Marine Mammal Unusual Mortality Events on 28 April 2003. After review of the available information, the working group declined to designate it as such an event but requested further monitoring. The Fish and Wildlife Service sent a request for further consultation on 20 May 2003. More information was becoming available and the number of stranding events remained elevated. On that basis, the working group designated the sea otter mortalities as an unusual mortality event and so informed the Service on 17 July 2003. The event was declared over in mid-August 2003, following a reduction in strandings to levels consistent with those of the previous 10 years. The annual sea otter census recorded the highest count in recent years and an increase in numbers of live otters in areas where strandings were reported. However, as noted, the number of strandings was again elevated in August through October. At the end of 2003 a review and report of the event had not yet been completed.

Pygmy and Dwarf Sperm Whales in the Southeast Atlantic

Between January and September 2003 a total of 41 pygmy sperm whales (*Kogia breviceps*), 8 dwarf sperm whales (*K. simus*), and 3 undetermined *Kogia* whales stranded on the southeastern Atlantic and Gulf of Mexico coasts. The majority (about 85 percent) were along the southeastern Atlantic, and about two-thirds were in Florida. The number of strandings was approximately double that expected based on records from the previous decade, excluding 1997 and 1998, when the number of strandings had been elevated. Most of the stranding events involved single animals and about two-thirds stranded alive. The majority were adult-sized animals, and the majority of pyg-

my sperm whales were males. The stranding events peaked in February, March, and June.

Preliminary findings suggest that 38 percent were emaciated, 41 percent were severely infected with nematodes, 30 percent showed evidence of lung abnormalities, and 30 percent showed evidence of cardiac myopathy. About 10 percent had nematode aggregations at the base of the skull, and a similar portion had abscesses in the same location.

The Working Group on Marine Mammal Unusual Mortality Events declined to declare these strandings as an unusual mortality event in part because they were not consulted until 29 October 2003, when little could be done to better characterize the causes or characteristics of the strandings. They requested additional information to evaluate that event, but at the end of 2003 that information had not been provided and no additional action was taken by the working group.

Manatees in Florida

From late March to late April 2003 nearly 100 manatees stranded in southwestern Florida. Exposure to red tides (brevetoxins produced by *Karenia brevis*) was the suspected cause for 86 animals. All the animals stranded in either Collier, Sarasota, Charlotte, or Lee Counties. A similar event occurred in 2002. Since 1995 evidence of red tides has been documented each month in this region on almost a continuous basis. Manatees appear to be exposed in late winter or early spring if red tides are still present when they begin their migrations out of inland waters to coastal areas. The mortality event in 2003 was the largest documented since 1996 when 149 manatee deaths were attributed to brevetoxin exposure. At the end of 2003 a report on the incident had not been completed.

Humpback and Fin Whales in the Western North Atlantic

From mid-June to early September 2003, 17 humpback whales, 3 fin whales (*Balaenoptera physalus*), 1 minke whale (*Balaenoptera acutorostrata*), 1 long-finned pilot whale (*Globicephala melas*), and 3 whales of undetermined species were found dead in waters 100 to 200 miles off Massachusetts. Canadian authorities reported the deaths of an additional 16 humpback whales and 1 fin whale along the Canadian coasts. The observations of such a large number of dead whales was similar to a mortality event in 1987–1988 involving at least 14 humpback whales.

The Working Group on Marine Mammal Unusual Mortality Events declared this such an event in late July. The National Marine Fisheries Service's Northeast Region and Northeast Science Center, in cooperation with the U.S. Coast Guard and volunteers from the Northeastern Marine Mammal Stranding Network, attempted to collect samples from the whales and flew surveys to identify as many whales as possible. Canada's Department of Fisheries and Oceans collected additional samples.

In spite of considerable efforts under difficult conditions, sampling of these animals was unable to provide conclusive evidence of the cause(s) of mortality. Several samples tested positive for saxitoxin-like activity, but not at levels considered to be lethal. Domoic acid was also detected in three samples, but the role of domoic acid poisoning in the mortality event is not clear because no brain samples were available for histology. One carcass exhibited evidence of fisheries interaction but most carcasses could not be fully examined. Preliminary investigation did not reveal any specific human activities in the area where the carcasses were found. The working group declared the event over in mid-September. At the end of 2003 a final report on the event was not yet available.

Harbor Seals and Minke Whales in Maine and Massachusetts

In the summer and fall of 2003 elevated numbers of harbor seals (*Phoca vitulina*) and minke whales stranded along the Maine and Massachusetts coasts. From May to October, 42 harbor seals were reported stranded along the coast between the Maine–New Hampshire border and Boothbay, Maine. This number is about double the expected number based on the frequency of stranding in past years. The increase involved mostly adult-sized animals. Six animals were found alive in fair to poor body condition, but all of them died during or shortly after transport for rehabilitation. Most of the other carcasses were too decomposed for internal examination. A necropsy was performed on three animals and little useful information was obtained. Laboratory analyses were conducted on a limited number of samples; all tests were negative for presence of biotoxins, West Nile virus, and antibodies for three strains of distemper virus and two strains of herpes virus. The majority of seals were too decomposed to examine for evidence of human interaction.

Between 11 and 30 September, nine minke whales were reported stranded along the coast of southern Maine. Subsequently, two additional minke whales stranded on the Massachusetts coast. Four whales were sampled for evidence of exposure to biotoxins and the results were negative. A large square piece of abdomen was cut out of one whale, indicating it likely died from human interaction; the cut would allow the release of gas from bloating and the carcass could then sink. Examination of two other whales showed evidence of fisheries interactions (e.g., line markings), which led to the hypothesis that the animals might have been killed during interactions with pair trawls targeting herring, mackerel, and menhaden. The other whales were too decomposed to examine for evidence of fisheries interactions. Based on the sizes of the stranded animals, they included both juveniles and adults.

At the end of 2003 final reports on these events were not yet available.

Working Group on Marine Mammal Unusual Mortality Events

The Marine Mammal Health and Stranding Response Act of 1992 directed the Secretary of Commerce to (1) establish an expert working group to provide advice on measures necessary to better detect and respond appropriately to future unusual marine mammal mortality events, (2) develop a contingency plan for guiding responses to such events, (3) establish a fund to compensate people for certain costs incurred in responding to unusual mortality events, (4) develop objective criteria for determining when sick and injured marine mammals have recovered and can be returned to the wild, (5) continue development of the National Marine Mammal Tissue Bank, and (6) establish and maintain a central database for tracking and accessing data concerning marine mammal strandings. The National Marine Fisheries Service, in consultation with the Marine Mammal Commission and the Fish and Wildlife Service, established the Working Group on Marine Mammal Unusual Mortality Events composed of marine mammal experts from around the country. The Service consults the group whenever increases in stranding rates or other factors suggest that an unusual mortality event may be occurring.

The group held its first meeting in April 1993 and has met annually since then. Its past activities have been described in previous annual reports. The most recent meeting was in Charleston, South Carolina, on 10–12 February 2003. The group reviewed mortality events in 2002, including a morbillivirus outbreak in northern Europe, a domoic acid event involving multiple species in southern California, a pulse of harbor seal strandings in New England, and two events thought related to brevetoxin and saxitoxin in Florida. Some of these events were deemed "repeat" events because they have occurred in the past and are more readily diagnosed. Although they may still be unusual in the sense that they may be increasing in frequency, severity, geographic distribution, etc., they are referred to as repeat events rather than unusual mortality events as a practical matter because of limited funds available to investigate events that are officially designated as unusual mortality events. In addition to the above, the group also discussed revision of the national contingency plan, developing a training course of on-site coordinators (volunteers likely to be involved in responding to unusual events), finalizing release guidelines, a national stranding coordinators meeting planned for the fall of 2003, compliance of stranding-related efforts with the provisions of the Endangered Species Act and the National Environmental Policy Act, and matters pertaining to reauthorization of the Marine Mammal Protection Act.

Prescott Grant Program

The Marine Mammal Rescue Assistance Act of 2000 amends Title IV of the Marine Mammal Protection Act and instructs the Secretaries of Commerce and the Interior to conduct, subject to the availability of appropriations, a grant program to be known as the John H. Prescott Marine Mammal Rescue Assistance Grant Program. The initial authorization was for Fiscal Years 2001, 2002, and 2003. The program provides financial assistance for marine mammal stranding network participants to carry out several critical activities including (1) recovery or treatment of stranded marine mammals, (2) collection of data from living and dead stranded marine mammals, and (3) operational costs directly related to the aforementioned activities. Awards may be granted for up to three years with a cumulative total of $100,000 per eligible participant per year.

The National Marine Fisheries Service and the Fish and Wildlife Service administer the grant program. Congress authorized $5 million for each of Fis-

cal Years 2001 through 2003, to remain available until expended. Of this annual amount, $4 million was to be available to the Secretary of Commerce and $1 million to the Secretary of the Interior. The Secretaries are to ensure that the funds are distributed equitably among the stranding networks, taking into account episodic mortality events in the preceding year, average annual stranding and mortality events, and the size of the marine mammal populations inhabiting a geographic area within a region. Preference is to be given to facilities with established records for rescuing and rehabilitating sick and stranded marine mammals. As of the end of 2003 Congress had not passed the agencies' Fiscal Year 2004 appropriation, but the pending measure included $4 million for the National Marine Fisheries Service's Prescott grant program for Fiscal Year 2004.

On 7 June 2001 the National Marine Fisheries Service issued a draft implementation plan for the program. On 29 June the Commission wrote to the Service commending it for efforts to prepare the plan and recommending that (1) state and local governments be allowed to apply for support related to pinniped strandings, as well as cetacean strandings, (2) the Service make allowances for applications from inexperienced applicants to allow for new ideas and broader participation in stranding programs, and (3) the Service implement the program jointly with the Fish and Wildlife Service under a single integrated set of priorities, criteria, and procedures so that plans for manatees, sea otters, and other species are coordinated.

On 11 February 2003 the National Marine Fisheries Service published in the *Federal Register* a solicitation for applications under the Prescott grant program for Fiscal Years 2003 and 2004. Technical and merit review panels met between May and July to review the 89 proposals that were received. The Commission participated on the review panels. Of the approximately $5 million available to the Service in 2003 ($3.7 million appropriated in 2003, plus $1.3 million carried over from 2002), approximately $4.5 million was committed to funding 48 proposals in 2003. The panel recommended 31 additional proposals for funding for 2004, pending approval of Fiscal Year 2004 appropriations. Therefore, the panel recommended a total of 79 of the 89 proposals for funding.

The Department of the Interior's budget request for Fiscal Years 2001, 2002, 2003, and 2004 did not include a request for Prescott funds, and no funds were appropriated to the Fish and Wildlife Service in those years. At the end of 2003, the Service had not developed a program for dispersing Prescott grant funds for marine mammal species under its jurisdiction.

Pilot Whale Release in the Florida Keys

On 10 August 2003 the National Marine Fisheries Service's Southeast Regional Office authorized the release to the wild of five pilot whales that had stranded on 18 April 2003 in the Florida Keys. Four of the animals were juveniles; the fifth was a dependent calf. Nine days after the animals' release, scientists tracking the whales observed sharks attacking the calf in waters off the east coast of Florida. The calf was presumed to have been killed.

Before authorizing the release, the Service's Southeast Regional Office and Southeast Fisheries Science Center had sought the advice of experts in the fields of cetacean biology and behavior and veterinary medicine as to whether release of the five whales would be appropriate. The majority of those experts expressed serious doubts about the ability of the dependent calf to survive on its own and advised against its release. They advised that releasing the calf would be inhumane. Many of the experts also expressed concern about the wisdom of releasing a juvenile whale because it was not swimming well and not interacting with the other animals. The experts noted that application of the Service's draft criteria for the release of rehabilitated stranded animals would preclude the release of dependent calves and animals exhibiting aberrant behavior.

The Service developed the draft release criteria in 1997 in conjunction with the Fish and Wildlife Service and in consultation with marine mammal biologists, behaviorists, and veterinarians. The draft criteria were published for review and comment in 1998 and were subsequently revised to address comments received from the public and two expert advisory panels. Over the years, the Service's draft release criteria, although never finalized, have generally been adopted by the stranding networks as standard practice for making determinations regarding the release of stranded cetaceans, although the advice of experts is sometimes sought in complex or borderline cases.

Contrary to the advice of most of the experts consulted and the Service's own release guidelines,

the Southeast Regional Office authorized the release of the calf, along with the other four animals, based on the assumptions that (1) the calf was bonded to its pod mates and would be protected by them after release (although at least one of the experts consulted specifically stated that the other animals in the group, being juveniles, would be unlikely to protect or nurture the calf after the release) and (2) it could be monitored by satellite tag and recaptured if it failed to adapt to life in the wild.

The Commission wrote to the Service on 27 October 2003 expressing concern that, at least with respect to the release of the calf, neither the recommendations of the majority of experts consulted nor the Service's draft criteria for the release of rehabilitated stranded animals were followed. The letter noted that the Commission did not understand why the Southeast Regional Office chose to disregard the release criteria and expert opinion in favor of speculative assumptions about how the animals might fare. The Commission also sought information concerning what criteria, other than the currently established draft criteria, were used by the Southeast Regional Office to determine that the whales were releasable and the basis on which any such alternative criteria were adopted.

The Commission noted that it had been advised that other concerns had been expressed about the rescue and rehabilitation of the whales (e.g., lack of teamwork and disagreements among the personnel involved, the use of the general public to assist in the rehabilitation effort, and disagreements between rehabilitation personnel and the attending veterinarian about how best to diagnose and treat the animals). In addition, the Animal and Plant Health Inspection Service had expressed concerns to the Service about the "specific facilities [at which the animals were maintained], feeding, sanitation, employee/volunteer qualifications, [and] care and handling requirements…" and was investigating whether the facility had violated the Animal Welfare Act by exhibiting the animals without a license during their rehabilitation. The Commission requested additional details from the National Marine Fisheries Service concerning the nature of any problems encountered during the rehabilitation and release effort and the steps that had been taken or were being considered to prevent similar problems from occurring in the future.

The Commission noted that, although there is a statutory directive under the Marine Mammal Protection Act to return stranded animals to the wild when possible, it is tempered by the requirement that such a return be feasible. That is, before authorizing the release, the Service must make an affirmative determination that release is likely to be successful. The Commission noted that, in this case, it appeared that substantial doubt had been raised about the chances of successfully reintroducing at least one of the animals and that, under the statutory scheme, this should have been a sufficient basis for declining to authorize the release of the calf.

The Commission recognized the Service's efforts in supporting and guiding the stranding program but expressed concerned that the Southeast Regional Office's actions in this instance might set an undesirable precedent for future releases of stranded animals. The Commission encouraged the Service to investigate the incident and to finalize the development and implementation of scientifically based, objective criteria for determining at what point rehabilitated marine mammals are returnable to the wild. The Commission also recommended that the Service consider establishing criteria for determining when stranded marine mammals should be brought to rehabilitation facilities in the first instance, recognizing that finite resources available for such efforts should be directed at population-level impacts.

Harbor Porpoises in Puget Sound

Between 2 May and 2 June 2003, fourteen harbor porpoises (*Phocoena phocoena*) and one Dall's porpoise (*Phocoenoides dalli*) stranded on the coast of Washington State. In addition, three harbor porpoises and two Dall's porpoises stranded in British Columbia, Canada, between 22 April and 21 May. Even though this was not deemed to constitute an unusual mortality event, the number of strandings was higher than the annual average for that region. Coincidentally, on 5 May researchers and whale watchers observed killer whales and a minke whale responding in a manner indicating that they had been disturbed by sounds emitted from the U.S. Navy vessel U.S.S. *Shoup*. The researchers and whale watchers recorded the sounds and submitted the recordings, along with similar recordings made on 24 April and 4 May, to the National Marine Fisheries Service. The combination of the strandings and the heightened public awareness of such events led to concern that the strandings were related to the activities of the U.S.S. *Shoup*. Therefore, the Service and the U.S. Navy decided to con-

duct a detailed analysis of the carcasses and the events leading to the strandings. Members of the Northwest Marine Mammal Stranding Network collected 11 of the harbor porpoises and transferred them to the Service's laboratory facilities in Seattle. The Service organized a group of experts to conduct detailed necropsies, including computer tomography (CT) scans, gross pathology, and histopathology. A Commission staff member participated in these necropsies.

At the same time that the Service was conducting the necropsies and follow-up analyses, the U.S. Navy was conducting an examination of acoustic characteristics during the exercises of the *Shoup* and the temporal and spatial relationship of those exercises to the strandings. In addition, researchers had forwarded video recordings of the behavioral responses of killer whales and a minke whale along with acoustic recordings made via a hydrophone to the Service for further analysis. As of the end of 2003 neither the Service's report nor the U.S. Navy's analysis had been released; however, both anticipated releasing their reports early in 2004.

Chapter VII

EFFECTS OF SOUND ON MARINE MAMMALS

Sound is a common element of the marine environment, originating from a variety of natural and human-made sources. Rain, wind, waves, lightning strikes, underwater volcanoes, and earthquakes all produce natural sounds that contribute to the ambient noise in oceans and in some cases may transmit over many miles. Humans introduce sound into the marine environment incidental to activities such as coastal construction, oil and gas exploration and extraction, and shipping. Humans also introduce sound intentionally, using sonars, seismic arrays, and other tools as a way to "see" and better understand the underwater world. The amount of sound in the ocean is increasing as human activities expand and intensify. As sound increases and other habitat features degrade, scientists and the public are increasingly concerned about the potential impacts of anthropogenic sound on marine mammals.

Underwater sounds of both human and natural origin may affect the behavior and, in some circumstances, the survival and productivity of individual marine mammals and the populations they compose. The nature and significance of the effects depend on a number of factors, such as the intensity, frequency, and duration of the sound; the location of the sound source relative to the potentially affected animals and key features of their habitat; whether the sound source is moving or stationary; the species, age, sex, reproductive status, activity, and hearing ability of the animals exposed to the sounds; whether the animals use similar sounds for communication, locating and capturing prey, sensing their environment, etc.; and whether and how frequently the animals have been exposed previously to the sounds.

When the Marine Mammal Protection Act was enacted in 1972, there were no indications that underwater sounds of human origin could adversely affect marine mammals, either directly or indirectly through effects on other ecosystem components. However, by the late 1970s, researchers began to document that marine mammals can be affected in a variety of ways by anthropogenic sounds. Possible effects include deaths due to stranding or physical trauma, as might occur as a result of exposure to high-intensity sounds or blast trauma; permanent or temporary hearing loss; short-term or long-term changes in behavior or physiological condition; and masking of natural sounds used to communicate, find food, or otherwise sense the surrounding environment.

Over the past three decades the issue of how anthropogenic sound may affect marine mammals and their habitat has become highly controversial. Although much has been learned about the effects of anthropogenic sounds on marine mammals and their environment, available information is often insufficient to accurately assess how existing sound sources may be affecting, or how new sound sources may affect, marine mammals and other components of marine ecosystems. Uncertainty about the effects of various sound sources confounds management efforts to provide suitable levels of protection for marine mammals and marine ecosystems while avoiding unnecessary constraints on those activities that generate the sound.

Several federal agencies conduct research to better understand how sound affects marine mammals. The National Research Council's 2003 report, Ocean Noise and Marine Mammals, identified a variety of specific research needs and recommended strategies for addressing gaps in our current understanding of this issue. Those included —

- creating a reference database for existing data on marine sound from anthropogenic sources;
- standardizing data collection and reporting techniques to maximize our understanding of the complex interactions between sound and marine organisms;
- creating a long-term ocean sound monitoring program to examine overall trends in sound levels,

focusing particularly on important marine mammal habitats;

- structuring research to allow better understanding of population-level effects;
- improving our understanding of the abundance and distribution of marine organisms, especially those about which little is known;
- examining biological contributions to the global ocean sound budget;
- improving techniques to examine behavioral responses to sounds, including long-term impacts from increased ambient sound levels;
- identifying long-term stress indicators that could be used to evaluate sound-induced stress in marine mammals;
- evaluating the effects of sound on other components of marine ecosystems;
- improving models to predict the impacts of sound;
- investigating the causal mechanisms of sound-related beaked whale stranding events; and
- developing a global model of ocean sound, including both ambient levels and specific sources.

The report recommended that a single federal agency be mandated to coordinate research efforts, monitoring, and the collection and analysis of existing data. It also pointed out the need for public education and outreach related to this issue.

Several federal agencies funded research in 2003 that addresses these recommendations. The U.S. Navy, which clearly has a need to understand and use sound in the oceans to fulfill its various missions, spent more than $10 million through the Office of Naval Research on research related to the effects of sound on marine mammals in 2003. Similarly, the Minerals Management Service spent approximately $2.3 million on research in 2003 to investigate the effects of seismic studies and other sounds generated by oil and gas industry activities in the Gulf of Mexico. The National Marine Fisheries Service also funded work on the development of noise exposure criteria for marine mammals in 2003.

Additional information about this issue, including discussions of the controversies surrounding certain military activities and geophysical seismic research, is provided in the Commission's previous annual reports. This chapter describes the most notable events in 2003 related to the effects of sound on marine mammals.

Military Sonar

A recent series of mass strandings of beaked whales in the Bahamas, Canary Islands, and Greece have increased concern about the effects of military sonar on beaked whales (Table 11). The most highly publicized of these events occurred in the Bahamas in March 2000 and in the Canary Islands in September 2002. The Bahamas stranding is discussed in detail in the previous annual report. The joint interim report on the event, released by the U.S. Navy and National Marine Fisheries Service in December 2001, concluded that midfrequency tactical sonars were a causal factor in the strandings and eventual deaths of at least six beaked whales. The precise mechanisms leading to the strandings are unknown, as are the impacts on the populations involved.

In September 2002, 15 beaked whales stranded on the coasts of Fuerteventura and Lanzarote Islands in the Canary Islands. The strandings coincided with a NATO naval exercise involving participants from nine nations including one U.S. Navy ship. The sound sources used in the exercise have not been revealed. Results of a pathological study on several of the stranded whales were released by the University of Las Palmas de Gran Canaria and Canary Islands Department of the Environment in 2003. The reports concluded that injuries seen were consistent with acoustic trauma as described in the Bahamas joint interim report. In addition, an October 2003 letter to the journal *Nature* indicated that organs from the stranded animals displayed evidence of gas-bubble lesions. The authors hypothesized that the lesions may represent a form of decompression sickness possibly enhanced by static diffusion induced by sound.

Strandings of beaked whales have been recorded as far back as 1659. Of the more than 50 recorded events since then, only eight involved more than one species (see Table 11). In all of the multispecies cases, naval maneuvers were ongoing in the vicinity of the stranded animals. This association may be merely coincidental, but it also supports the concern that military sonar activities may have caused the strandings. Subsequent single-species strandings coincident with noise-producing activities have increased concerns that anthropogenic sound may be a serious threat to beaked whales.

In May 2003 several harbor porpoises stranded throughout Puget Sound at about the same time that

Table 11. Beaked whale stranding events investigated due to an association with anthropogenic sound; all multispecies events were associated with naval activities

Species Involved (No. of individuals) [Non-ziphiids in brackets]	Location	Date	Sound Source
[*Stenella coeruleoalba* (1)] *Z. cavirostris* (3)	Corsica	December 1974	Naval activities
M. europaeus (1) *Z. cavirostris* (12)	Canary Islands, Spain	February 1985	Naval activities
M. europaeus (1) *Z. cavirostris* (5)	Canary Islands, Spain	June 1986	Naval activities
M. europaeus (1) *Z. cavirostris* (?)	Canary Islands, Spain	July 1987	Naval activities
H. ampullatus (1) [*Kogia breviceps* (2)] *Z. cavirostris* (3)	Canary Islands, Spain	November 1988	Naval activities
M. densirostris (3+) *M. europaeus* (3) *Z. cavirostris* (~19)	Canary Islands, Spain	October 1989	Naval activities
Z. cavirostris (2)	Canary Islands, Spain	December 1991	Naval activities
Z. cavirostris (12–13?)	Greece	May 1996	Naval activities
[*Balaenoptera acutorostrata* (1)] [*Balaenoptera edeni* (?)] [*Balaenoptera* spp. (1)] *M. densirostris* (3) [*Stenella frontalis* (1)] *Z. cavirostris* (8) *Ziphiid* spp. (2)	Bahamas	March 2000	Naval activities
Z. cavirostris (4)	Galapagos Islands, Ecuador	April 2000	Seismic testing
Z. cavirostris (4)	Madeira Islands, Portugal	May 2000	Naval activities
Z. cavirostris (2)	Gulf of California, Mexico	September 2002	Seismic testing
Z. cavirostris (7–11?)	Canary Islands, Spain	September 2002	Naval activities

the U.S.S. *Shoup* was testing its midfrequency sonar in nearby Haro Strait. This event is discussed in Chapter VI of this report.

Seismic Surveying

In September 2002 two Cuvier's beaked whales stranded on the shore of Isla San Jose in the Gulf of California, off Mexico. Just before this stranding event the research vessel *Maurice Ewing*, operated by scientists from the Lamont-Doherty Earth Observatory of Columbia University under a grant from the National Science Foundation, had been using high-intensity (source level 220–263 dB re 1 μPa) air guns in the vicinity of the stranding to study the continental rift zone in the Gulf of California. The timing and location of their research relative to the stranding event suggests that the air gun noise may have caused the whales to strand, although one animal disappeared before a necropsy could be completed, and results from the other animal were inconclusive due to its advanced state of decomposition. The seismic research was temporarily halted at the end of September but resumed about a week later.

On 18 October 2002 the Center for Biological Diversity filed suit against the National Science Foundation to suspend the seismic research that it alleged had led to the deaths of the two whales. The suit claimed that the National Science Foundation had violated the National Environmental Policy Act by failing to conduct the required environmental assessment, and, if required, environmental impact statement. The suit also claimed that the National Science Founda-

tion had violated the Marine Mammal Protection Act by failing to seek incidental take authorizations before its decision to financially support the research. The matter came before the U.S. District Court for the Northern District of California on an expedited basis when the plaintiff filed a motion for a temporary restraining order to halt the research. In its 28 October 2002 ruling granting the requested restraining order, the court found that the plaintiff had met its burden of showing both a likelihood of success on the merits of its claims and the possibility of irreparable harm if the research were allowed to continue. A more detailed account of this course of events can be found in the previous annual report.

Since the court's ruling, several entities conducting seismic surveys for geophysical research have for the first time sought authorizations to take marine mammals incidental to their activities. In 2003 the Lamont-Doherty Earth Observatory applied for and was issued four incidental harassment authorizations for the take of small numbers of several species of marine mammals incidental to geophysical seismic surveys in the eastern equatorial Pacific Ocean, Norwegian Sea, mid-Atlantic Ocean, and northwestern Atlantic Ocean off Bermuda and at year's end had a pending application for similar work in the southeastern Caribbean Sea and adjacent Atlantic Ocean. In October 2003 Scripps Institution of Oceanography was also issued an incidental harassment authorization for the take of small numbers of several species of marine mammals incidental to conducting a marine seismic survey in the eastern tropical Pacific Ocean. In addition, the Minerals Management Service, which regulates U.S. oil and gas exploration and development, proposed in March 2003 the promulgation of regulations under section 101(a)(5)(A) of the Marine Mammal Protection Act that would authorize them to take by harassment small numbers of several species of marine mammals incidental to conducting seismic surveys during oil and gas exploration activities in the Gulf of Mexico. At year's end the National Marine Fisheries Service was awaiting the Minerals Management Service's completion of an environmental assessment for this proposal. Additional information about these permitting and authorization activities, including the Commission's comments and recommendations, are presented in Chapter IX.

SURTASS LFA Sonar

During the Cold War both the United States and the former Soviet Union developed and used passive listening systems to detect and track the movements of submarines. Both countries also developed quieter submarines that cannot be detected and tracked with passive listening systems and alternative systems for detecting and tracking those submarines, including low-frequency active sonar. In the last decade, additional nations have employed the technology.

In July 1996 the Department of the Navy published a *Federal Register* notice announcing its intent to prepare an environmental impact statement on planned operational deployment of a low-frequency active sonar designed to enhance its antisubmarine warfare capability. In July 1999 the Department made available for public comment its Draft Overseas Environmental Impact Statement and Environmental Impact Statement for [its] Surveillance Towed Array Sensor System Low Frequency Active (SURTASS LFA) Sonar. In August 1999 the Navy submitted to the National Marine Fisheries Service a request for authorization, in accordance with section 101(a)(5)(A) of the Marine Mammal Protection Act, to take small numbers of marine mammals incidental to the planned operational deployment of the SURTASS LFA sonar. In October 1999 the Service published in the *Federal Register* an advance notice of proposed rulemaking concerning the Navy's request. These actions and the Commission's responses to them are described in previous annual reports.

In January 2001 the Navy published a final environmental impact statement concerning the planned deployment of the SURTASS LFA sonar. In March 2001 the National Marine Fisheries Service published in the *Federal Register* proposed regulations to authorize and govern the taking of marine mammals incidental to operational use of the sonar. The proposed regulations incorporated by reference the risk analysis and other information included in the Navy's final environmental impact statement. Based on that information and the mitigation measures proposed by the Navy, the Service preliminarily concluded that use of the SURTASS LFA sonar as described in the impact statement would result in the incidental taking of only small percentages of the affected marine

mammal species and populations and that the effects on the distributions, sizes, and productivity of those species and populations would be negligible. Recognizing that certain aspects of the proposed regulations were likely to be controversial, the Service held public hearings in Los Angeles, Honolulu, and at its headquarters in Silver Spring, Maryland, to receive comments on the proposed regulations from the public and interest groups.

Commission representatives attended the public hearing held at the Service's headquarters in May 2001. Most of the members of the public and representatives of interest groups who spoke at the hearing expressed concern about the adequacy of the Navy's environmental impact statement and the measures proposed by the Navy and the National Marine Fisheries Service to avoid or mitigate possible harmful effects on marine mammals. The Commission understands that similar concerns were expressed at the hearings held in Los Angeles and Honolulu in April 2001.

In June 2001 the Commission forwarded comments on the proposed regulations to the Service. Among other things, the Commission noted that the data and analyses provided in the environmental impact statement and referenced in the *Federal Register* notice were insufficient to be confident that the proposed action would affect only small numbers of marine mammals and have only negligible effects on the affected species and stocks. The Commission also pointed out that the "negligible effects" determination was based on a number of assumptions and that the monitoring and mitigation programs proposed by the Navy and tentatively endorsed by the Service appeared insufficient to confirm the validity of the assumptions. The assumptions included the following —

- For injury to occur, "an animal would have to be within the 180-dB sound field at the onset of a transmission, the likelihood of which is similar to that of a ship collision with the animal. The probability of either of these events occurring is nearly zero because of the visual and acoustic monitoring that would be utilized whenever the SURTASS-LFA sonar is transmitting;"
- The studies done to assess the behavioral effects of the SURTASS LFA sonar transmissions on marine mammals provided an adequate and sufficiently comprehensive assessment of the potential behavior effects on all species and under all circumstances even though those studies were limited to four cetacean species thought likely to be particularly sensitive to low-frequency sounds and no animals were exposed in the course of the studies to received levels above 155 dB;
- Possible harmful effects on the hearing and behavior of marine mammals can be avoided by not operating the SURTASS LFA sonar in areas where received sound levels will exceed 180 dB within 12 nmi (22.2 km) of any coastline or within four proposed "biologically important areas" and when marine mammals are known to be within 1 km of the transmitters;
- Seventy to 90 percent of marine mammals within 1 km of the SURTASS LFA sonar transmitters during both day and night operations will be detected using a combination of visual and passive acoustic monitoring and an active high-frequency marine mammal monitoring (HFM3) sonar;
- The HFM3 sonar, which is similar to "fish-finder" sonars used by many commercial fishermen, is unlikely to result in the death, injury, or disruption of a biologically important behavior of any species or age-sex class of marine mammal;
- Uncertainties concerning the possible cumulative effects of the SURTASS LFA sonar will be addressed satisfactorily by a long-term research program being planned by the Navy but not described in either the environmental impact statement or the *Federal Register* notice.

The Commission pointed out that the validity of most, if not all, of these assumptions could be confirmed by expanding the required monitoring and reporting programs and by asking the Navy to specify the research it anticipates conducting to resolve the uncertainties concerning the significance of possible cumulative long-term behavioral effects and the effectiveness of the HFM3 sonar. The Commission recommended that these and a number of related matters be addressed in any final regulations issued by the Service.

The effect of human-generated sounds on marine mammals was one of the topics addressed at a Marine Mammal Protection Act oversight hearing on 11 October 2001. The hearing, held by the House Subcommittee on Fisheries Conservation, Wildlife and Oceans, was structured to receive comments from certain government agencies, the scientific community, and organizations with special interests in the Act and related issues. The Navy's views regarding the SURTASS LFA sonar and related issues were presented in a statement by the Deputy Chief of Naval Operations for Warfare Requirements and Programs.

Among other things, the statement indicated that there is an immediate and critical national security need for the operational deployment of the SURTASS LFA sonar; the impact statement prepared to assess the possible environmental effects of the SURTASS LFA sonar was the most comprehensive and exhaustive, scientifically based impact assessment ever undertaken by the Navy for a major seagoing combat system; extensive peer-reviewed research and risk analyses were done in the process of developing the impact statement and support the conclusion that operational use of the SURTASS LFA sonar will have negligible effects on marine mammals; and following issuance of a small-take authorization by the National Marine Fisheries Service, "the Navy will provide a detailed long-term monitoring plan, which will include —

- Navy and independent scientific analyses of the proposed mitigation measures, including verification of the effectiveness of the HFM3 sonar;
- Careful measurements and modeling of the SURTASS LFA sound field at various depths and ranges prior to and during operations to ensure compliance with the 180 dB geographic restriction and the 145 dB diver criterion;
- Additional research conducted in collaboration with other Navy oceanographic research laboratories and U.S. academia, such as Woods Hole Oceanographic Institution and the Scripps Institution of Oceanography "…to help address the outstanding critical issues on the direct and indirect effects of manmade low-frequency sound on marine mammal stocks."

On 16 July 2002 the National Marine Fisheries Service published in the *Federal Register* a final rule authorizing the taking of marine mammals incidental to the operation of the SURTASS LFA sonar. The Service found, among other things, that such takes will have a negligible impact on the species and stocks of marine mammals and will not have an unmitigable adverse impact on the availability of those marine mammals for subsistence purposes. On 23 July 2002 the Navy published in the *Federal Register* a notice of its final decision to employ two of the SURTASS LFA sonar systems based on its view that these systems are essential for detection of quiet submarines and that if they are to be effective they must be used for training as well as in real combat situations.

Litigation

On 7 August 2002 a coalition of environmental groups (Natural Resources Defense Council, Inc., Humane Society of the United States, Cetacean Society International, League for Coastal Protection, Ocean Futures Society, and Jean-Michel Cousteau) filed suit (*Natural Resources Defense Council* v. *Evans*) against the Navy and the National Marine Fisheries Service to block the deployment of the Navy's SURTASS LFA sonar systems. The plaintiffs alleged several violations of the Marine Mammal Protection Act, the Endangered Species Act, and the National Environmental Policy Act. As discussed in the previous annual report, the U.S. District Court for the Northern District of California granted the plaintiffs' motion for a preliminary injunction on 31 October 2002, finding that plaintiffs were likely to prevail on a number of issues. The injunction was structured to allow the Navy to use the SURTASS LFA sonar in certain regions of the North Pacific Ocean.

The court considered the merits of the lawsuit at a 30 June 2003 hearing and issued its ruling on 26 August. The court found that, although the National Marine Fisheries Service and the Navy had undertaken valuable research and had made commendable progress in complying with the applicable statutes, their efforts did not comply with those laws in certain important ways. Based on those violations, the court issued an injunction against deploying the SURTASS LFA sonar in certain areas. In fashioning the injunction, the court sought to balance the public interest in both military preparedness and the protection of marine life. Under the terms of the injunction, the Navy is permitted to train with and test the SURTSAS LFA sonar under a wide range of oceanic conditions but is precluded from operating in certain sensitive areas where marine mammals are particularly abundant. The injunction extends a coastal buffer zone established by the Navy to include areas beyond 12 miles from shore, including more of the continental shelf. The Navy is also required to avoid certain areas in the deep ocean during seasons when marine mammals, sea turtles, and other protected species are migrating, breeding, feeding, or otherwise clustering there. When the Navy needs to operate close to shore in areas where sea life is abundant, the court directed it to implement additional measures whenever feasible to check for the presence of marine mammals before activating the sonar.

The plaintiffs had alleged that the final rule authorizing the incidental taking of marine mammals violated the Marine Mammal Protection Act in five ways (1) it was not limited to a "specific geographic area," (2) it used an improper definition of "small

numbers," (3) it used an improper definition of "harassment," (4) it would result in more than a negligible impact on marine mammals, and (5) it did not contain sufficient mitigation and monitoring requirements. The court's ruling on each of these points is summarized below.

Specific Geographic Area — The applicable incidental take provision of the Act applies only to activities "within a specified geographical region." The plaintiffs argued that, because the final rule contained no limitation on the number of biomes and biogeographic provinces to which the authorization applied, it did not place any geographical limitation on the deployment of the SURTASS LFA sonar. The court found it troublesome that the Service had chosen to apply the rule to "large areas that undisputedly do not have homogeneous ecological or biogeographical characteristics" but believed that adoption of these areas was not arbitrary or capricious, provided that the Service also carve out locations within those areas, during particular seasons, where marine mammal activities are concentrated so that the effects on marine mammals in those areas would be less disparate. The court nevertheless found the final rule to be flawed in that it did not limit the number of areas in which the Navy could operate the SURTASS LFA sonar in a given year. Without such limitations, the court reasoned, the rule had failed to limit the take of marine mammals to a specified geographic region.

Small Numbers — The Act's small-take provision limits incidental taking authorizations to activities that will result in the taking of "small numbers" of marine mammals. The plaintiffs asserted that the Service had adopted an impermissible definition of "small numbers" by equating it with the level of taking that would have a negligible impact on the affected marine mammal stocks. The court agreed that the agency's decision to conflate these separate elements of the statutory provision under the definition was "flatly inconsistent" with the plain language of the Act. The court ruled that, consistent with Congressional intent, the terms "small numbers" and "negligible impact" must be defined so that each term has a separate meaning.

Harassment Definition — The plaintiffs claimed that the Service's rule had defined Level B harassment in a way that was inconsistent with the statutory definition of that term by specifying that such taking would occur if a "marine mammal has a significant behavioral response to a biologically important behavior or activity." The court found the definition used by the Service in the rule to be inconsistent with the Act's definition in that it seemed to require actual disturbance, rather than a "potential to disturb," which is the statutory threshold. Nevertheless, the court did not believe that use of the erroneous definition had caused any harm to the plaintiffs that would require remedial action.

The second part of the court's analysis of this issue focused on whether the Service had acted impermissibly by specifying that, to constitute Level B harassment, the response must involve "a significant behavioral change in a biologically important behavior or activity." The court believed that this definition was consistent with the statutory definition, which refers to the "disruption of behavioral patterns." In reaching this conclusion, the court noted that the word "disruption" suggested a major or significant change in behavior. It therefore determined that the Service's definition reasonably attempted to distinguish between "mere responses" by marine mammals to the proposed activities and the type of disruption to behavioral patterns that Congress was concerned about when adopting the Act's definition of harassment.

Negligible Impact — The Service may issue a small-take authorization only if it determines that the activities will have a negligible impact on marine mammal stocks. The plaintiffs contended that the Navy's plans to deploy the SURTASS LFA sonar in much of the Pacific Ocean, potentially affecting 12 percent or more of the marine mammals in a particular stock, cannot properly be characterized as a negligible impact. The court noted that, if it were to apply the traditional dictionary definition of the term "negligible" (i.e., inconsequential or not worthy of attention), the plaintiffs would prevail on this issue. However, the court found the defendants' citations to the Act's legislative history, which indicated a contrary intent, to be persuasive. In particular, the court noted that, when the small-take provisions were amended in 1986, the Senate sought to clarify that "[t]he term 'negligible impact' as applied to populations means an impact that cannot reasonably be expected to, and is not reasonably likely to affect adversely the overall population through effects on annual rates of recruitment or survival."

Although finding in favor of the defendants on this point, the court expressed concern that, without more restrictions on deploying the SURTASS LFA sonar in sensitive areas and during sensitive periods, there will be occasions in which the impact to some populations will be more than negligible. The court

therefore determined that strengthening the mitigation measures required under the authorization is necessary to ensure that there will be only negligible impacts.

Mitigation and Monitoring — The Act's small-take provision requires the Service to specify requirements pertaining to the monitoring and reporting of incidental taking and to prescribe methods for "effecting the least practicable adverse impact" on marine mammal species and stocks and their habitat. The plaintiffs asserted that the mitigation measures adopted by the Service (e.g., a 2-km exclusion zone around the SURTASS LFA sonar source, visual and acoustic monitoring, exclusion of nearshore areas and Offshore Biologically Important Areas, etc.) were insufficient to achieve the least practicable adverse impact. The Service countered that the choice of mitigation measures is within its discretion and that it believed additional measures to be unnecessary or impractical. The court cautioned that, although the agency does have some discretion in choosing among possible mitigation measures, it cannot exercise that discretion in a way that vitiates the stringent statutory standard.

The plaintiffs claimed that the 2-km exclusion zone was too small and that the monitoring measures established under the rule would not be as effective as the Service and the Navy contend. They therefore urged the court to require the adoption of additional monitoring measures, including pre-operation visual surveys from helicopters and small craft. The defendants countered that such monitoring was impractical because the SURTASS LFA vessels generally operate in deep water, far from shore and fleet support. The court thought that the defendants had provided adequate justification for not requiring such surveys for operations in deep water, but noted that aerial or small-craft surveys would be practicable when the SURTASS LFA vessels are operating closer to shore. The court further noted that surveys in these areas would be particularly useful because of the higher abundance of marine mammals and the possible presence of topographic features, such as constricted channels, that may present special problems. The court determined that vessel or aerial surveys needed to be conducted when the SURTASS LFA sonar is deployed in areas close to shore during daylight hours and when weather permits to ensure the least practicable adverse impact.

The court also reviewed the adequacy of the exclusion zones adopted under the final rule. The court concluded that the defendants acted arbitrarily and capriciously in failing to extend the coastal exclusion zones beyond 12 nautical miles from shore except in the few instances when nearshore training is necessary and designate additional off-limits areas and Offshore Biologically Important Areas.

The plaintiffs also alleged that the environmental impact statement prepared by the Navy on its deployment of the SURTASS LFA sonar was insufficient to satisfy the requirements of the National Environmental Policy Act. Specifically, they claimed that the statement (1) did not consider a sufficient range of alternatives, such as restricting operations to areas of low marine mammal abundance, and alternatives that included measures to mitigate possible injury to fish, (2) failed to disclose and analyze all of the relevant scientific information, (3) neglected to consider all reasonably foreseeable effects of the SURTASS LFA sonar on recreational divers, and (4) did not take sufficient account of the beaked whale stranding that occurred in the Bahamas in 2000. The court agreed that the environmental impact statement should have considered training in areas that present a reduced risk of harm to marine life and the marine environment when practicable and should have considered extending shutdown procedures beyond marine mammals and sea turtles to schools of fish. The court also ruled that the Navy had impermissibly ignored a study by Great Britain's Defense Research Agency that concluded that fish exposed to low-frequency sonar exhibited avoidance behavior in some species at received levels of 128–135 dB and experienced internal injuries at 160 dB. The court similarly determined that the impact statement should have discussed two other studies that looked at the effects of seismic blasts on fish ears and on fisheries. Conversely, the court found the discussion concerning the potential effects of the SURTASS LFA sonar on recreational divers to be adequate. The court found the possibility that the Bahamas stranding and other incidents associated with military sonar could foretell similar injuries from the deployment of the SURTASS LFA sonar to be troubling. Nevertheless, applying the applicable law, which affords deference to agency experts when there are conflicting technical views, the court found that the Navy need not defer deploying the SURTASS LFA sonar until additional research rules out similar impacts on marine mammals from that sonar.

The plaintiffs also alleged violations of the Endangered Species Act concerning the biological opinions issued under section 7 of the Act. The court

ruled that the National Marine Fisheries Service had originally relied on an invalid definition of what constitutes "adverse modification" of critical habitat and, because of that reliance, had terminated consultation on the effects of the SURTASS LFA sonar on sea turtle critical habitat prematurely. However, inasmuch as the Service had remedied that violation in a subsequent opinion, the issue was determined to be moot.

The plaintiffs claimed that the Service's section 7 consultation had failed to use the best available scientific data, in violation of the statutory requirements. The court determined that the failure on the part of the Navy to provide the Service with the Defense Research Agency study discussed above for consideration during the consultation contravened the best available information standard. Likewise, the court found the biological opinion issued by the Service to be flawed because it had not considered the best available science. The court deferred consideration of other challenges concerning the adequacy of the biological opinion as it pertains to endangered fish species, noting that such questions would be better answered after the agency had considered the required scientific information.

The plaintiffs also challenged the adequacy of the incidental take statements issued in conjunction with the biological opinions, noting among other things that they did not apply to all of the listed species that might be taken. The court found merit in this argument, noting that the defendants had cited no evidence as to why it was impractical to estimate the expected level of taking for these species, including monk seals and gray whales. The court also noted that the defendants' failure or inability to estimate the incidental take of these two marine mammal species also undermined the rationale for making a determination under the Marine Mammal Protection Act that only small numbers would be taken.

The court also considered whether exclusion of some species from the incidental take statement effectively set the level at zero, such that consultation would be reinitiated if a single individual were taken. The court recognized the difficulty in detecting whether listed species have been taken as a result of the SURTASS LFA sonar operations, especially for smaller species such as salmon and sea turtles. The court believed that it was arbitrary and capricious to set the reinitiation trigger at one animal unless the defendants can adequately detect the taking of a single animal. Inasmuch as many exposed animals would be taken at distances of 40 miles from the sound source (where the received level would be as high as 165 dB), the court found this to be unlikely.

A copy of the full ruling in this case can be found at: http://www.cand.uscourts.gov/cand/judges.nsf/16093f71394be84388256d480060b743/ 3484b09c7da7f4ef88256d8e00556f9b?OpenDocument.

Other Litigation

On 31 August 2000 the National Marine Fisheries Service issued a scientific research permit to Peter L. Tyack, Ph.D., authorizing the taking by harassment of various species of cetaceans over a five-year period in the Mediterranean and Ligurian Seas and off the coast of the Azores in the North Atlantic during sound playback experiments. Before issuing the permit the Service prepared an environmental assessment under the National Environmental Policy Act and concluded that issuance of the permit would result in no more than a negligible impact on the marine mammals and other components of the marine ecosystem. The authorized experiments involved exposing cetaceans to received sound levels between 120 and 160 dB to determine whether exposure to certain sounds evokes behavioral responses. The permit also authorized the tagging of focal animals with advanced digital sound-recording tags and the import and export of skin samples collected during suction-cup tag retrieval. The Commission had recommended that the permit be issued.

On 25 July 2001 the Service amended the permit to authorize an increase in the source level of acoustic playbacks to 200 dB re 1 μPa; the conduct of additional acoustic research involving impulse signals from air guns, with a maximum received level of 180 dB re 1 μPa; the tagging of and playbacks to one additional species of baleen whale (Bryde's whale) and three species of odontocetes (pantropical spotted dolphins, spinner dolphins, and Clymene dolphins); and expansion of the study area to include some North Atlantic and Gulf of Mexico waters. This was considered to be a major amendment to the permit. The Commission commented on the proposed amendment on 13 July 2001 recommending approval and noting that, to the extent possible, experimental protocols should mimic the characteristics of the expected source of disturbance as closely as possible to provide the most reliable indication of cetacean responses to anthropogenic sound in the environment; and only if responses observed at a received level of 160 dB are

deemed insignificant should testing at higher levels be considered.

A minor amendment to the permit was issued by the Service on 12 July 2002. That amendment authorized the researcher to use playbacks of the coda sounds of sperm whales as a control stimulus for controlled exposure experiments involving human-made sounds.

A second major amendment to the permit was issued on 25 September 2002. That amendment authorized expansion of the research area to include the entire North Atlantic Ocean, additional research activities on up to 180 North Pacific humpback whales in the vicinity of the Hawaiian Islands; tests of the ability of whale-finding sonars to detect gray whales migrating past the central California coast, and an increase in the maximum source level for such whale-finding sonars from 200 to 220 dB re 1 μPa; an increase in the maximum received level for non–air gun sounds to 180 dB re 1 μPa; and playbacks of the coda sounds of sperm whales as a control stimulus for controlled exposure experiments involving human-made sounds.

On 7 January 2003 a coalition of animal rights and conservation groups filed a lawsuit in the U.S. District Court for the Northern District of California challenging the issuance of the original permits and the amendments thereto (*Hawai'i County Green Party* v. *Evans*). The plaintiffs claimed that the Service had failed to perform the required environmental evaluations under the National Environmental Policy Act and had engaged in a deceptive and hidden administrative process in violation of the National Environmental Policy Act and the Administrative Procedure Act. The plaintiffs sought invalidation of the permit and filed a motion for a temporary restraining order to stop the research pending resolution of the case. The court issued the temporary restraining order on 17 January 2003.

The court granted a permanent injunction on 24 January 2003, partially invalidating the permit. The court ruled that the plaintiffs had proven their claim that the Service had not complied with the National Environmental Policy Act in issuing the two major amendments to the permit, but that the administrative process had been sufficiently open to satisfy the notice requirements of the Administrative Procedure Act.

The Service had contended that, under a categorical exclusion for research permits established under its the National Environmental Policy Act guidelines, it was not required to prepare an environmental impact statement or environmental assessment for the permit amendments. Such exclusions are authorized under regulations issued by the Council on Environmental Quality for categories of actions that do not individually or cumulatively have a significant effect on the human environment. However, categorical exclusions are to provide for extraordinary circumstances in which a normally excluded action may have a significant environmental effect. Under the applicable categorical exclusion, the National Oceanic and Atmospheric Administration identifies six exceptions, including public controversy based on potential environmental consequences and actions that have uncertain environmental impacts or unique or unknown risks. If any of the exceptions apply, the agency is to prepare an environmental impact statement or environmental assessment.

The court found that the environmental assessment prepared by the Service for the original permit was sufficient to satisfy the requirements of the National Environmental Policy Act and upheld the validity of that permit. However, the court further ruled that at least one exception to the categorical exclusion for research permits applied to both major amendments and that assessments should have been prepared for them as well. Specifically, the court determined that the permit amendments involved considerable public controversy regarding their potential environmental consequences. In support of this determination the court noted that the Service itself had acknowledged this controversy, which was cited by the agency as the sole basis for its decision to prepare an environmental assessment beforeissuing the original permit.

Although not relied on as the basis for its decision, the court also suggested that the exception to the categorical exclusion pertaining to uncertain impacts or unknown risks would also be applicable. The court noted that, inasmuch as one of the purposes of the proposed research was to ascertain the effects of certain sounds on the marine mammals, it would be illogical to conclude that exposing the animals to such stimuli did not involve uncertainty regarding the possible environmental consequences.

Consistent with these findings, the court upheld the original permit and the minor amendment but invalidated the two major amendments. Thus, the defendants were ordered to cease all activities authorized for the first time under either of those amendments until such time as it had authorized them under a properly issued permit.

In response to the court's ruling, the researcher applied for a new permit. The application, submitted to the Service in March 2003, requested a five-year authorization to take a variety of marine mammals in the North Atlantic, the Gulf of Mexico, and the Mediterranean Sea, in the course of conducting three sound-related projects. Under the first project, advanced digital sound-recording tags would be attached to a variety of whale and dolphin species to study the baseline behavior of these animals throughout the North Atlantic. Data collected from this project would be used as a control against which the results of the other two projects could be compared. The second project, to be conducted in the Mediterranean Sea, would study the responses of several species of large and small cetaceans to sounds associated with whale-finding sonar and to playbacks of prerecorded coda sounds of sperm whales at received levels of between 120 and 160 dB re 1 μPa rms. The final project would examine the responses of sperm whales in the Gulf of Mexico to air gun sounds at received levels no higher than 180 dB re 1 μPa rms and to playbacks of the coda sounds of sperm whales. The application did not seek authorization for testing whale-finding sonar on gray whales in the Pacific or for tagging humpback whales in the Pacific, which had been included under the permit amendments invalidated by the court.

The Service prepared a draft environmental assessment on the proposed research activities and concluded that issuance of the new permit would not have significant environmental impacts. The draft assessment and the application were provided to the Commission for review and comment. The Commission transmitted its comments to the Service by letter of 23 May 2003, recommending that the permit be issued, provided that tagging activities or exposures to sounds be curtailed or discontinued for any animal that exhibits a strong reaction to those stimuli. The Commission further recommended that, to the extent possible, the experimental protocols should mimic the characteristics of expected sources of disturbance as closely as possible to provide the most reliable indication of cetacean responses to anthropogenic sound in the environment. The Commission also noted that, inasmuch as the purpose of the experiments was to determine if various acoustic signals cause significant responses, the researchers should be authorized to continue the exposure experiments long enough to be confident that any significant responses are not just occasional or rare occurrences but occur commonly or can be reasonably expected. Thus, the Commission supported allowing the researchers to be given some latitude in continuing to expose animals to acoustic stimuli that have previously elicited responses in some animals. Specifically, the Commission suggested that the researchers be allowed to continue the proposed activities until 20 animals (e.g., 10 animals in the second project and 10 animals in the third project) exhibit significant responses.

The Service issued the permit on 3 June 2003, along with the final environmental assessment finding no significant environmental impacts. The Service incorporated most of the Commission's recommendations into the permit but declined to adopt the recommendation to allow exposure experiments to continue after significant responses have been elicited.

Marine Mammal Commission Sound Policy Dialogue

In the Omnibus Appropriations Act of 2003 (Public Law 108-7), Congress directed the Marine Mammal Commission to "fund an international conference or series of conferences to share findings, survey acoustic 'threats' to marine mammals, and develop means of reducing those threats while maintaining the oceans as a global highway of international commerce." In hopes of moving beyond the adversarial interactions that had historically characterized work on this issue, the Commission consulted with the U.S. Institute for Environmental Conflict Resolution about the potential for creating a multistakeholder dialogue focused on addressing the impacts of human-made sound on marine mammals. Through the Institute, the Commission hired a team of neutral conflict-resolution facilitators to help construct and manage such a dialogue process. Between August and November 2003, the facilitation team conducted more than 80 interviews with a variety of interested and affected parties (e.g., those that introduce sound into the marine environment for research, national security, or economic purposes; regulatory agencies; environmental groups; researchers, etc.) to assess the feasibility of productive collaboration and dialogue on this topic. The facilitators found that stakeholders across the various interests welcomed a new forum to discuss the issues in an open and collaborative dialogue, believing that previous efforts had not adequately addressed issues of science, management, and mitigation. The facilitators prepared a report describing their assessment and summarizing key research and policy questions, chal-

lenges to the dialogue process, and other procedural and structural recommendations. The major topics for consideration in the dialogue process were described by the facilitators as (1) assessing the state of knowledge to date, (2) understanding what are the most important substantive questions, (3) prioritizing and planning for how these questions will be addressed in the future, and (4) discussing the policy, management, and mitigation implications for anthropogenic sound activities given the current state of knowledge.

In November 2003 the Commission chartered the Advisory Committee on Acoustic Impacts on Marine Mammals under the Federal Advisory Committee Act. The Committee's stated objectives are to (1) review and evaluate available information on the impacts of human-generated sound on marine mammals, marine mammal populations, and other components of the marine environment, (2) identify areas of general scientific agreement and areas of uncertainty or disagreement related to such impacts, (3) identify research needs and make recommendations concerning priorities for research in critical areas to resolve uncertainties or disagreements, and (4) recommend management actions and strategies to help avoid and mitigate possible adverse effects of anthropogenic sounds on marine mammals and other components of the marine environment. The Commission began selecting Committee members in December 2003. Approximately 28 members will be selected from the various interested or affected stakeholder groups to create as broad and balanced a membership as feasible.

The Committee's first meeting is scheduled for 3–5 February 2004 in Bethesda, Maryland. The Committee is expected to submit its report to the Commission in the spring of 2005, at which time the Commission will prepare a report to Congress.

Chapter VIII

RESEARCH AND STUDIES PROGRAM

The Marine Mammal Protection Act requires that the Marine Mammal Commission maintain a continuing review of research programs conducted or proposed under authority of the Act; undertake or cause to be undertaken such other studies as it deems necessary or desirable in connection with marine mammal conservation and protection; and take every step feasible to prevent wasteful duplication of research. To accomplish these tasks, the Commission conducts an annual survey of federally funded research on marine mammals; reviews and recommends steps that should be taken to prevent unnecessary duplication and improve the quality of research conducted or supported by the National Marine Fisheries Service, the Fish and Wildlife Service, the Minerals Management Service, and other federal agencies; convenes meetings and workshops to review, plan, and coordinate marine mammal research; and contracts for studies to help identify and develop solutions to domestic and international problems affecting marine mammals and their habitats so as to facilitate and complement activities of other agencies.

Workshops and Planning Meetings

In 2003 the Marine Mammal Commission provided comments and recommendations to other federal agencies on a broad range of issues affecting the conservation and protection of marine mammals and marine mammal habitats. The issues included protection and recovery of endangered, threatened, and depleted species; interactions between marine mammals and fisheries; the possible direct and indirect effects of coastal and offshore development on marine mammals; people swimming with and otherwise directly interacting with cetaceans; response to marine mammal strandings and unusual mortality events; public display of marine mammals; applications for scientific research permits; and requests for authorization to take small numbers of marine mammals incidental to a variety of industrial, military, and scientific activities.

Members of the Commission, its Committee of Scientific Advisors, and its staff also helped organize or participated in meetings and workshops to —

- review and recommend actions to update or implement recovery plans for Hawaiian monk seals, Florida manatees, Steller sea lions, and the California population of sea otters;
- facilitate implementation of the Marine Mammal Health and Stranding Response Program;
- prepare for the 2003 meetings of the International Whaling Commission and its Scientific Committee;
- oversee U.S. participation in the Arctic Council and its working groups established to give effect to the Arctic Environmental Protection Strategy;
- identify and coordinate federal agency efforts to resolve uncertainties concerning the possible effects of anthropogenic sound on marine mammals;
- review comanagement needs for certain marine mammal species in Alaska, including polar bears, walruses, and the Cook Inlet stock of beluga whales;
- identify management alternatives necessary to prevent collisions between ships and North Atlantic right whales and entanglement of right whales in fishing gear;
- review and identify management actions necessary to implement the Northwest Hawaiian Islands Coral Reef Ecosystem Reserve;
- review unusual mortality events involving pilot whales, manatees, harbor seals, and beaked whales, and investigations of those events;
- explore integration of the Marine Mammal Commission Compendium of Selected Treaties, Inter-

national Agreements, and Other Relevant Documents on Marine Resources, Wildlife, and the Environment into the National Science Digital Library;

- explore future directions in marine mammal research;
- help define the term biologically significant;
- review proposals to carry out research in the Antarctic;
- examine the issue of ethics and marine mammal research; and
- review the status of marine mammal stocks in U.S. waters.

Commission-Sponsored Research and Study Projects

As funding permits, the Marine Mammal Commission supports research to further the purposes of the Marine Mammal Protection Act. In particular, it convenes workshops and contracts for research and studies to help identify and determine how best to minimize threats to marine mammals and their habitats. Since it was established in 1972, the Commission has contracted for more than 1,000 projects ranging in amounts from several hundred dollars to $150,000. Researchers and studies supported by the Commission in 2003 are described below. Final reports of most Commission-sponsored studies are available from the National Technical Information Service and are posted on the Commission's Web page.

Workshop on Testing of Spatial Structure Models (National Marine Fisheries Service, Southwest Fisheries Science Center, La Jolla, California) — In January 2003 the National Marine Fisheries Service, in cooperation with the International Whaling Commission and the Center for Marine Biodiversity and Conservation at the Scripps Institution of Oceanography, hosted a workshop to review modeling and analytical techniques used to investigate and describe population structure based on genetic and other information. New genetics information, in particular, is changing our understanding of population structure for marine mammals and other wildlife populations. The workshop brought together wildlife experts to devise methods and models for testing and implementing this new information. The Marine Mammal Commission provided support for disseminating the workshop report, which will be available in early 2004.

Small Cetacean Telemetry Workshop (Mote Marine Laboratory, Sarasota, Florida) — Technological improvements have led to an increase in the number of telemetry devices (radio and satellite-linked tags) attached to small cetaceans. These instruments provide new means to address important biological and ecological questions for conservation and management. Most of these devices require extensive testing and species-specific attachment modifications. Improper attachment of tags can mean serious consequences for the health and well-being of the tagged animal and lost opportunities for data collection. In June 2003 the Mote Marine Laboratory hosted a workshop funded by the Marine Mammal Commission to review attachment techniques currently used with small cetaceans, make recommendations regarding suitable tag attachment methods to the wider scientific community, and create a plan of research that would address outstanding questions. Conveners of the workshop brought together field researchers to share information on tag and attachment designs that can reduce adverse impacts. The workshop report should be available in early 2004.

Legal Review of Domestic and International Authorities of the Federal Government to Implement Vessel Speed and Routing Measures to Prevent Ship Strikes of Northern Right Whales (University of Maine Law School, Portland, Maine) — Ship strikes pose a substantial risk to large whales and have impeded the recovery of some populations, particularly the North Atlantic right whale. Extensive vessel traffic, including commercial, recreational, military, and other vessels, regularly traverses waters that are used by right whales for feeding, calving, and migration and that have been designated as critical habitat for them. Although the National Marine Fisheries Service and the U.S. Coast Guard have adopted some regulations regarding vessel operations (e.g., mandatory ship reporting systems and limited approach distances), agencies have differing views as to the best regulatory statutes and processes to impose vessel restrictions on various categories of ships. The Marine Mammal Commission contracted with the University of Maine Law School to (1) provide an analysis of legal authorities for managing domestic and foreign-flag vessels in U.S. waters to reduce the risk of ship strikes, and (2) identify a set of practical steps that can be taken to use existing authority or to augment that authority as necessary. The contractors presented preliminary results of their analysis at the

Commission's 2003 annual meeting. The full report is expected to be completed in 2004.

Workshop on Cetacean Systematics (National Marine Fisheries Service, Southwest Fisheries Science Center, La Jolla, California) — Recent efforts to identify marine mammal populations in need of protection under the Marine Mammal Protection Act and the Endangered Species Act have been confounded by uncertainty regarding the taxonomy of those populations. The Marine Mammal Commission provided funds to the National Marine Fisheries Service, in association with the Center for Marine Biodiversity and Conservation at Scripps Institution of Oceanography, to host a conference on this topic in April 2004. The conference will bring together experts from the fields of morphological, behavioral, and molecular taxonomy. Invited and submitted papers on recent research pertinent to taxonomic classification of cetaceans will be presented and discussed. The workshop will produce a list of recommendations to improve the understanding of variation at the species and subspecies levels. A workshop report should be available in 2004.

Red List of the IUCN/SSC Cetacean Specialist Group (Okapi Wildlife Associates, Quebec, Canada) — IUCN — The World Conservation Union (formerly the International Union for the Conservation of Nature) — includes a Cetacean Specialist Group that evaluates the status of cetacean species and populations on a global basis to identify those that should be placed on the Red List, IUCN's tabulation of the status of species. The Red List program instituted significant changes in 2001 to (1) annually compile and release an updated list, (2) revise listing categories and criteria, and (3) develop a procedure for preparing and publishing documentation to explain and justify listings. Although these changes made the listing process more rigorous, transparent, and meaningful, they increased the amount of work required by the volunteer scientists that compose the specialist group. The Marine Mammal Commission provided funding to the contractor to complete and document new listings and update listings that have not been evaluated for several years. The contractor also will finalize guidelines for application of the Red List criteria for cetaceans. In addition, the contractor will complete proposals to place at least 10 additional species or populations on the Red List. A report summarizing the current status of cetacean listings is expected to be available in 2004.

Software to Estimate the Power of Detecting Changes in Population Size (National Marine Fisheries Service, Southwest Fisheries Science Center, La Jolla, California) — Monitoring changes in abundance is a fundamental goal of many marine mammal research programs. The design of a monitoring program determines the probability that changes in abundance will be detected. The ability to detect changes if they occur is often referred to as "power," and calculations of power can be complex. The Marine Mammal Commission provided funding to the contractor to update and expand current software that calculates the power of monitoring programs. The software will be available on the Internet and therefore can be used by scientists worldwide to assess the effectiveness of their monitoring programs. The software is expected to be available in 2004.

Research and Development of a Genetic Marker for Marine Mammal Conservation Applications (National Marine Fisheries Service, Southwest Fisheries Science Center, La Jolla, California) — The National Marine Fisheries Service is charged with assessing the status of marine mammal populations in U.S. waters. The first step in these assessments involves accurately defining population structure. Traditionally, this has been accomplished with certain microsatellite loci and mitochondrial DNA sequences. However, available "markers" are not sufficient to describe stock structure for some species (e.g., sperm whales in the North Pacific) with low mtDNA variability. The Marine Mammal Commission funded the contractor to develop and implement methods for rapid single nucleotide polymorphisms (SNP) locus screening in marine mammal species and to test this new technology on two sperm whale populations. SNPs have been used successfully in human and model organism genetic studies but have not yet been applied to marine mammals. The contractor will identify the novel loci, compile a database of marine mammal DNA sequences, and make it available to the public through the Internet.

Development of a Volunteer Network to Promote Recovery and Conservation of Hawaiian Monk Seals in the Main Hawaiian Islands (National Marine Fisheries Service, Pacific Islands Regional Office, Honolulu, Hawaii) — In recent years, the number of Hawaiian monk seals hauling out and pupping in the main Hawaiian Islands has increased. The increase raises promising new prospects for the species' recovery yet poses new management

challenges to reduce potential conflicts with humans. Based on recommendations from a workshop sponsored by the Marine Mammal Commission, the National Marine Fisheries Service, and the Hawaii Division of Aquatic Resources, the Commission provided funds to the Service to promote the conservation and recovery of the Hawaiian monk seal in the main Hawaiian Islands. Specifically, the Service will develop and support a network of responders and observers who will coordinate with appropriate government agencies to provide protection of monk seals in the main Hawaiian Islands; improve the collection of biological information on monk seals in the main Hawaiian Islands; and work with interested parties, including state and local governments and volunteers, to determine the most effective requirements to support monk seal conservation. A report on this effort will be provided to the Commission at the end of 2004.

Use of Scats and Spews to Assess the Diet of the Hawaiian Monk Seal (Bishop Museum, Honolulu, Hawaii) — Hawaiian monk seal populations in the Northwestern Hawaiian Islands have declined since the first assessment of the overall population in the 1950s. Decreased food availability is a potential factor in some of these declines, particularly over the past decade. Food availability may have decreased as a result of naturally reduced productivity around the Northwestern Hawaiian Islands, competition with commercial fisheries, or some combination of the two. In the early 1990s, the results of studies involving the analysis of scats and spews of monk seals provided valuable insight into the diet of the Hawaiian monk seals. However, changes in diet need to be evaluated over a longer time scale, and collection protocols have been modified to emphasize collections of scats and spews from animals of known age and sex. The Marine Mammal Commission funded researchers at the Bernice Pauahi Bishop Museum to identify the relative importance of different prey species in the diet of monk seals and assess factors contributing to variation in prey consumption based on analyses of scats and spews. The museum will develop a reference collection of hard parts removed from scats and spews, complete the processing and sorting of identifiable hard parts of prey collected through the 2002 field season, enter all processing and sorting information into standardized electronic databases, and refine current protocols. A report of this project will be available at the end of 2004.

Determining the Status of Sperm Whales Worldwide: The Cachalot Assessment Program (University of New Hampshire, Durham, New Hampshire) — From the early 1970s to the early 1990s, the Scientific Committee of the International Whaling Commission attempted to determine the effects of recent whaling by assembling and analyzing commercial whaling data. However, in a recent review, the Scientific Committee agreed that its understanding of the status and biology of sperm whales was out of date. In particular, the review indicated that the previous understanding of sperm whale population and social structure may be incorrect. The Marine Mammal Commission provided funds to the contractor to convene a workshop to evaluate new research methods that are revising our understanding of sperm whale biology, population structure and dynamics, and ecological role. The workshop will be held in the fall of 2004, and the contractors will provide a workshop report early in 2005.

Review of the History, Current Status, and Future Prospects of Vaquita Conservation (Okapi Wildlife Associates, Quebec, Canada) — The vaquita is one of the most endangered small cetaceans in the world. The International Committee for the Recovery of the Vaquita (CIRVA) was created in 1997 to provide recommendations for research and management measures needed to recover the species. Bycatch in gillnet fisheries in the northern Gulf of California appears to be the most important source of human-related mortality and the primary source of the decline. A range of options is being considered to reduce bycatch, including banning of gillnets in certain regions of the northern Gulf of California, transitions to other fishery gear types, and buyouts of fishermen affected by recovery measures. Such measures may have important socioeconomic effects, which is confounding recovery planning. Multiple parties are involved in recovery efforts, and coordination of all participants is an essential task. The Marine Mammal Commission funded the contractor to provide a written review of vaquita status and research and management actions taken to date to facilitate recovery. The review is needed to provide all participants a common understanding of previous recovery efforts and progress to date. A draft report will be available at the CIRVA meeting in January 2004 and will be finalized by the end of 2004.

Third Meeting of the International Committee for the Recovery of the Vaquita (CIRVA) (World Wildlife Fund, Washington, D.C.) — The Marine Mammal Commission provided funds to the World Wildlife Fund to convene a third meeting of

CIRVA (see above). The meeting is intended to review progress toward achievement of CIRVA recommendations from 1997, make further suggestions for development of alternative gear types, and consider an overall approach for addressing socioeconomic measures essential to facilitate recovery. Specifically, the meeting would provide environmental and biological information to the designers of alternative fishing gear, provide new data on vaquita mortality in gillnets and consistency between previously published bycatch estimates, and identify sociologists and economists to participate in recovery efforts. The meeting will be held in January 2004 in Ensenada, Mexico, and a report will be available in 2004.

Western Gray Whales off Northeastern Sakhalin Island, Russia: Analysis of Photo-Identification, Behavior and Genetic Data Collected between 1997 and 2003 (Alaska SeaLife Center, Seward, Alaska) — The western gray whale population in the North Pacific Ocean was thought to be extinct in the mid-1900s, but sightings in the 1970s revealed a small population in the Okhotsk Sea. The population numbers only about 100 animals and is one of the most endangered marine mammal populations in the world. The nearshore environment around Sakhalin Island in the Sea of Okhotsk appears to constitute the main foraging habitat for the population. In this region, the population is vulnerable to adverse effects of a number of human activities, including those associated with oil and gas exploration and drilling. The Marine Mammal Commission provided funds to complete a synthesis of data that have been collected over the previous seven years to provide a complete picture of status and trends of the population and the factors affecting them. Specifically, the researchers will determine survival rates and patterns of site fidelity, document the health status of whales, record calf production and calving intervals for reproductive females, determine habitat use, determine sex ratio and population structure, and examine behavioral reactions of whales to seismic surveying and other activities related to oil and gas development. Manuscripts from these analyses will be submitted for peer review in academic journals in 2005.

North Pacific Humpback Whale Studies: SPLASH — Structure of Populations, Levels of Abundance, and Status of Humpbacks (National Marine Fisheries Service, Southwest Fisheries Science Center, La Jolla, California) — Humpback whale populations were depleted by historical whaling and remain listed as endangered. Although in the North Pacific humpback whale populations appear to have increased since the end of commercial whaling, abundance estimates for the species are based on partial information that is outdated. Few data are available regarding population trends for the entire ocean basin. The Marine Mammal Commission provided partial funding, in conjunction with the National Marine Fisheries Service, National Marine Sanctuary Program, National Park Service, Canada Department of Fisheries and Oceans, and Mexico National Institute of Ecology, to conduct a dedicated sampling program that would (1) provide a current estimate of overall abundance for the North Pacific, (2) provide a better understanding of population structure, (3) determine abundances for specific wintering and feeding areas, (4) provide information on trends in abundance, (5) improve understanding of population parameters (e.g., reproductive and mortality rates), (6) identify habitat and characterize habitat use, and (7) identify human impacts. Because this is a multi-year project with many components, several manuscripts are expected to be produced and published in peer-reviewed journals over the next five years.

Future Directions in Marine Mammal Research

As noted in the previous annual report, the Marine Mammal Protection Act has significantly enhanced the conservation of marine mammals and marine ecosystems since its passage in 1972. The eastern North Pacific gray whale has recovered, and a number of other large cetacean species are recovering from whaling-caused declines. In addition, some pinniped species have recovered or are recovering from reductions in the early to mid-1900s. Annual reported dolphin mortality in the eastern tropical Pacific tuna fishery has decreased from hundreds of thousands to less than 2,000. Direct fishery mortality and deliberate human-caused mortality of other marine mammals in U.S. waters also have been reduced by orders of magnitude. Agreements between Alaska Natives and management agencies have begun to incorporate Native traditional knowledge and to involve Native participation in the management of marine mammals. Many marine mammal stocks are being assessed

regularly, providing useful information on their status and on the factors that affect their abundance, life history, and health.

Nonetheless, some old threats to marine mammals persist and some new threats are emerging. In the last decade, significant controversies have developed pertaining to the effects of human activities on marine mammals and marine ecosystems. Those controversies involve effects from human-caused sound introduced into the marine environment, pollution, global climate change, direct and indirect fisheries interactions, harmful algal blooms, coastal development and other forms of habitat modification, and the occurrence of disease.

In August 2003 the Marine Mammal Commission consulted many of the world's leading marine mammal scientists to identify future directions for marine mammal research needed to manage these threats. The purposes were to —

- identify and evaluate threats to marine mammals;
- develop research recommendations to further our understanding of such threats and devise methods to address and mitigate them; and
- generate new, creative, and proactive approaches for resolving issues related to the conservation of marine mammals and their environment.

Participants in the consultation were asked to bear in mind —

- the effects of human population growth and associated economic development;
- the importance of subsistence and cultural uses of marine mammals;
- the values attributed to marine mammals in addition to resource use; and
- the necessity of an interdisciplinary approach to research.

Background papers were prepared and specific research needs were discussed for 10 major areas of concern. Based on the discussions and conclusions of the consultation, the Marine Mammal Commission is preparing recommendations to Congress that are intended to enhance the value of future research conducted in support of the conservation and management goals of the Marine Mammal Protection Act. In addition to a special report to Congress, the Commission is preparing a detailed report of the consultation and an additional publication consisting of the background papers prepared for the meeting.

Chapter IX

PERMITS AND AUTHORIZATIONS TO TAKE MARINE MAMMALS

The Marine Mammal Protection Act places a moratorium, subject to certain exceptions, on the taking and importing of marine mammals and marine mammal products. The Act defines taking to mean "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal." One exception provides for the issuance of permits by either the National Marine Fisheries Service or the Fish and Wildlife Service, depending on the species of marine mammal involved, for the taking or importation of marine mammals for purposes of scientific research, public display, or enhancing the survival or recovery of a species or stock. Amendments enacted in 1994 provide for the issuance of permits to authorize the taking of marine mammals in the course of educational or commercial photography and for importing polar bear trophies from certain populations in Canada. With the exception of those for the importation of polar bear trophies, the Marine Mammal Commission is to review all permit applications.

Another of the Act's exceptions provides for the granting of authorizations by the National Marine Fisheries Service and the Fish and Wildlife Service for the taking of small numbers of marine mammals incidental to activities other than commercial fisheries, provided that the taking will have only a negligible impact on the affected stocks. Small-take authorizations incidental to several such activities are summarized in this chapter.

This chapter discusses the Commission's review of permit applications and authorization requests that it received in 2003. This chapter also discusses information on importation of polar bear trophies and public interactions with marine mammals in the wild.

Permit Application Review

Permits for scientific research, public display, species enhancement, and photography all involve the same four-stage review process (1) either the National Marine Fisheries Service or the Fish and Wildlife Service receives and initially reviews applications from private citizens or organizations, (2) the Service publishes in the *Federal Register* a notice of receipt of the application, inviting public review and comment, and transmits the application to the Marine Mammal Commission, (3) the Commission, in consultation with its Committee of Scientific Advisors, reviews and transmits its recommendation to the Service, and (4) final action is taken by the Service after consideration of comments and recommendations by the Commission, other expert reviewers, and the public. If captive maintenance of animals is involved, the Service seeks the views of the Animal and Plant Health Inspection Service on the adequacy of facilities, animal husbandry and care programs, and transportation arrangements.

Once a permit is issued, the permit holder or the responsible agency can amend it, provided the proposed change meets statutory and regulatory requirements. Depending on the extent of the proposed change, an amendment may be subject to the same notice, review, and comment procedures as the original permit application. The Commission reviews amendments to permits, except those amendments considered under the National Marine Fisheries Service's permit regulations to be of a minor nature (i.e., those that do not extend the duration of the research beyond 12 months, request to take additional numbers or spe-

cies of animals, increase the level of take or risk of adverse impact, or change or expand the location of the research).

Permit Applications and Related Actions

During 2003 the Commission reviewed 26 permit applications to the National Marine Fisheries Service and seven permit applications to the Fish and Wildlife Service. Of the applications received from the National Marine Fisheries Service, 24 were for scientific research, one for commercial/educational photography, and one for public display. All seven applications received from the Fish and Wildlife Service were for scientific research.

In addition, the Commission reviewed 15 permit amendment requests submitted to the Services (10 to the National Marine Fisheries Service and five to the Fish and Wildlife Service). The Commission also reviewed six requests for authorization to proceed with permitted research — four from the National Marine Fisheries Service and two from the Fish and Wildlife Service.

The Services generally adopted the Commission's recommendations concerning these permit requests.

Permit Processing Issues

During 2003 the marine mammal research community expressed concern to Congress that the process for obtaining scientific research permits was becoming increasingly burdensome and subject to lengthy delays. In response, the Marine Mammal Commission considered issues related to permits at its 2003 annual meeting. Based on the presentations made by representatives of the two Services and researchers at the meeting, it appears that at least part of the problem is attributable to insufficient staffing to handle the workload, both in the National Marine Fisheries Service's Office of Protected Resources and the Fish and Wildlife Service's Division of Management Authority. Also, based on the presentations made by the National Marine Fisheries Service, in many cases delays stem not from the requirements of the Marine Mammal Protection Act but from additional reviews and procedures necessitated by the National Environmental Policy Act, which may require preparation of environmental impact statements or assessments, and/or the Endangered Species Act, which may trigger section 7 consultations. Although these analyses provide additional review of the potential environmental effects of proposed research and the anticipated effects on species and habitat listed or designated under the Endangered Species Act, they can be time-consuming. The Service stated that it is exploring ways to streamline and better coordinate these reviews.

As a result of these discussions, the Commission wrote to the National Marine Fisheries Service on 31 December 2003 with a copy to the Fish and Wildlife Service. In its letter, the Commission recommended that the Service —

- explore administrative and legal options for better coordinating and consolidating application processing under the multiple statutes;
- evaluate and, as necessary, restructure the current system for conducting permit-related consultations under the Endangered Species Act;
- develop measures to hasten the preparation of programmatic assessments under the National Environmental Policy Act, either in-house or through contractors;
- revise application instructions for scientific research permits and enhancement permits under the Marine Mammal Protection Act and the Endangered Species Act; and
- consider ways to free the staff to work on scientific research issues (e.g., by transferring captive animal inventory responsibilities to the International Species Identification System, a centralized computer-based information system for wild animal species held in captivity).

The Commission further advised that, to the extent possible, the Service look for ways to streamline and better coordinate the required statutory reviews without undermining their substantive purpose. The Commission noted that even though the requirements vary somewhat under the different statutes, many of the analyses are similar and, as such, the Service should be able to consolidate them into a single process.

Further, the Commission recognized that as a result of the rulings in a number of lawsuits seeking to invalidate research permits, the Service remains vulnerable to challenges based on National Environmental Policy Act compliance. The Commission noted that the Service is preparing some core National Environmental Policy Act documents addressing research on certain species or involving certain research techniques that will enable it to prepare broadly applicable assessments to comply with the National Environmental Policy Act as it reviews individual permit applications, but that the preparation

of these National Environmental Policy Act documents is significantly hampering the agency's ability to process some permits in a timely manner. The Commission suggested, therefore, that in the interim, the Service seek alternative means of complying with the National Environmental Policy Act, such as preparing programmatic environmental assessments or providing a more thorough explanation in its decision documents as to why further National Environmental Policy Act analysis was not needed.

The Commission noted that accomplishing some of these tasks will be difficult without additional funding and personnel for the Office of Protected Resources, particularly its permits division, and indicated its support for the Service's efforts to secure additional resources for these purposes.

Last, the Commission suggested an increased dialogue between the Fish and Wildlife Service and the National Marine Fisheries Service concerning implementation of their permitting programs and urged the agencies to consider developing joint permit regulations and policies. The Commission observed that one pressing need in this regard is to determine how the agencies are going to implement the recent changes to the Marine Mammal Protection Act's definition of "harassment" enacted as part of the National Defense Authorization Act of 2004, which is applicable not only to military readiness activities but to permitted scientific research activities conducted by or on behalf of the federal government.

Permit Application Instructions

A related issue that arose during the discussion of the permit program was the need for the National Marine Fisheries Service to review and revise its current application instructions for scientific research and enhancement permits. In a separate letter dated 31 December 2003 to the Service on this issue, the Commission noted that although the instructions direct the applicant to the pertinent statutory and regulatory provisions, it would be useful if the application itself described the issuance criteria and related the information being sought to the findings the Service must make (i.e., the Service should ask the applicant not only to describe what they intend to do but also to provide an explanation of how that research furthers a bona fide scientific purpose). The Commission noted that, when endangered and threatened marine mammals are involved, the instructions should specify that the applicant needs to address the additional issuance criteria set forth in the Service's permit regulations under the Endangered Species Act. The Commission also noted that the application instructions should be revised to address the statutory criteria for issuing enhancement permits.

General Authorizations

Between six and 16 researchers a year have obtained letters confirming that their activities may appropriately be conducted under a streamlined procedure established by the 1994 amendments to the Marine Mammal Protection Act. The amendment requires that the Services use this "general authorization" for marine mammal research that involves taking only by Level B harassment (i.e., any act of pursuit, torment, or annoyance that has the potential to disturb but not injure a marine mammal or marine mammal stock). Letters of intent do not require a review and comment period and thus are not sent to the Commission for review. However, all letters of confirmation under a general authorization are provided to the Commission for information purposes.

During 2003 the National Marine Fisheries Service issued nine letters of confirmation under the general authorization. For certain types of research, this streamlined process has alleviated delays associated with issuing permits. General authorizations do not apply to activities that may take endangered or threatened marine mammals or exceed Level B harassment as currently defined under the Marine Mammal Protection Act. In testimony before Congress on reauthorization of the Act, the Commission has noted the desirability of expanding the general authorization to apply to such marine mammals. However, because of the controversy involved in proposing any amendments that would concern the Endangered Species Act, such a proposal was not included in the legislative proposals that the Administration submitted to Congress in 2000, 2002, and 2003.

Small-Take Authorizations

As noted earlier, under section 101(a)(5) of the Marine Mammal Protection Act, U.S. citizens may be authorized to unintentionally take small numbers of marine mammals incidental to activities other than commercial fishing when they meet certain conditions. Congress added this provision to the Act in 1981 to provide a streamlined alternative to the otherwise

applicable requirement to obtain a waiver of the Act's moratorium on taking marine mammals. Applicants can use the provision when the number of animals likely to be affected is small and the impacts on the size and productivity of the affected species or populations are likely to be negligible. Congress amended this section of the Act in 1986 to allow the taking of small numbers of depleted, as well as nondepleted, species and populations. All forms of incidental taking, including lethal taking, may be authorized under section 101(a)(5)(A). Congress also added a new subparagraph, section 101(a)(5)(D), to the Act in 1994 to streamline small-take authorizations further if the taking will be by harassment only.

Authorizations under section 101(a)(5)(A) require the promulgation of regulations setting forth permissible methods of taking and requirements for monitoring and reporting, as well as a finding that the incidental taking will have negligible effects on the size and productivity of the affected species or stocks. Authorization of taking by incidental harassment under section 101(a)(5)(D) does not require that regulations be promulgated. Rather, within 45 days of receiving an application that makes the required showings, the Secretary of Commerce or the Interior is to publish a proposed authorization and notice of availability of the application for public review and comment in the *Federal Register* and in newspapers and by appropriate electronic media in communities in the area where the taking would occur. After a 30-day comment period, the Secretary has 45 days to make a final determination on the application. The Secretary may issue authorizations under section 101(a)(5)(A) for periods up to five years. The Secretary may issue authorizations under section 101(a)(5)(D) for periods up to one year. Both types of authorizations may be renewed.

Authorizations under Section 101(a)(5)(A)

During 2003 the Service received four requests for small-take authorizations under section 101(a)(5)(A), as discussed below.

Naval Air Weapons Station — The Naval Air Weapons Station submitted a petition for regulations to the National Marine Fisheries Service on 23 October 2002. On 11 March 2003 the Service published a notice in the *Federal Register* requesting comments on its proposal to promulgate regulations under section 101(a)(5)(A) that would allow the Naval Air Weapons Station, China Lake, California, to take by harassment small numbers of northern elephant seals, harbor seals, and California sea lions on San Nicolas Island, incidental to target missile launch operations over five years, beginning in August 2003.

The Commission reviewed the *Federal Register* notice and the applicant's petition and provided comments to the Service on 21 March 2003. The Commission expressed its support for the publication of the proposed small-take regulations, provided that the mitigation and monitoring activities described in the Naval Air Weapons Station's petition be incorporated. The Commission noted that its comments on the Navy's previous authorization requests had included the recommendation that the Service consult with the Navy to determine whether it would be appropriate to seek a more comprehensive, five-year authorization for harassment and other possible types of taking under section 101(a)(5)(D) of the Act rather than separate one-year authorizations.

On 9 May 2003 the Service published a notice in the *Federal Register* requesting comments on proposed regulations under section 101(a)(5)(A) that would allow the taking as requested by the Naval Air Weapons Station.

By letter of 24 June 2003 the Commission recommended issuance of small-take regulations for the proposed activities, provided that the mitigation and monitoring activities described in the Service's proposed rule and the Naval Air Weapons Station's petition for regulations were incorporated. The Commission noted that the proposed rule requires that mitigation measures be followed when "operationally practicable" and that the applicant also states that mitigation measures will be adopted "…provided that doing so will not compromise operational safety requirements or mission goals." The Commission recommended that the Service's final rule should explain (1) what is meant by the term "operationally practicable," and (2) given that caveat, how the proposed mitigation measures satisfy the requirement of section 101(a)(5)(A)(ii)(I) that the activity will result in the least practicable adverse impact on the subject species or stocks and their habitat. The Commission further noted that the Service was attempting to modify the statutory language of the Marine Mammal Protection Act regarding harassment to be only activities that pose "biologically significant disturbance" ("…a disturbance of a behavior pattern that has the potential to have an effect on the reproduction or survival of the animal or the species…"). The Commission reiterated its view, as expressed in previous letters to the Service (7 December 2000, 26 January 2001, 7

February 2001, and 6 August 2002), that the Service's proposed modification is contrary to the existing statutory definition of harassment.

On 2 September 2003 the Service published a final rule under section 101(a)(5)(D) authorizing the Naval Air Weapons Station to take small numbers of marine mammals incidental to missile launch operations from San Nicolas Island. In response to the Commission's question concerning the term "operationally practicable," the Service noted that mitigation requirements cannot be unconditional and that some tests may require night missile launches or launching in quick succession, etc. In regard to the requirement that mitigation measures result in the least practicable adverse impact on the subject species or stocks and their habitat, the Service stated that the measures proposed by the applicant have been in place under previous and current incidental harassment authorizations for this activity, and that the Service is unaware of additional measures that could be imposed. As to limiting the statutory definition of Level B harassment to activities that pose biologically significant disturbance, the Service noted that it does not consider reactions such as a pinniped assuming an alert posture by raising its head or exhibiting other minor body movements to be Level B harassment because these kinds of behaviors are not disruptions of a biologically important behavior pattern. In contrast, sounds that cause some or all of the animals to move along the beach or leave a haul-out beach for the water would be harassment because there is a disruption of haul-out activities.

Minerals Management Service — On 3 March 2003 the National Marine Fisheries Service published a notice in the *Federal Register* requesting comments on its proposal to promulgate regulations under section 101(a)(5)(A) that would authorize the Minerals Management Service to take by harassment small numbers of sperm whales and several other marine mammal species in the Gulf of Mexico incidental to conducting seismic surveys during oil and gas exploration activities over a five-year period.

The Commission provided comments to the Service on 3 April 2003, expressing the view that the Service's intent to publish the proposed small-take regulations was appropriate. The Commission noted its understanding that the Minerals Management Service, in cooperation with the Office of Naval Research, is currently conducting a three-year study to collect information on habitat use and the behavior of sperm whales in the Gulf of Mexico and the short- and long-term behavioral responses of the species to seismic air guns. The Commission also noted that if the National Marine Fisheries Service proceeded with the subject rulemaking, the Minerals Management Service should monitor the results of that research throughout the duration of the taking authorization to ensure that the determinations made during the rulemaking are correct.

At the end of 2003 the Service was awaiting the applicant's completion of an environmental assessment.

Alaska Oil and Gas Association — On 25 July 2003 the Fish and Wildlife Service published a notice in the *Federal Register* requesting comments on proposed regulations under section 101(a)(5)(A) that would allow the Alaska Oil and Gas Association to incidentally take small numbers of polar bears and Pacific walruses incidental to year-round oil and gas industry exploration, development, and production operations in the Beaufort Sea and adjacent northern coast of Alaska over a period of approximately 16 months.

The Commission reviewed the *Federal Register* notice and the applicant's petition and provided comments to the Service on 29 August 2003. The Commission stated that many of its concerns with regard to the proposal were similar to those expressed in its 7 January 2000 letter concerning the Service's previous rulemaking for this activity (e.g., the evaluation of the geographic scope of potential impacts, the potential impacts on the availability of marine mammals to subsistence hunters, the potential impacts on walruses and polar bears, the analysis of cumulative impacts, and the proposed mitigation and monitoring measures). The Commission recommended that —

- the Service establish a mechanism to evaluate and, if appropriate, authorize the incidental taking of marine mammals resulting from activities associated with, but occurring outside of, the geographic location of the proposed oil and gas exploration, development, and production (e.g., ship traffic that supplies industry operations in the Beaufort Sea passes through the Bering and Chukchi Seas where there are many walruses and polar bears that may be taken);
- before finalizing the regulations, the Service conduct a thorough analysis of possible impacts of oil and gas activities on the availability of polar bears to the village of Nuiqsut;

- the Service modify its oil spill risk assessment to properly reflect the assumptions and uncertainties concerning the effects of oil spills on walruses and polar bears. The Commission does not believe that a reliable risk assessment can be done by combining a potentially biased estimate of polar bear mortalities with a highly uncertain estimate of the probability of a spill occurring. Modeling techniques are available to evaluate sensitivity to bias and to incorporate uncertainty into model projections;
- in the process of developing a longer-term rule for allowing incidental take by industry, the Service do a complete analysis of possible cumulative impacts on polar bears and walruses. As part of that analysis, the Service should describe the monitoring programs that are in place, or would be needed, to detect and measure changes in population parameters that could be caused by such cumulative impacts;
- the Service describe the mitigation measures that will be required for industry to minimize impacts to polar bears be included in the final regulations;
- before authorizing future incidental takes of polar bears from the Beaufort Sea population, the Service, if it has not already done so, develop and implement a monitoring program that has sufficient resolution to detect changes in vital parameters such as might be reasonably expected to occur.

On 28 November 2003 the Service published a final rule authorizing the incidental, unintentional take of small numbers of polar bears and Pacific walruses during year-round oil and gas industry exploration, development, and production operations in the Beaufort Sea and adjacent northern coast of Alaska. With respect to the Commission's recommendations, the Service noted that —

- establishing a mechanism to evaluate and authorize the incidental taking of marine mammals resulting from activities associated with, but occurring outside of, the geographic location of the proposed regulation goes beyond the scope of the rule and beyond the petitioner's request but that if concerns for the potential takes associated with industry support activities beyond the current geographical area of the regulations increase in the future, the Service may consider the issue elsewhere;
- it has considered the issue of possible impacts of oil and gas activities on the availability of polar bears to the village of Nuiqsut and, based on the results of coastal aerial surveys conducted within the area during the past three years, upon direct observations of polar bears occurring on Cross Island during the village of Nuiqsut's annual fall bowhead whaling efforts, and upon anecdotal reports of Nuiqsut residents, finds that the total taking of polar bears will not have an unmitigable adverse impact on the availability of that species to Nuiqsut residents for subsistence uses during the duration of the regulation;
- the oil spill risk assessment represents the best available methodology, is a marked improvement from the previous lack of information on the topic, and the Service is working to improve the model for future use;
- it agrees that a complete analysis of cumulative effects on polar bears and walruses is needed, and it is currently accumulating information for consideration in a future longer-term rule;
- it revised the regulations to include those mitigation measures that may be required as conditions of Letters of Authorization to ensure that the total taking of polar bears and walruses will have a negligible impact on those species and will not have an unmitigable adverse impact on the availability of those species for subsistence uses during the duration of the regulation;
- it convened a small workshop of technical experts on 3–5 September 2003 to consider research, studies, and monitoring that would improve the understanding of the effects of oil and gas activities on polar bears, the proceedings of which will detail the various information, monitoring, and research needs. The Service concurred that developing a comprehensive research and monitoring program capable of developing information of sufficient resolution to detect changes in population rates of recruitment and survival is a formidable task and a worthy goal.

30th Space Wing, U.S. Air Force — On 28 May 2003 the Service issued an incidental harassment authorization under section 101(a)(5)(D) to the 30th Space Wing, U.S. Air Force, to take small numbers of seals and sea lions incidental to space vehicle and test flight activities from Vandenberg Air Force Base, California, from 1 June through 31 December 2003. In August 2003 the 30th Space Wing submitted an application under section 101(a)(5)(A) for authorization to conduct this activity over five years (between 1 January 2004 and 31 December 2008). On 19 September 2003 the National Marine Fisheries Service published a notice in the *Federal Register* requesting comments on its intention to propose regulations under section 101(a)(5)(A) that would authorize the incidental taking for five years.

The Commission reviewed the *Federal Register* notice and the applicant's petition and provided comments to the Service on 4 November 2003. The Commission expressed its support for the Service's intent to publish the proposed small-take regulations, provided that the mitigation and monitoring activities described in the Naval Air Weapons Station's petition for regulations be incorporated. On 3 December 2003 the Service published a notice in the *Federal Register* requesting comments on the proposed regulations under section 101(a)(5)(A) that would allow the taking requested by the 30th Space Wing.

By letter of 22 December 2003 the Commission recommended issuance of small-take regulations for the proposed activities, provided that (1) the mitigation and monitoring activities described in the Service's proposed rule and the Naval Air Weapons Station's petition are incorporated into the rule, (2) acoustic and biological monitoring be conducted on new space and missile launch vehicles during at least the first launch and during the first three launches of the Atlas V and Delta IV space launch vehicles (Evolved Expendable Launch Vehicle program), whether or not the launches occur during the harbor seal pupping season, (3) continuation of the research program being carried out under research Permit Number 859-1680 is made a condition of the rule, and (4) the authorized activities be suspended, pending review, if there are any indications that the activities covered by the rule may be causing marine mammal mortalities or injuries or are affecting the distribution, size, or productivity of the potentially affected populations.

Issuance of the proposed rule was pending at year's end.

Authorizations under Section 101(a)(5)(D)

During 2003 the National Marine Fisheries Service received 12 applications for incidental take authorizations under section 101(a)(5)(D) of the Marine Mammal Protection Act. The Service issued authorizations for 11 applications as well as for six applications received during 2002. The Fish and Wildlife Service received no applications for incidental take authorizations in 2003.

Conoco Phillips Alaska, Inc. — On 30 December 2002 the National Marine Fisheries Service published a notice in the *Federal Register* regarding a request from Conoco Phillips Alaska, Inc. for authorization to take small numbers of ringed seals and bearded seals incidental to conducting on-ice seismic operations during oil and gas exploration activities in the U.S. Beaufort Sea off Alaska during the winter of 2002–2003.

The Commission reviewed the *Federal Register* notice and the application and provided comments to the Service on 21 February 2003. The Commission concurred with the Service's preliminary determination that the short-term impact of the proposed activities in the Beaufort Sea would result, at most, in a temporary modification in the behavior of ringed seals and possibly a few bearded seals, provided that before commencing on-ice seismic surveys after mid-March, a survey using experienced field personnel and trained dogs be conducted to identify potential seal structures along the planned on-ice seismic transmission routes. The Commission reiterated its belief that the use of trained dogs is the only reliable method for locating ringed seal lairs and other structures. The Commission recommended that the applicant conduct surveys to a distance of 150 m on each side of all transit routes and that this be made a requirement of the incidental harassment authorization. Further, the Commission recommended that should a mortality or serious injury of a seal occur, the authorization specify that operations be suspended while the Service determines whether steps can be taken to avoid further injuries or mortalities or whether an incidental take authorization under section 101(a)(5)(A) to cover such taking is needed. In addition, the Commission expressed concern that the cumulative impacts of such activities in combination with similar activities being carried out elsewhere in the Beaufort Sea may, at some point, have more than negligible impacts on marine mammal populations. The Commission therefore recommended that the applicant expand the monitoring programs for such activities to enable the Service to assess whether and, if so, the extent to which long-term, cumulative effects may be occurring. The Commission noted that information to be gathered from such a monitoring plan should include data on potential changes in density and abundance of potentially affected marine mammals, reproductive rates, foraging patterns, distribution, and contaminant levels where oil and gas exploration, development, and production occur.

The Service issued an incidental harassment authorization to Conoco Phillips Alaska, Inc. on 19 March 2003. In response to the Commission's comments, the Service noted that the applicant would use trained dogs for any offshore on-ice testing that took place after 20 March 2003 in waters of 3 m or deeper. The Service disagreed, however, that monitoring

by humans, as an alternative to monitoring by dogs, should be deferred until it has been demonstrated that such monitoring is as effective as that carried out using dogs. The Service stated that because of limited availability, trained dogs should first be made available to activities that have the greatest potential for injury or mortality to ringed seals and/or their young, such as construction of ice roads. The Service noted that the requirement that the applicant conduct surveys 150 m on each side of all transit routes had been included in the incidental harassment authorization. With respect to the serious injury or mortality of ringed seals or other marine mammal species, the Service noted that such taking is prohibited under the incidental harassment authorization, and such incidents must be reported to the Service's Regional Administrator immediately. Concerning potential cumulative impacts, the Service stated that under section 101(a)(5)(D) there is no requirement that the applicant conduct monitoring to determine whether all activities in the subject area (i.e., the Beaufort Sea) might some day have a significant cumulative impact on marine mammals. The Service noted, however, that the applicant's proposed monitoring plan was peer-reviewed and accepted by the participants at a workshop on the impacts of on-ice activities on marine mammals. The Service stated that, based on the conclusion of workshop participants and on the information obtained from past multifaceted government and government-funded research and monitoring programs, it had determined that the monitoring programs for both open-water and wintertime activities are adequate to identify impacts on marine mammals, both singly from the project and cumulatively throughout the industry.

U.S. Coast Guard — On 6 February 2003 the National Marine Fisheries Service published a notice in the *Federal Register* regarding a request from the U.S. Coast Guard to take small numbers of California sea lions and Pacific harbor seals incidental to the installation of a new floating dock in Monterey, California. The Service stated its preliminary determination that the effects of the proposed activities would be limited to short-term startle responses and localized behavioral changes (i.e., Level B harassment) by small numbers of the subject species and would have no more than a negligible impact on these marine mammal stocks.

The Commission reviewed the *Federal Register* notice and the application and provided comments to the Service on 21 March 2003. The Commission concurred with the Service's preliminary determination and with the mitigation and monitoring measures that would be required by the Service to ensure that the planned activities would not result in the mortality or serious injury of any marine mammal. The Commission therefore recommended that the requested authorization be issued. The Service issued the incidental harassment authorization to the U.S. Coast Guard on 30 April 2003.

U.S. Army Corps of Engineers — On 19 February 2003 the National Marine Fisheries Service published a notice in the *Federal Register* regarding a request from the U.S. Army Corps of Engineers – Jacksonville District to take small numbers of bottlenose dolphins incidental to underwater dredging and blasting activities related to deepening the Dodge–Lummus Island Turning Basin in Miami, Florida. The Service stated its preliminary determination that bottlenose dolphins may modify their behavior to avoid the acoustic and visual disturbance, including temporarily vacating the area; however, such behavioral changes are expected to be short term. The Service further stated that no take by injury or death was anticipated and that taking by harassment should be at the lowest level practicable due to incorporation of the mitigation measures proposed in the Service's *Federal Register* notice. Consequently, the Service preliminarily concluded that the proposed action would have a negligible impact on the subject animals.

The Commission reviewed the *Federal Register* notice and the application and provided comments to the Service on 4 April 2003. The Commission noted that little is known about blast trauma in marine mammals and that for terrestrial mammals blast trauma has been shown to be dependent on the spectral energy in the blast wave as well as the peak sound pressure level. The Commission noted that it appeared from the *Federal Register* notice that the formulas for determining the caution and safety zones were based on theoretical considerations and modeling of the sound/pressure levels to which animals would be exposed. The Commission therefore recommended that the applicant should be asked to collect empirical data during its operations that could be used to assess the accuracy of the model. The Commission noted that if survey data concerning the numbers of dolphins and other marine mammals in, and their use of, the Dodge–Lummus Island Turning Basin area are available, the applicant should provide it to the Service. If not, the Commission suggested that the Service require that the applicant conduct such surveys before

initiating the proposed activities. The Commission also noted that manatees have been observed in the subject area and that the Service should advise the applicant that authorization for taking of this species would be needed from the Fish and Wildlife Service. The Commission added that it was not clear from the notice when activities would be delayed based upon the presence of a marine mammal and that it would seem that either (1) detonations should be prohibited whenever marine mammals are sighted within the safety zone (3,750 ft.), or (2) the Service and/or applicant should explain why this would not be practicable. With those caveats, the Commission stated that it viewed the Service's preliminary determinations as reasonable, provided that —

- before authorizing the activity, the Service review and approve the applicant's blasting plan, including the maximum weight of the explosives that will be used for each explosive event, the number of holes that will be drilled, the amount of explosive that will be used for each hole, the number of blasts per day, and the number of days the construction is anticipated to take to complete, to ensure that it is within the ranges of the project provided by the applicant to the Service as an example; and
- the mitigation and monitoring activities proposed in the application and the Service's *Federal Register* notice are carried out as described, and that the proposed monitoring activities are adequate to detect any marine mammals that may be within the danger or caution/safety zones calculated for a particular explosion.

Finally, the Commission reiterated its concerns that an across-the-board definition of temporary threshold shift (TTS) as constituting not more than Level B harassment inappropriately dismisses possible injury and biologically significant behavioral effects (e.g., an increased risk of natural predation or ship strikes) that can result from repeated TTS harassment and from the cumulative effects of long-term exposure. The Commission again recommended that TTS be considered as having the potential to injure marine mammals (i.e., Level A harassment).

On 22 May 2003 the Service issued an incidental harassment authorization to the U.S. Army Corps of Engineers – Jacksonville District. In response to the Commission's comments, the Service stated that acoustic measurements, although helpful, would be too expensive relative to the proposed single blasting project; surveys would be conducted both before and after blasting; the applicant provided population survey data collected by the Service's Southeast Fisheries Science Center; the Corps completed consultation with the Fish and Wildlife Service for the proposed project on 19 June 2002, which determined that manatees were not likely to be adversely affected by the proposed activities; and that the National Marine Fisheries Service has addressed the Commission's concern about the definition of TTS in previous small-take authorizations and believes that the scientific information available supports the Service's determination that TTS results in Level B harassment, rather than Level A harassment.

Lamont-Doherty Earth Observatory — During 2003 the Lamont-Doherty Earth Observatory applied to the National Marine Fisheries Service for several incidental harassment authorizations under section 101(a)(5)(D) to take by harassment small numbers of marine mammals during oceanographic studies in various geographic areas. In most cases, Lamont-Doherty operates the R/V *Maurice Ewing* in partnership with research scientists from many universities throughout the country. Scientists use seismic arrays deployed from the *Ewing* to study subsea rock strata.

In September 2002 scientists not affiliated with the Lamont-Doherty project inadvertently located two Cuvier's beaked whales stranded in the vicinity of where researchers aboard *Ewing* were conducting seismic research in the Gulf of California. Environmental groups challenged whether the National Science Foundation (the funding agency) and National Marine Fisheries Service had violated the Marine Mammal Protection Act and National Environmental Policy Act by failing to obtain an incidental take authorization and by not preparing an environmental assessment or an environmental impact statement. The U.S. district court held for the plaintiffs. (See Chapter VII for additional discussion.)

Subsequent to this litigation, Lamont-Doherty decided to obtain incidental harassment authorizations from the Service for each research cruise in 2003. Of the eight requests for authorization submitted during the year, the Service has published notice in the *Federal Register* for seven; one was pending at the end of 2003. The Service has issued five incidental harassment authorizations; three were pending at year's end (see Table 12).

Each cruise involved essentially the same mitigation and monitoring plans (i.e., two trained marine mammal observers on duty during daylight, gradual ramp-up to full power of the seismic array, powering

Table 12. Lamont-Doherty Earth Observatory incidental harassment authorizations in 2003

Research Cruise	*FR* Notice	Permit Status	Cruise Status
Gulf of Mexico Calibration	11 April	Issued 23 May	28 May–2 June
Hess Deep (Equatorial Pacific)	11 April	Issued 3 July	6–27 July
Storegga Slide (off Norway)	28 July	Issued 28 August	29 Aug.–26 Sept.
Mid-Atlantic Ridge	19 September	Issued 23 October	30 Oct.–5 Nov.
Bermuda	21 October	Issued 13 November	Cancelled
Caribbean Sea (Trinidad and Tobago)	21 October	Pending	Delayed
Yucatán	16 December	Pending	Delayed
Northern Gulf of Mexico	Pending		

down the air guns if marine mammals come within an area near the ship where the received levels would exceed 180 dB (rms) for cetaceans and 190 db (rms) for pinnipeds. (See the previous annual report for details.)

The Commission commented on the Service's preliminary determinations and proposed mitigation for the research cruises. In each case, the Commission agreed with the Service that the activities were likely to pose no more than Level B harassment and a negligible impact on the stocks provided the proposed mitigation and monitoring activities were conducted in ways that would adequately detect marine mammals near the vessel when the seismic air gun array was operating. The Commission was particularly concerned about the ability of observers to detect marine mammals that swim within the zone of sound that exceeds 180/190 dB (rms) because some marine mammals may remain submerged on dives for almost an hour and would be largely undetectable. The only reliable means of detecting and locating the animals is observing them at the surface. That is difficult during the daytime and nearly impossible at night. Accordingly, the Service has not required Lamont-Doherty Earth Observatory or other seismic operators to post marine mammal observers at night as a condition of the authorizations. Rather, the Service required that two observers using night-vision devices monitor for marine mammals within the safety zone for 30 minutes before any nighttime start-up of the air guns. The individual cruises are discussed below.

Gulf of Mexico Project — On 11 April 2003 the Service published a notice in the *Federal Register* regarding a request for authorization to take by harassment small numbers of up to 28 species of cetaceans incidental to measuring seismic sounds at various distances from the R/V *Maurice Ewing* to verify safety radii that have been estimated by acoustical models. The experiments were to be conducted in late May and early June in the Gulf of Mexico.

The Commission, in consultation with its Committee of Scientific Advisors, reviewed the *Federal Register* notice and the application and provided comments to the Service on 24 April 2003. The Commission agreed that the Service's preliminary determinations were reasonable, provided that the proposed mitigation and monitoring activities were conducted as described in the Service's *Federal Register* notice and the application. The Commission recommended that the Service grant the authorization. The Service issued an incidental harassment authorization to Lamont-Doherty Earth Observatory on 23 May 2003.

During the cruise (28 May to 2 June), observers were on duty 61 hours and made seven sightings of cetaceans. Although most of the sightings occurred when the air gun arrays were not operating, the low sample size prevents making a determination as to whether a statistical difference existed between observations when the arrays were operating or not. No marine mammals were observed within the 75-m marine mammal safety zone.

Eastern Equatorial Pacific Ocean Project (Hess Deep) — On 11 April 2003 the Service published a notice in the *Federal Register* proposing to issue a one-year incidental harassment authorization for the take of small numbers of several species of cetaceans and pinnipeds incidental to oceanographic surveys in the Hess Deep area in international waters of the eastern equatorial Pacific Ocean. The Service stated its preliminary determination that the effects of the proposed activities would be limited to short-term startle responses and localized behavioral changes (i.e., Level B harassment) by small numbers of the

subject species and would have no more than a negligible impact on these marine mammal stocks.

The Commission reviewed the *Federal Register* notice and the application and provided comments to the Service on 23 May 2003. The Commission agreed that the Service's preliminary determinations were reasonable, provided that the Service was satisfied that the proposed mitigation and monitoring activities are adequate to detect marine mammals in the vicinity of the proposed operations and ensure that marine mammals are not being taken in unanticipated ways or numbers. The Commission recommended that, before granting the requested authorization, the Service request clarification of the provisions concerning nighttime monitoring and whether activities can be suspended before received levels of 180 and 190 dB (rms) are reached; whether vessel-based passive acoustic monitoring would be conducted at all times to detect, locate, and identify marine mammals; and whether conducting monitoring "for at least 30 minutes prior to the planned start of airgun operations" during the day and at night would be sufficient, particularly for detecting the presence of species that make long dives.

The Service issued the incidental harassment authorization on 3 July 2003. In response to the Commission's comments, the Service stated that the incidental harassment authorization requires that two marine mammal observers monitor for marine mammals within the safety radii for 30 minutes before start-up using night-vision devices if air guns are started up at night. The Service noted that the authorization further requires that if the entire safety radii are not visible for 30 minutes before ramp-up in either daylight or nighttime, ramp-up not commence unless at least one air gun has maintained a sound pressure level of at least 180 dB (rms) during the interruption of seismic survey operations. The Service allowed the nighttime activities, noting that the prohibition of nighttime operations would involve an additional cost and, once air guns have been ramped up, marine mammals will have sufficient notice of the vessel approaching to avoid the array if they find the sounds annoying. Furthermore, the Service determined that it is neither practical nor necessary to limit seismic operations to daylight hours because marine mammals are unlikely to be injured, and limiting the surveys to daylight operations would likely limit ship time for scheduled future research projects and possibly require the use of alternative vessels. In regard to passive acoustic monitoring, the Service noted that although such monitoring was used on board the *Ewing* during the applicant's 2003 Gulf of Mexico sperm whale seismic study, the passive monitoring equipment used in that survey is not the property of the applicant or the *Ewing* and therefore is not available for the proposed survey. The Service stated that the applicant is evaluating the scientific results of the passive sonar from the Gulf of Mexico survey to determine whether it is practical to incorporate it into future seismic research cruises. Concerning the ability of the proposed monitoring to detect species that make long dives, the Service stated that it considered it unnecessary to monitor for more than 30 minutes because the ramp-up period will increase sound pressure levels at a rate no greater than 6 dB per five-minute period for a total ramp-up duration of approximately 10 to 20 minutes for the 10 to 12 gun arrays. The Service also noted that although some whale species dive for up to 45 minutes, it is unlikely that the ship's bridge watch would miss a large whale surfacing from its previous dive if it is within a mile or two of the vessel.

Lamont-Doherty conducted the research cruise between 6 and 27 July 2003. During that time, the ship traveled 2,628 km. Observers were on duty 215 hours. Observers spotted only one marine mammal during this time, probably an unidentified beaked whale, about 1 km from the ship at a time the air gun arrays were operating. The whale breached twice and dived. The operators immediately powered down the air gun array because the whale was within the precautionary zone of 1,320 m. The observers did not resight the whale, and operators commenced to ramp up the arrays after 30 minutes of continued observations without seeing a marine mammal.

Norway Project — On 28 July 2003 the Service published a notice in the *Federal Register* proposing to issue a one-year authorization for the take of small numbers of several species of cetaceans and pinnipeds incidental to oceanographic surveys in the Storegga Slide area off the west coast of Norway, in the Norwegian Sea, over 29 days during August–September 2003. The Service preliminarily determined that the short-term impact of the proposed activities would result, at most, in a temporary modification in the behavior of some species of cetaceans and any behavioral modifications made by these species to avoid the noise associated with the activities are expected to have a negligible impact on the affected species.

The Commission reviewed the *Federal Register* notice and the application and provided comments to the Service on 21 August 2003. The Commission

agreed that the Service's preliminary determinations were reasonable, provided that the Service was satisfied that the proposed mitigation and monitoring activities were adequate to detect marine mammals in the vicinity of the proposed operations and ensure that marine mammals were not being taken in unanticipated ways or numbers. The Commission reiterated its concerns discussed in its review of the applicant's previous request. In response to the Commission's comments, the Service stated that the incidental harassment authorization required mitigation and monitoring provisions similar to those required for the eastern equatorial Pacific project described above.

Lamont-Doherty conducted the cruise between 29 August and 26 September. During that time, the ship traveled 3,351 km and observers were on duty 337 hours. Air guns were on (including ramp-up) 266 hours (2,466 km) and off 71 hours (885 km). Observers saw an estimated 78 marine mammals in 17 groups, including five groups of minke whales and three groups of long-finned pilot whales. All marine mammal groups were sighted while air guns were firing. Three whale groups were sighted within the 330-m safety radius for the air gun array, at which time the operators powered down the air guns.

Mid-Atlantic Ocean Project — On 19 September 2003 the Service published a notice in the *Federal Register* proposing to issue a one-year authorization for the take of small numbers of 34 species of cetaceans and six pinniped species incidental to two oceanographic surveys in the mid-Atlantic Ocean.

The Commission reviewed the *Federal Register* notice and the application and provided comments to the Service on 28 October 2003. The Commission agreed that the Service's preliminary determinations were reasonable if the proposed mitigation and monitoring activities were adequate to detect marine mammals in the vicinity of the proposed operations and to ensure that marine mammals are not being taken in unanticipated ways or numbers. The Commission noted that many of its concerns regarding the current proposal were detailed in reviews of the applicant's previous requests (e.g., in the eastern equatorial Pacific Ocean and in the Storegga Slide area off the west coast of Norway).

The Service issued the incidental harassment authorization on 23 October 2003, essentially reiterating its responses to the Commission's questions and comments on previous applications.

The cruise was conducted from 25 October to 9 November with seismic operations carried out in the study area over a six-day period (30 October to 5 November). During that time, air guns were on for a total of 3,025 km of track line in the study area. Two observers monitored for marine mammals and turtles while the air guns operated during daylight hours and all nighttime ramp-up periods. Observers also conducted watches when the vessel was under way but the air guns were not firing. No sightings of marine mammals were made at the study site or during transit to and from the site.

Bermuda Project — On 21 October 2003 the Fisheries Service published a notice in the *Federal Register* proposing to issue a one-year authorization for the taking of small numbers of approximately 32 species of cetaceans and 2 species of pinnipeds incidental to conducting oceanographic seismic surveys in the northwestern Atlantic Ocean off Bermuda

The Commission reviewed the *Federal Register* notice and the application and provided comments to the Service on 13 November 2003. The Commission recommended that, before issuing the requested authorization, the Service ensure that, to determine whether animals are being taken in unanticipated ways or unexpected numbers, the planned monitoring program is sufficient to detect, with reasonable accuracy, marine mammals within and entering the identified safety zones. The Commission noted that many of its concerns regarding the current proposal were detailed in reviews of the applicant's previous requests to conduct seismic activities and reiterated those concerns. The Commission expressed the hope that the Service, the National Science Foundation, and Lamont-Doherty can, through increased monitoring and reporting, take advantage of at-sea operations of the *Ewing* to learn more about the interactions between marine mammals and the sounds produced by the seismic arrays so that better mitigation and avoidance measures can be developed.

The Service issued the incidental harassment authorization on 13 November 2003, essentially reiterating its responses to the Commission's questions and comments on previous applications. Lamont-Doherty later cancelled the cruise.

Caribbean Sea Project — On 21 October 2003 the Service published a notice in the *Federal Register* proposing to issue a one-year authorization for the taking of small numbers of 30 species of cetaceans and one species of pinniped by harassment incidental to conducting oceanographic seismic surveys in the southeastern Caribbean Sea and adjacent Atlantic Ocean.

The Commission reviewed the *Federal Register* notice and the application and provided comments to the Service on 18 December 2003. The Commission reiterated its concerns regarding the effectiveness of the proposed mitigation and monitoring measures.

Issuance of the incidental harassment authorization was pending at year's end.

Yucatán Project — On 16 December 2003 the Service published a notice in the *Federal Register* proposing to issue a one-year authorization for the taking of small numbers of marine mammals incidental to conducting oceanographic seismic surveys in the Gulf of Mexico off the Yucatán Peninsula. At the end of 2003 the Commission had not commented on the proposal.

Northern Gulf of Mexico Project — On 8 December 2003 Lamont-Doherty submitted an application to the Service to take small numbers of marine mammals incidental to conducting oceanographic seismic surveys in the northern Gulf of Mexico. At the end of 2003 the Service had not published a proposed finding concerning this project.

Boeing Company — On 9 April 2003 the Service published a notice in the *Federal Register* proposing to renew a one-year incidental harassment authorization to the Boeing Company for the take of small numbers of Pacific harbor seals, California sea lions, northern elephant seals, and northern fur seals incidental to activities at Vandenberg Air Force Base, California, related to the Delta IV/Evolved Expendable Launch Vehicle (i.e., wharf modification, transport vessel operations, cargo movement, and maintenance dredging). The Service stated its preliminary determination that the effects of the proposed activities would be limited to short-term startle responses and localized behavioral changes (i.e., Level B harassment) by small numbers of the subject species and would have no more than a negligible impact on these marine mammal stocks.

The Commission reviewed the *Federal Register* notice and the application and provided comments to the Service on 23 May. The Commission agreed that the Service's preliminary determinations were reasonable, provided that all reasonable measures would be taken to ensure the least practicable impact on the subject species, and the required mitigation and monitoring activities be carried out as described in the Service's *Federal Register* notice and the subject application. The Service issued the incidental harassment authorization on 10 June 2003.

Monterey Bay National Marine Sanctuary — On 27 May 2003 the National Marine Fisheries Service published a notice in the *Federal Register* proposing to (1) issue a one-year authorization to the Monterey Bay National Marine Sanctuary under section 101(a)(5)(D) for the take of small numbers of California sea lions and harbor seals by Level B harassment incidental to permitting professional fireworks displays within the sanctuary, and (2) promulgate regulations under section 101(a)(5)(A) to authorize the incidental take of these species during up to 20 fireworks displays annually over a five-year period. The Service preliminarily determined that the short-term impact of the fireworks displays would result in no more than Level B harassment (e.g., short-term flushing and evacuation of nonbreeding haul-out sites) of small numbers of California sea lions and harbor seals and that the harassment would likely have negligible impacts on the animals.

The Commission reviewed the *Federal Register* notice and the application and provided comments to the Service on 15 July 2003. The Commission concurred with the Service's preliminary determinations concerning the impacts of the proposed activities on the subject species. The Commission noted that the Service would be consulting with the Fish and Wildlife Service under section 7 of the Endangered Species Act on the possible impacts of the proposed activity on sea otters. The Commission recommended that (1) any authorization issued to the applicant specify that if a mortality or serious injury of a marine mammal occurs that appears to be related to the fireworks displays, further fireworks events be suspended while the Service determines whether steps can be taken to avoid further injuries or mortalities or until such taking can be authorized by regulations promulgated under section 101(a)(5)(A), and (2) before issuing the requested authorization, the Service be satisfied that the applicant's monitoring program is sufficient to detect the effects of the proposed activities, including any mortality or serious injury that results from startle responses, stampedes, or unexploded fireworks devices.

Concerning the Service's notice of receipt of the application seeking the promulgation of regulations under section 101(a)(5)(A) to govern the incidental take of marine mammals for the same activities over a five-year period, the Commission expressed the belief that such regulations were appropriate given that

the fireworks displays will be occurring on an ongoing basis into the future.

Issuance of the incidental harassment authorization and proposed rulemaking were pending at year's end, pending a determination on whether an authorization is necessary for the taking of sea otters.

EnCana Oil and Gas, Inc. — On 18 June 2003 the National Marine Fisheries Service published a notice in the *Federal Register* to permit EnCana Oil and Gas, Inc. to take small numbers of bowhead whales, beluga whales, ringed seals, bearded seals, spotted seals, polar bears, and walruses (authorization for polar bears and walruses was being requested from the Fish and Wildlife Service) by Level B harassment incidental to moving a steel drilling caisson from Cross Island, Alaska, through the Beaufort Sea to Herschel Island in the Yukon Territory and associated activities in the Beaufort Sea. The Service preliminarily determined that (1) the short-term impact of the proposed activities would result, at most, in a temporary modification in behavior by certain species of whales and pinnipeds, (2) any behavioral modifications made by these species to avoid the noise and visual stimuli associated with the activities would be expected to have a negligible impact on the survival and recruitment of the affected stocks, and (3) the proposed activities would not have an unmitigable adverse impact on the availability of marine mammal stocks for subsistence uses once the plan of cooperation and conflict avoidance agreement with the Alaska Eskimo Whaling Commission and affected villages' whaling captains associations has been amended.

The Commission reviewed the *Federal Register* notice and the application and provided comments to the Service on 23 July 2003. The Commission concurred that the Service's preliminary determinations were reasonable, provided that the proposed mitigation and monitoring activities were adequate to detect marine mammals in the vicinity of the proposed operations and to ensure that marine mammals were not being taken in unanticipated ways or numbers. The Commission suggested, among other things, that, in addition to the proposed visual monitoring, the Service suggest to the applicant that it conduct an acoustic monitoring program for the relevant species before, during, and after the proposed activity, to obtain more data on the actual acoustic source levels and their impacts on the animals' behavior. The Commission also recommended that before granting the authorization, the Service ensure that the applicant has completed negotiations with the Alaska Eskimo Whaling Commission and affected villages' whaling captains associations to amend the existing conflict avoidance agreement and plan of cooperation.

The Service issued the incidental harassment authorization on 5 August 2003. In regard to the proposed monitoring operations, the Service stated that monitoring on the steel drilling caisson will continue 24 hours a day except when the caisson is in "cold stack" (i.e., unmanned and out of operation) from approximately 31 August 2003 to mid-October. The Service noted that monitoring would begin just before the caisson is taken out of cold stack in preparation for movement that is expected to commence on or about 1 August. In regard to the need for an acoustic monitoring program, the Service noted that in 1991 ARCO Alaska, Inc. conducted a marine mammal monitoring program at Cabot Prospect in the Beaufort Sea and, as a result of that earlier acoustical monitoring, an acoustic monitoring program is not warranted for this activity. As to monitoring calling rates for relevant species, the Service stated that the applicant's monitoring plans were peer-reviewed at several scientific meetings and that such meetings provide the information necessary to ensure that impacts are (or are not) negligible. The Service encouraged the Commission's participation in such meetings. The Service noted that EnCana amended the existing conflict avoidance agreement and plan of cooperation with the Alaska Eskimo Whaling Commission on 9 June 2003.

Glenn R. VanBlaricom, Ph.D. — On 25 June 2003 the National Marine Fisheries Service published a notice in the *Federal Register* proposing to issue a one-year authorization to Glenn VanBlaricom under section 101(a)(5)(D) for the take of small numbers of California sea lions, Pacific harbor seals, and northern elephant seals by Level B harassment incidental to research surveys to assess the trends in black abalone populations at permanent study sites on San Nicolas Island, California. The Service preliminarily determined that, given the mitigation measures proposed by the applicant, the short-term impact of the subject research would result in no more than the temporary modification of behavior (e.g., animals moving away from researchers or temporarily vacating onshore haul-out areas) by California sea lions, Pacific harbor seals, and northern elephant seals.

The Commission reviewed the *Federal Register* notice and the application and provided comments to the Service on 1 August 2003. The Commission concurred with the Service's preliminary determinations concerning the impacts of the proposed activities on

these species. The Commission noted, however, that the Service should alert the Fish and Wildlife Service and the applicant as to the possible need to secure a separate authorization for the incidental taking of California sea otters. The Commission recommended that (1) any authorization issued specify that, if a mortality or serious injury of a marine mammal occurs that appears to be related to the abalone research, further research activities be suspended while the Service determines whether steps can be taken to avoid further injuries or mortalities or until such taking can be authorized by regulations promulgated under section 101(a)(5)(A) of the Marine Mammal Protection Act, and (2) before issuing the requested authorization, the Service be satisfied that the applicant's monitoring program is sufficient to detect the effects of the proposed research activities, including any mortality or serious injury that results from startle responses or stampedes.

The Service issued the incidental harassment authorization on 23 September 2003. The Service stated that sea otters are not expected to be ashore during the times that the research activities would be conducted. The Service also stated that the mitigation measures required in the incidental harassment authorization should reduce the possibility of incidental harassment takes and lower the possibility of serious injury or mortality. The authorization requires that the applicant immediately notify the Service in the case that mortality or serious injury to a marine mammal occurs.

Scripps Institution of Oceanography — On 26 August 2003 the National Marine Fisheries Service published a notice in the *Federal Register* proposing to issue a one-year authorization to Scripps Institution of Oceanography for the take of small numbers of cetaceans and pinnipeds by harassment incidental to conducting a marine seismic survey in the eastern tropical Pacific Ocean during late 2003 and early 2004. The Service preliminarily determined that the short-term impact of the proposed activities would result, at most, in a temporary modification in the behavior of certain species of cetaceans and any behavioral modifications made by these species to avoid the noise associated with the activities are expected to have a negligible impact on the affected species.

The Commission reviewed the *Federal Register* notice and the application and provided comments to the Service on 12 September 2003. The Commission agreed that the Service's preliminary determinations were reasonable, provided that the Service was satisfied that the proposed mitigation and monitoring activities were adequate to detect marine mammals in the vicinity of the proposed operations and ensure that marine mammals were not being taken in unanticipated ways or numbers. The Commission recommended that before granting the requested authorization, the Service request written clarification from the applicant as to (1) how for nighttime activities the monitoring effort will be sufficient to determine that no marine mammals are within or about to enter the safety zone, and (2) whether vessel-based passive acoustic monitoring would be conducted as an adjunct to visual monitoring during daytime, and particularly nighttime, operations to detect, locate, and identify marine mammals and if not, why not. The Commission also noted that the Service's notice stated that operations suspended because an animal was inside the safety zone would not be resumed until the animal was observed outside the safety radius or until a minimum of 15 minutes has elapsed since the animal was last sighted. The Commission noted, however, that beaked and sperm whales can dive for much longer than 15 minutes and, thus, could be directly below the sound source when it is reactivated. The Commission asked that the Service provide it with a copy of the applicant's clarifications.

The Service issued the incidental harassment authorization on 17 October 2003. With respect to nighttime activities, the Service stated that because the applicant's scientific research cruise is multidisciplinary, and because the seismic research is fairly short term, the applicant does not propose to use the two small general-injector air gun arrays at night. The Service noted that because the size of the air gun array to be used is small and because the safety zones are relatively small, it is unlikely that mammals will be within the appropriate safety zones whenever the air guns are on, either in daytime or nighttime. The Service concurred with the Commission's concern regarding the proposed 15-minute monitoring period and stated that the applicant will not proceed with powering up the air gun array unless the entire safety radius is visible and no marine mammals are detected within the appropriate safety zones; or until 15 minutes (for small odontocetes and pinnipeds) or 30 minutes (for mysticetes and large odontocetes) after there has been no further visual detection of the mammal(s) within the safety zone and the trained marine mammal observer on duty is confident that no marine mammals or sea turtles remain within the appropriate safety zone. As added mitigation, the applicant

will follow standard ramp-up procedures. Concerning passive acoustic monitoring, the Service stated that the passive acoustical monitoring equipment that was used on board the *Ewing* during the 2003 Gulf of Mexico sperm whale seismic study is not the property of the applicant or the *Ewing* and therefore is not available for the proposed survey. The Service stated that the applicant is evaluating the scientific results of the passive sonar from the Gulf of Mexico survey to determine whether it is practical to incorporate it into future seismic research cruises.

Polar Bear Trophy Imports

In 1994 the Marine Mammal Protection Act was amended to allow the Secretary of the Interior to issue permits to import sport-hunted polar bear trophies from Canada, provided that he or she makes certain findings. Among other things, the Secretary must find that Canada has an enforced sport-hunting program consistent with the purposes of the Agreement on the Conservation of Polar Bears and based on scientifically sound quotas that will ensure the maintenance of the affected population stock at a sustainable level. The amendments also direct the Secretary to charge a reasonable fee for permits and to use the receipts to develop cooperative research and management programs for the conservation of polar bears shared by Alaska and Russia.

The Fish and Wildlife Service published regulations to implement the polar bear import provision on 18 February 1997. The Service determined that five of the 12 Canadian polar bear management units met the Marine Mammal Protection Act's criteria and that parts from those subpopulations could be imported. Shortly thereafter, the House Resources Committee, responding to concerns from both hunters and animal welfare groups that the regulations were inadequate, convened a hearing to review the Service's implementation of the polar bear import provisions. That hearing led to an amendment to the Marine Mammal Protection Act to allow imports of all polar bear trophies legally taken in Canada before 30 April 1994, regardless of where the hunt occurred.

In 1997 as a result of additional information received from the Service, the Commission contracted for a review of Canada's polar bear management program. Based on the results of that review, the Commission recommended that the Service initiate a rulemaking to allow the import of polar bear trophies from the Lancaster Sound and Norwegian Bay management units. A final rule to that effect was issued by the Service on 11 January 1999.

In January 2001 information from the Canadian authorities indicated that the polar bear population in the M'Clintock Channel management unit was considerably lower than originally believed. Consequently, the Service published an emergency interim rule finding that the M'Clintock Channel management unit no longer met the import requirements of the Marine Mammal Protection Act and that permits to import polar bears taken from that management unit after 31 May 2000 would no longer be available. The Commission commented on the interim rule, recommending that it be adopted as a permanent rule. The Commission further recommended that the Service encourage Canadian authorities to consider using more conservative population estimates (such as a minimum population estimate, rather than a midpoint estimate) in setting quotas, and that assessments of the Canadian polar bear populations be conducted more frequently, particularly for those populations for which the available data are characterized as being "fair" or "poor." The Fish and Wildlife Service published a final rule to replace the emergency interim rule on 5 October 2001. No substantive changes to the interim rule were made.

On 10 November 2003 Congress extended the 1997 exception that grandfathered trophies from 30 April 1994 through 18 February 1997, the date of the Service's final implementing regulations. The 2003 amendment was enacted as section 149 of Public Law 108-108, the Fiscal Year 2004 appropriations bill for the Department of the Interior. In response to this change in the law, the Service began processing applications for permits to import polar bear trophies legally taken prior to 18 February 1997, regardless of which populations in what then comprised the Northwest Territories, Canada, the bear was taken. The Service will continue to allow the importation of polar bear trophies taken after this date only from approved populations.

Under the 1994 amendments to the Marine Mammal Protection Act, the Fish and Wildlife Service was directed to undertake a scientific review of the impact of issuing import permits on the polar bear populations in Canada. The review was to be completed by 30 April 1996. No permits could be issued after 30 September 1996 if the review indicated that issuing such permits would have a significant adverse effect on Canadian polar bear stocks. Because the regula-

tions authorizing imports had not been issued by the time the review was to be completed, no review was undertaken. Instead, the regulations published by the Service on 18 February 1997 specified that the review would be undertaken within two years of 20 March 1997. As of the end of 2003 the review had yet to be completed.

Currently six out of 14 polar bear populations in Canada are approved for the import of sport-hunted trophies. Consideration of the remaining populations are deferred pending additional information necessary to make the findings required under the Marine Mammal Protection Act. The Service is currently reviewing information regarding the Gulf of Boothia polar bear population.

Since regulations authorizing the import of polar bear trophies took effect in 1997, 597 import permits have been issued. Of these, 132 were issued in 1997, 60 in 1998, 142 in 1999, 76 in 2000, 71 in 2001, 48 in 2002, and 68 in 2003.

Interactions with Marine Mammals in the Wild

Under the Marine Mammal Protection Act, all activities involving any type of "taking" of marine mammals — including harassment — are prohibited unless somehow authorized or permitted under the Act's provisions. As discussed elsewhere in this chapter, permits and small-take authorizations can be issued to authorize taking through a variety of exemptions provided under the Act, including but not limited to scientific research, public display, and photography. However, the Act does not provide an exemption for members of the public to take marine mammals during viewing or recreational activities.

Public interactions with marine mammals in the wild have greatly increased over the past several years. Evidence that such activities may be adversely affecting the animals' welfare is increasing. Such interactions typically involve close approaches to observe, photograph, pose with, touch, swim with, or otherwise interact with the animals. Although such activities generally are not motivated by a desire to harm the animals, they can pose substantial risks to both the humans and the wild marine mammals involved. Risks to people include injury or death from being bitten, rammed, or otherwise attacked. Animals may be driven from preferred habitat, injured by people trying to touch or prod them, debilitated by inappropriate, contaminated, or spoiled food, or have their behavior changed in ways that encourage them to interact with humans and become pests. Even when no immediate injury results, marine mammals may become habituated to people and boats and, as a result, be exposed to risks they might not otherwise face. Because such human interactions have the potential to disturb or injure wild marine mammals, they may constitute harassment under the Act.

In 1991 the National Marine Fisheries Service amended its regulatory definition of the term "take" to include feeding marine mammals in the wild. As such, feeding marine mammals in the wild clearly constitutes a prohibited act. The dividing line between actions that constitute a taking and those that do not is not always so clear in other contexts. This has prompted the Service to develop guidelines for responsibly viewing marine mammals in the wild and to initiate a nationwide public education and outreach campaign encouraging proper viewing of wildlife from a distance.

As discussed in its previous annual reports, the Commission wrote to the Service in 1996, 2000, 2001, and 2002, recommending that it advise both the public and those offering tours that involve approaching marine mammals that direct interactions with marine mammals that have the potential to disrupt the animals' behavioral patterns constitute harassment under the Marine Mammal Protection Act. The Commission also advised the Service that, based on the results of a Commission-sponsored literature review and earlier pilot study, interactions with dolphins in the wild are likely to result in at least Level B harassment under the Act and, in some cases, could result in the death or injury of people or marine mammals. On 30 January 2002 the Service published its policy in conjunction with an advance notice of proposed rulemaking addressing what interactions between the public and wild marine mammals constitute takings under the Act.

At its 2002 annual meeting, the Commission was briefed by Service representatives about interaction problems involving the public and elephant seals, sea lions, and harbor seals in California, and monk seals and spinner dolphins in Hawaii. At that time, agency representatives advised the Commission that the National Oceanic and Atmospheric Administration's Office of the General Counsel and the Service's Southwest Regional Office do not consider public harassment of marine mammals to be a priority issue and are choosing not to enforce, or to selectively

enforce, the harassment provisions of the Marine Mammal Protection Act. Reasons given for assigning low priority to this issue included the effort and time required for prosecuting even simple cases (due to the likelihood of appeals, etc.), the large number of violations occurring, and the belief that prosecuting tourists who the agency believes commit most of the violations "would not do any good anyway because they are unlikely to be repeat offenders." The representatives indicated that prosecuting harassment cases is unlikely to be given high priority "until someone like Congress tells them to make it a priority." In the exchanges at the Commission's meeting, the Commission advised the Service that, unless priority is given to this issue, supported by dedicated and consistent enforcement efforts, the measures currently being taken by some parts of the agency to address the interaction problem will continue to be ineffective. The Commission further advised the Service that it would be following up with the agency on this matter.

On 6 May 2003 the Commission wrote to the Under Secretary for Oceans and Atmosphere, Department of Commerce (the Administrator of the National Oceanic and Atmospheric Administration), expressing concern about the increasing frequency with which marine mammals are being subjected to taking by harassment through directed human/marine mammal interactions and the National Oceanic and Atmospheric Administration's apparent lack of response to these ongoing violations of the Act. The Commission's letter concentrated on harassment related to close approaches to various pinniped species along the California coast and on swim-with-the-dolphin activities in Hawaii but noted that similar activities are occurring in other regions, most notably dolphin swim programs in the southeastern United States.

The Commission noted that in California, some of the most high-profile situations (e.g., the Children's Pool in La Jolla and the concentration of elephant seals at Piedras Blancas) are being addressed by cordoning off certain areas and establishing docent programs. Such measures appear to have transformed problem situations into ones where the public has an opportunity to view marine mammals in a setting that is educational and safe and that minimizes the likelihood of taking marine mammals. The Commission encouraged the Service to continue to support the development and operation of such programs, including sponsorship when necessary.

The Commission noted, however, that commercial operators in Hawaii are routinely offering the public opportunities to interact with dolphins in ways and at distances that result in unauthorized takings and may have adverse effects on the affected populations. The Commission noted that in certain areas, such as Kealakekua Bay, tour operators take advantage of the daily patterns of spinner dolphins that forage offshore at night and return to shore to rest during the day, and that the influx of swimmers into these areas during the day and their close approaches to the dolphins result in disturbance to the animals. The Commission stated that, according to information presented by the Service at the Commission's meeting, recent studies indicate that dolphins are using these resting areas less frequently than they did previously, presumably as a result of the disturbance associated with increased human presence. The Commission noted that this is similar to reports in the literature of dolphin use of an area declining after multiple instances of humans swimming with the animals. The Commission further noted that, according to the Service's representative, a search of the Internet for wild dolphin swim programs available in the Kona area resulted in 332 different matches.

The Commission expressed concern that, despite the frequency of encounters between swimmers and dolphins, the predictability of when and where they will occur, and the long-term impacts being documented, the agency has taken little or no enforcement action to address the problem. The Commission noted that at its meeting representatives of the Service's Office of Protected Resources, the Office of Law Enforcement for the Service's Southwest Region, and the parent agency's Office of the General Counsel all agreed that, at least in some instances, the activities that are ongoing in Hawaii constitute harassment, but that cases are not being brought primarily because the issue is given low priority by the General Counsel's Office.

The Commission noted that even though each incident in which dolphins are closely approached or pursued may result only in disturbing the animals (constituting Level B harassment), those activities collectively constitute Level A harassment in that they have the potential to injure the dolphins and the dolphin populations by increasing stress levels, denying the animals the opportunity to rest, and causing them to abandon important sanctuaries where, among other things, they care for their calves. The Commission therefore recommended that the agency should do more to address the situation in Hawaii, including educating the operators and the public about which

activities comport with the law, informing them that penalties will be sought when violations occur, and pursuing enforcement actions when animals are harassed.

The Commission recognized that agency resources are limited but expressed the belief that with a small but directed effort targeted at this problem, the agency can send a clear message that it will no longer allow dolphins to be taken with impunity in violation of the Act. The Commission also recommended that a similar heightening of enforcement and prosecutorial effort be directed at unlawful takings of marine mammals in the Southeast Region, where swim programs directed at bottlenose dolphins have proliferated in recent years. The Commission noted that reportedly those programs often involve or are facilitated by feeding the animals, an activity that the Service has explicitly prohibited by regulation.

The Commission further noted that Service representatives suggested that harassment cases are difficult to win because there is no clear-cut standard as to how close is too close to approach a wild marine mammal. The Commission expressed the view, however, that in many instances, it was clear when harassment had occurred and that a videotape of an interaction should be sufficient to sustain an enforcement action. The Commission recommended that if National Oceanic and Atmospheric Administration's enforcement officers and attorneys are reluctant to bring cases based on such a fact pattern, the Service should act promptly to promulgate regulations to establish objective criteria for determining when a taking has occurred. The Commission suggested that such regulations could be structured to address interaction problems at specific sites where problems are particularly acute (e.g., the dolphin resting bays in Hawaii), to address specific types of interactions (e.g., in-water activities), or to be part of a more generic rulemaking on approaching wild marine mammals, such as that envisioned in the Service's 30 January 2002 advance notice of proposed rulemaking addressing what interactions between the public and wild marine mammals constitute taking under the Marine Mammal Protection Act and discussed in the Commission's previous annual report.

In addition, the Commission stated that at a meeting in April 2003 with the National Oceanic and Atmospheric Administration's General Counsel and others, the Commission was informed that the Service has a good record of prosecuting commercial operators and individuals for harassment activities. The Commission indicated that it was aware of a prosecution in Hawaii in the early 1990s but few since then. The Commission requested that the Service provide the specifics of recent successful efforts to prosecute individuals who are intentionally harassing marine mammals. The Commission welcomed the opportunity to work with the involved components of the Service in developing a strategy for addressing this issue in a timely manner. A response to the Commission's letter had not been received at year's end.

Appendix A

SUMMARY OF MARINE MAMMAL COMMISSION RECOMMENDATIONS IN 2003 AND RESPONSES TO THOSE RECOMMENDATIONS

Note: This is the first yeat that the Commission has included a summary of agencies' responses to our recommendations in the annual report. If we did not receive a response from an agency before 1 January 2004, we have not shown a response. When an agency responds to a 2003 letter in 2004, we intend to indicate it in the 2004 annual report.

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
2 January	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on the proposed amendment to a scientific research permit to allow biopsy sampling of mother/calf pairs, Northeast Fisheries Science Center. Recommended that amendment be approved, provided that measures to minimize any possible adverse effects and describe a set of studies to detect, to the extent possible, any adverse long-term effects associated with the research be incorporated into the amended permit.	12 November	Amendment was issued on 10 October; Commission's recommendations were adopted.
7 January	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on an application from Jerome Siegel, Ph.D., to conduct scientific research on several species of marine mammals. Recommended approval of the application with conditions.	—	Action on permit was pending at year's end.
16 January	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on scientific research permits to continue research on humpback whales in Hawaii, by Rachel Cartwright, Deborah Glockner-Ferrari, Joseph Mobley, Jr., and Robin Baird. Recommended approval of the authorizations.	—	Action on permits was pending at year's end.
22 January	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on a permit amendment request from Randall W. Davis, Ph.D., to conduct scientific research on northern elephant seals. Recommended approval of the request with conditions.	—	Permit was issued on 16 December; Commission's recommendations were adopted.

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
24 January	Mr. David Hankla, Jacksonville Field Office, U.S. Fish and Wildlife Service, commenting on the proposed rule to authorize the taking of Florida manatees incidental to government programs related to watercraft operations and watercraft access facilities in Florida. Recommended, among other things that the Service expand the summary of regional watercraft-related mortality in the draft environmental impact statement and incorporate the information into the negligible impact analysis and conclusions section; consider both proportion of net productivity and the potential delay in reaching OSP levels in making its negligible impact finding; expand the "negligible impact assessment and conclusions" section of the draft statement to include calculations that would justify its determinations concerning recent levels of watercraft-related manatee deaths in the upper St. Johns River and northwestern Florida, and Atlantic coast regions; obtain independent expert review of is proposed manatee demographic model and allow the public to review the model; and immediately proceed with development of its proposed issue resolution process to identify and develop an optimal manatee protection strategy.	—	Service published notice in the *Federal Register* on 8 May withdrawing the proposed rule. (See Chapter III, Florida Manatee section.)
3 February	Comments in support of proposed manatee refuges	—	Service published notice in the *Federal Register* on 6 August adopting proposed rules. (See Chapter III, Florida Manatee section.)
10 February	Ms. Donna Wieting, Office of Protected Resources, National Marine Fisheries Service, commenting on the Service's proposed rulemaking regarding the List of Fisheries for 2003. Recommended that the Service describe the information upon which the categorical rankings of the fisheries are based; provide more complete justification for classifying the Alaska Cook Inlet salmon drift gillnet fishery as Category III and determine whether the level of observer coverage is adequate for the fishery; review the evidence regarding the level of mortality and serious injury of bottlenose dolphins in the Gulf of Mexico blue crab trap/pot fishery, and provide that information to the public, and categorize the fishery accordingly; designate the Gulf of Mexico menhaden purse seine fishery as a Category I fishery and institute an observer program to obtain more reliable information; and obtain available information on entanglement and incorporate it into the stock assessment reports used to categorize the Alaska crustacean pot fishery.	15 July	Service published notice in the *Federal Register* on 15 July with final list of fisheries for categories II and III. (See Chapter IV, Fisheries Interaction section.)

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
21 February	Ms. Donna Wieting, Office of Protected Resources, National Marine Fisheries Service, regarding the request from Conoco Phillips Alaska, Inc. for authorization to take small numbers of marine mammals incidental to conducting on-ice seismic operations during oil and gas explorations activities in the U.S. Beaufort Sea off Alaska. Recommended that the monitoring programs for oil and gas exploration activities in the U.S. Beaufort Sea off Alaska be expanded to enable the Service to assess whether and, if so, the extent to which long-term, cumulative effects may be occurring.	—	Incidental harassment authorization was issued on 19 March. Commission recommendations generally not adopted. (See Chapter IX, Small -Take Authorizations.)
27 February	Ms. Mary Colligan, Northeast Regional Office, National Marine Fisheries Service, regarding a petition from the Ocean Conservancy to expand the existing critical habitat boundaries established for northern right whales off the northeastern and southeastern United States. Recommended that the Service: review available data and, based on that review, expand the current critical habitat areas as warranted; prepare or contract for a report that assesses right whale sighting data and human activities in and around the three existing right whale critical habitat areas, and that this analysis be undertaken on an expedited basis so as not to delay action necessary to implement appropriate modifications to the designated boundaries.	—	Service published notice in the *Federal Register* on 28 August announcing deferral of action pending further study.
28 February	Mr. Peter T. Young, Hawaii Department of Land and Natural Resources, commenting on bills in the Hawaii State Legislature proposing to develop a network of marine reserves in state waters around the main Hawaiian Islands. Supported and encouraged efforts by Hawaii's state government to consider and refine the proposed approach reflected in the bills.	—	Bills were subsequently withdrawn from consideration.
3 March	Mr. Robert Gabel, Division of Scientific Authority, U.S. Fish and Wildlife Service, commenting to the U.S. Fish and Wildlife Service regarding the proposed rule to list the dugong (*Dugong dugon*) in the Republic of Palau as endangered under the Endangered Species Act. Recommended that the Service: proceed with listing the Palauan dugong as endangered under the Endangered Species Act, and develop and implement a recovery plan for the dugong in Palau that will ensure its recovery.	17 December	Service published notice in the *Federal Register* on 17 December that it had determined the dugong in Palau to be endangered under the Endangered Species Act.
3 March	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on an application from Ann Zoidis to conduct scientific research on humpback whales in Hawaii waters. Recommended approval of the requested permit, with conditions.	—	Action on the permit was pending at year's end.
3 March	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on additional information for an application from Markus Horning, Ph.D., to conduct scientific research on rehabilitated California sea lions. Suggested option for assessing the long-term effects of transmitter implants in sea otters.	24 April	Permit was issued on 17 April; the Commission's recommendations were adopted.

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
7 March	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on supporting information for an application from the Alaska SeaLife Center to conduct scientific research on Steller sea lions. Recommended approval, provided that the applicant provide various clarifications and additional information to the Service.	—	Action on the permit was pending at year's end.
10 March	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on an application from Janice Straley to conduct scientific research on humpback whales and killer whales in Alaska. Recommended approval of the permit with conditions.	—	Action on the permit was pending at year's end.
10 March	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on a permit amendment request from North Gulf Oceanic Society to tag and biopsy sample various cetacean species in Alaska. Recommended approval of the request with conditions.	30 June	Permit amendment was issued on 1 July; Commission's recommendations were adopted.
14 March	Mr. William Devick, Division of Aquatic Resources, Hawaii Department of Land and Natural Resources, regarding the report of the "Workshop on the Management of Hawaiian Monk Seals on Beaches in the Main Hawaiian Islands." Urged that the National Marine Fisheries Service and the Hawaii Division of Aquatic Resources assume a joint leadership role in addressing monk seal management needs in the main Hawaiian Islands, and that a task force or steering committee be established to periodically review and oversee cooperative management efforts.	—	Various follow-up actions were taken. (See Chapter III, Hawaiian Monk Seal section.)
14 March	William T. Hogarth, Ph.D., National Marine Fisheries Service regarding the report of the "Workshop on the Management of Hawaiian Monk Seals on Beaches in the Main Hawaiian Islands." Recommended that the Service: provide at least one additional staff member and additional operational funds to the Pacific Islands Area Office to oversee monk seal management activities in the main Hawaiian Islands; encourage and assist the Hawaii Division of Aquatic Resources in developing a cooperative agreement and grant application under provisions of section 6 of the Endangered Species Act to manage Hawaiian monk seals and perhaps other protected marine species in the main Hawaiian Islands; consult with the Hawaii Division of Aquatic Resources to identify steps needed to maintain a permanent, full-time Kauai monk seal coordinator; and provide the Honolulu Laboratory additional funding for monk seal research and monitoring work in the main Hawaiian Islands.	—	Various follow-up actions were taken. (See Chapter III, Hawaiian Monk Seal section.)
18 March	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on an amendment request from Bruce Mate, Ph.D., to biopsy sample and tag fin whales in the Mediterranean Sea. Recommended approval of the request with conditions.	21 May	Permit amendment was issued on 1 July; Commission's recommendations were adopted.

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
20 March	Mr. Charlie R. Chandler, Division of Management Authority, U.S. Fish and Wildlife Service, on a permit application from the Florida Atlantic University to conduct scientific research on manatees in Florida. Recommended approval of the permit with conditions.	10 October	Service placed application in inactive file on 10 October. Service reopened file 20 October, and on 24 November submitted new information to the Commission for review. Action on permit was pending at year's end.
21 March	Mr. James Lecky, Southwest Regional Office, National Marine Fisheries Service, regarding proposed promulgation of regulations to authorize the Naval Air Weapons Station to incidentally take by harassment small numbers of harbor seals, elephant seals, and California sea lions on San Nicolas Island during target missile launch operations over five years. Supported the Service's intent to publish proposed regulations for these activities, provided that the Service is satisfied that the monitoring and mitigation programs will be carried out as described in the application and in the Service's *Federal Register* notice.	—	Proposed rule was published on 9 May.
21 March	Thomas C. Eagle, Ph.D., Office of Protected Resources, National Marine Fisheries Service, regarding the request by the U.S. Coast Guard for authorization to take small numbers of California sea lions and Pacific harbor seals incidental to the installation of a new floating dock in Monterey, California. Supported the Service's intent to publish proposed small-take regulations for these activities, provided that the mitigation and monitoring activities described in the applicant's Petition for Regulations be incorporated into the proposal.	—	The Service issued the incidental harassment authorization on 30 April. Commission's recommendations were partially adopted. (See Chapter IX, Small-Take Authorizations.)
27 March	Mr. Charlie R. Chandler, Division of Management Authority, U.S. Fish and Wildlife Service, on a request for authorization to continue scientific research after the accidental death of a manatee, Florida Fish and Wildlife Conservation Commission. Recommended that authorization to continue research activities be granted with conditions.	9 April	Authorization to continue research was granted on 9 April. Commission's recommendations were adopted.

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
31 March	Mr. Garth Griffin, Protected Resources Division, National Marine Fisheries Service, on the proposed rulemaking regarding designation of the eastern North Pacific southern resident stock of killer whales as depleted under the Marine Mammal Protection Act. Recommended that the Service: designate the stock as depleted; complete a thorough review of all available information regarding historical abundance and conduct suitable research to provide estimates of historical numbers and thoroughly address such information in the conservation plan when considering the establishment of recovery criteria; and begin the development of a conservation plan as soon as possible and, in the interim, initiate any conservation measures that have been identified to date.	29 May	Service published notice in the *Federal Register* on 29 May that it had determined that the eastern North Pacific southern resident stock of killer whales is depleted under the Marine Mammal Protection Act.
1 April	Ms. Mary Colligan, Northeast Regional Office, National Marine Fisheries Service, on proposed rules to amend the Service's regulations for implementing the dynamic area management program to protect North Atlantic right whales. Recommended that the Service: modify the proposed regulations for its dynamic area management program by eliminating the option to establish gear modifications that would allow "whale safe" gear to remain in a management area established under the program; and immediately establish regulations that would require that, within one year, all fish and shellfish traps and all gillnets in U.S. waters north of central Florida use sinking or neutrally buoyant line for ground and buoy lines and a single buoy to mark their gear.	—	Final rule published on 26 August; Commission recommendations were not adopted.
2 April	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on an application from the Southwest Fisheries Science Center to conduct scientific research and enhancement activities on Hawaiian monk seals. Recommended approval of the permit with conditions.	23 June	Permit was issued on 10 June; Commission's recommendations were adopted.
3 April	Thomas C. Eagle, Ph.D., Office of Protected Resources, National Marine Fisheries Service, regarding the request by the U.S. Minerals Management Service for authorization to take small numbers of sperm whales and several other marine mammal species in the Gulf of Mexico incidental to conducting seismic surveys during oil and gas exploration activities over a five-year period, and the Service's proposal to promulgate regulations to authorize the requested activity. Concurred that the Service's intent to propose regulations to govern the taking is appropriate. .	—	The Service was awaiting applicant's completion of an environmental assessment at year's end.

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
4 April	Thomas C. Eagle, Ph.D., Office of Protected Resources, National Marine Fisheries Service, commenting to the National Marine Fisheries Service regarding the request by the U.S. Army Corps of Engineers for authorization to take marine mammals incidental to activities related to deepening the Dodge-Lummus Island Turning Basin, Miami, Florida. Subject to certain caveats, concurred that authorization of the request was appropriate, provided that: before authorizing the activity, the Service review and approve the applicant's blasting plan; and that the proposed monitoring activities are adequate to detect any marine mammals that may be within the safety zone calculated for a particular explosion. Noted that an across-the-board definition of temporary threshold shift (TTS) as constituting no more than Level B harassment inappropriately dismisses possible injury and biologically significant behavioral effects that can result from repeated TTS harassment and from the cumulative effects of long-term exposure. Reiterated its recommendation that TTS be considered as having the potential to injure marine mammals (i.e., Level A harassment).	—	Incidental harassment authorization issued on 22 May. Commission's recommendations not adopted. (See Chapter IX, Small-Take Authorizations.)
16 April	Mr. John H. Dunnigan, Office of Sustainable Fisheries, National Marine Fisheries Service,on the proposed rulemaking regarding the revision of national standard 1 guidelines for U.S. Fisheries. Recommended that the Service:broaden the definitions of overfished and overfishing to account for adverse effects from ecosystem overfishing, and develop management procedures that require consistent, rigorous, and systematic evaluation of its potential adverse effects; review the theoretical framework for setting of catch levels, identify the major assumptions inherent in that framework, establish experimental methods to test those assumptions and, until they have been validated, manage the fisheries in a more precautionary manner; review its science/management regime to identify and implement mechanisms that can be used to distinguish natural and fishery-related changes; not combine individual species into complexes for the purpose of management aimed at achieving national standard 1; review its procedures for providing scientific information to fisheries managers seeking to achieve national standard 1 and take the steps necessary to ensure that the information is accompanied by appropriate measures of uncertainty or, conversely, confidence; and broaden its definition of a precautionary approach under national standard 1 to address possible effects to nontarget species and the ecosystem generally.	—	Proposed rule pending at year's end.
22 April	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on an amendment request from Dr. Terrie Williams for authorization to maintain at Long Marine Laboratory and conduct scientific research on two California sea lions to be collected from the wild under a separate permit. The Commission recommended approval of the request with conditions.	4 August	Permit amendment was issued on 1 July; Commission's recommendations were adopted.

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
22 April	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on an amendment request from Dr. Jennifer Moss Burns for authorization to harass additional Pacific harbor seals incidental to scientific research activities already authorized under the permit. Recommended approval of the request with conditions.	23 June	Permit amendment was issued on 18 June; Commission's recommendations were adopted.
22 April	Mr. Charlie R. Chandler, Division of Management Authority, U.S. Fish and Wildlife Service, on a request from the Alaska Science Center, U.S. Geological Survey, to conduct scientific research on southern sea otters in California and northern sea otters in Alaska. Recommended approval of the permit with conditions.	24 June	Permit was issued 24 June.
22 April	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on a permit amendment request from the National Zoological Park, Smithsonian Institution, for authorization to import pinniped tissue and blood samples. Recommended approval of the request with conditions.	10 July	Permit amendment was issued on 29 May; Commission's recommendations were adopted.
23 April	Mr. Charlie R. Chandler, Division of Management Authority, U.S. Fish and Wildlife Service, on a permit amendment request from Graham Worthy, Ph.D., University of Central Florida, for authorization to conduct scientific research on free-ranging manatees. Recommended approval of the request with conditions.	23 June	Permit amendment was issued on 14 June; Commission's recommendations were adopted.
24 April	Thomas Eagle, Ph.D., Office of Protected Resources, National Marine Fisheries Service, regarding the request by Lamont-Doherty Earth Observatory for authorization to take small numbers of marine mammals incidental to conducting calibration measurements of its seismic array in the northern Gulf of Mexico. Concurred that authorization of the request is appropriate, provided that the proposed mitigation and monitoring activities are conducted as described in the Service's *Federal Register* notice and the application.	—	Incidental harassment authorization was issued on 23 May. Commission's recommendations were adopted. (See Chapter IX, Small-Take Authorizations.)
30 April	Mr. Charlie R. Chandler, Division of Management Authority, U.S. Fish and Wildlife Service, on a permit amendment request from Iskande L.V. Larkin, University of Florida, for authorization to tag and track additional manatees under the permit and to extend the duration of the permit. Recommended approval of the request with conditions.	21 August	Permit was issued 26 August.

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
6 May	Vice Admiral Conrad C. Lautenbacher, Jr., Ph.D., U.S.N. (Ret.), National Oceanic and Atmospheric Administration, concerning the increasing frequency with which marine mammals are being subjected to taking by harassment through directed human–marine mammal interactions, and the agency's response to those ongoing violations of the Marine Mammal Protection Act. Noted the commercial operators in Hawaii routinely offer the public opportunities to swim with spinner dolphins, a situation that is adversely affecting the animals' behavior. Noted that agency representatives at the Commission's 2002 annual meeting in San Diego, California, stated that this issue is given low priority by the Service. Noted that it is imperative that the agency do more to address the situation in Hawaii, including education and enforcement activities. Noted that a similar heightening of enforcement and prosecutorial effort is needed in the Southeast Region, where dolphin swim programs (and dolphin feeding) have proliferated in recent years.	—	Response was not received at year's end.
23 May	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on an application from Peter L. Tyack to conduct scientific research on a variety of marine mammal species in the North Atlantic, the Gulf of Mexico, and the Mediterranean Sea. Recommended approval of the permit with conditions.	12 June	Permit was issued on 3 June; Commission's recommendations were adopted.
23 May	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, regarding the Pacific Whale Foundation's Letter of Intent to Conduct Research Under the General Authorization. Recommended that the Service be satisfied that the applicant has satisfactorily addressed several issues concerning the results of past research activities and research results,before issuing a letter of confirmation to the applicant.	—	Action on permit was pending at year's end.
23 May	Thomas Eagle, Ph.D., Office of Protected Resources, National Marine Fisheries Service, regarding the request by the Boeing Company to renew a one-year incidental harassment authorization authorizing the take of small numbers of pinnipeds incidental to activities related to the Delta IV/Evolved Expendable Launch Vehicle at Vandenberg Air Force Base, California. Concurred that the authorization of the request is appropriate, provided that the Service is satisfied that the proposed mitigation and monitoring activities are adequate to detect marine mammals in the vicinity of the proposed operations and ensure that marine mammals are not being taken in unanticipated ways or numbers. Recommended that, before granting the requested authorization, the Service request clarification with respect to certain proposed monitoring activities, particularly during nighttime operations.	—	Incidental harassment authorization was issued on 10 June. Commission's recommendations were adopted. (See Chapter IX, Small-Take Authorizations.)

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
23 May	Thomas Eagle, Ph.D., Office of Protected Resources, National Marine Fisheries Service, commenting to the National Marine Fisheries Service regarding the request by Lamont-Doherty Earth Observatory for authorization to take small numbers of marine mammals incidental to conducting calibration measurements of its seismic array in the eastern equatorial Pacific Ocean. Concurred that the authorization of the request is appropriate, provided that the Service is satisfied that: all reasonable measures will be taken to ensure the least practicable impact on the subject species; and the required mitigation and monitoring activities be carried out as described in the Service's 9 April 2003 *Federal Register* notice and the subject application.	—	Incidental harassment authorization was issued on 3 July. Commission's recommendations were not adopted. (See Chapter IX, Small-Take Authorizations.)
29 May	Mr. Charlie R. Chandler, Division of Management Authority, U.S. Fish and Wildlife Service, on an amendment request from the Alaska Science Center/U.S. Geological Survey for authorization to conduct an additional research activity on northern sea otters in Alaska. Recommended approval of the request with conditions.	26 June	Permit amendment issued on 20 June; Commission's recommendations were adopted.
29 May	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, commenting to the National Marine Fisheries Service regarding the Department of the Navy's request for authorization, pursuant to the National Defense Authorization Act of 1986, to receive six captive-born California sea lions from Sea World of Florida. Recommended approval of the requested authorization.	—	Action on permit was pending at year's end.
3 June	Mr. David Hankla, Jacksonville Field Office, U.S. Fish and Wildlife Service, commenting regarding proposed rules to designate three new manatee refuges in Florida. Recommended that the proposed rules be adopted.	—	Final rule published on 6 August, adopting all three refuges.

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
6 June	Samuel Pooley, Ph. D., Pacific Islands Regional Office, National Marine Fisheries Service, commenting on supplemental fishery management plan amendments on fisheries off the U.S. West Coast and in the western Pacific. Recommended that the Service revise the environmental assessment to (1) correctly describe the intent and effects of the Executive Orders and appropriately remove the discussion of overfishing and control rules for the lobster fishery unless it is clear that they pertain only to areas outside the reserve, and (2) include a thorough description of the available information on stock status; methods of assessment; potential sources of error, bias, and uncertainty and the potential consequences of such information (or lack thereof) on management of fisheries at low stock levels. Reiterated previous recommendation to the Service that the Service broaden the definitions of overfished and overfishing to account for adverse effects from ecosystem overfishing, and develop control rules and other management procedures that require consistent, rigorous, and systematic evaluation of potential adverse effects of fishing activities. Recommended that the Service: not combine individual species into complexes for the purposes of allowing fishing on those complexes or assessing the effects of fisheries on them; before any fisheries on the subject species are initiated or expanded, develop reliable methods for assessing stock status and fishing mortality rate; and prepare a programmatic environmental impact statement on the associated fisheries to ensure that, in the face of the many existing uncertainties, the fishery management regimes for these fisheries are conducted in an environmentally sound manner.	—	
11 June	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on a permit application from the Alaska SeaLife Center to collect, receive, and export tissue samples from harbor seals and northern fur seals that have died of natural causes or were killed during legal subsistence hunts in Alaska. Recommended approval of the requested permit with conditions.	23 July	Permit issued on 11 July; Commission's recommendations were adopted.
24 June	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on a permit application from Stephen J. Insley, Hubbs-Sea World Research Institute, to conduct scientific research on northern fur seals. Recommended approval of the requested permit with conditions.	—	Permit was issued on 30 July. Copy of permit was not received at year's end.

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
24 June	Ms. Kaja Brix, Office of Protected Resources, National Marine Fisheries Service, regarding the proposed promulgation of regulations to allow the Naval Air Weapons Station to incidentally take by harassment small numbers of harbor seals, elephant seals, and California sea lions on San Nicolas Island during target missile launch operations over five years. Recommended issuance of the proposed regulations, provided that the mitigation and monitoring activities described in the Service's proposed rule and the Naval Air Weapons Station's Petition for Regulations are incorporated therein. Recommended that the final rule should explain (1) what is meant by the term "operationally practicable," and (2) given that caveat, how the proposed mitigation measures satisfy the requirement of section 101(a)(5)(A)(ii)(I) of the Act that the activity will result in the least practicable adverse impact on the subject species or stocks and their habitat. As in previous correspondence to the Service on similar requests, recommended that the Service's proposed modification of the term "biologically significant disturbance" is contrary to the existing statutory definition of harassment.	—	Final rule was published on 2 September. Commission's recommendations were partially adopted. (See Chapter IX, Small-Take Authorizations.)
3 July	Mr. Stephen L. Leathery, Office of Protected Species, National Marine Fisheries Service, on a permit application from the Alaska SeaLife Center to conduct scientific research on Pacific harbor seals. Recommended approval of the requested permit with conditions.	—	Permit was issued on 2 December; copy of permit was not received at year's end.
7 July	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on Sea World, Inc.'s requested authorization to maintain permanently in captivity one nonreleasable rehabilitated juvenile male Guadalupe fur seal for enhancement purposes. Recommended that: authorization for the proposed activities be provided under section 109(h) and 112(c) of the Marine Mammal Protection Act, rather than under a section 104 enhancement permit; and the Service use its authority under section 109(h) to authorize display of the animal incidental to its care and maintenance by Sea World.	—	Action on permit was pending at year's end.
8 July	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on a permit application from Bernd Wursig, Ph.D., to conduct scientific research on bottlenose dolphins. Recommended approval of the requested permit with conditions.	5 September	Permit was issued on 25 August; Commission's recommendations were adopted.
10 July	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on a permit application from the National Marine Mammal Laboratory to conduct scientific research on four pinniped species. Recommended approval of the requested permit with conditions.	—	Permit was issued on 3 September; copy of permit was not received at year's end.
10 July	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on a permit application from the National Marine Mammal Laboratory to conduct scientific research on northern fur seals. Recommended approval of the requested permit with conditions.	—	Permit was issued on 16 September; copy of permit was not received at year's end.

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
15 July	Ms. Kaja Brix, Office of Protected Resources, National Marine Fisheries Service, regarding an application from the Monterey Bay National Marine Sanctuary for authorization to take small numbers of California sea lions and harbor seals by Level B harassment incidental to permitting professional fireworks displays within the sanctuary, and the Service's proposal to promulgate regulations to authorize the activity over a five-year period. Concurred with the Service's preliminary determinations concerning the impacts of the proposed activities on the subject species, but noted that the Service should consult with the Fish and Wildlife Service as to the possible need to secure a separate authorization for the incidental taking of California sea otters. Recommended that (1) any authorization issued specify that, if a mortality or serious injury of a marine mammals occurs that appears to be related to the fireworks displays, further fireworks event be suspended while the Service determines whether steps can be taken to avoid further injuries or mortalities or until such taking can be authorized by regulations; and (2)before issuing the requested authorization, the Service be satisfied that the applicant's monitoring program is sufficient to detect the effects of the proposed activities including any mortality and/or serious injury resulting from startle responses, stampedes, or unexploded fireworks devices.	—	Issuance of the incidental harassment authorization and proposed rulemaking were pending at year's end. (See Chapter IX, Small-Take Authorizations.)
18 July	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on a permit amendment from the Alaska Department of Fish and Game to authorize additional research activities on harbor seals authorized to be taken under the permit. Recommended approval of the request with conditions.	—	Permit amendment issued on 9 September; copy of amended permit was not received at year's end.
21 July	William T. Hogarth, Ph.D., National Marine Fisheries Service, regarding Priorities for the 21st Century: NOAA Fisheries Strategic Plan for FY 2003–2008. Recommended the Service fundamentally rethink its strategic plan to address the current crisis in living marine resource management and develop a plan that contains a strategic vision for enhancing existing conditions of living marine resources.	—	Final Strategic Plan approved; no response from the Service at year's end.
23 July	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on a permit application from Fred Sharpe to conduct scientific research on Pacific humpback whales. Recommended approval of the requested permit with conditions.	—	Action on permit was pending at year's end.

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
23 July	Ms. Kaja Brix, Office of Protected Resources, National Marine Fisheries Service, regarding the request for a small-take authorization submitted by EnCana Oil and Gas, Inc. Concurred that approval of the authorization is appropriate, provided that the proposed mitigation and monitoring activities are adequate to detect marine mammals in the vicinity of the proposed operations and ensure that marine mammals are not being taken in unanticipated ways or numbers.	—	Incidental harassment authorization was issued on 31 October. Commission's recommendations were generally not adopted. (See Chapter IX, Small-Take Authorizations.)
29 July	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on a permit application from the National Marine Mammal Laboratory to conduct scientific research on various species of cetaceans. Recommended approval of the requested permit with conditions.	—	Action on permit was pending at year's end.
29 July	Ms. Mary Colligan, Northeast Regional Office, National Marine Fisheries Service, regarding the notice of intent to prepare an environmental impact statement on actions to implement the Atlantic Large Whale Take Reduction Plan. Recommended that the Service, in the anticipated environmental impact statement, clearly identify the whale protection standards it is required to achieve under the applicable statutes; and analyze and present in the draft environmental impact statement all available data regarding Atlantic large whale natural history and interactions with fisheries in a way that identifies the regulation measures that would be necessary to meet these standards.	—	Draft statement was not yet prepared at year's end.
1 August	Ms. Kaja Brix, Office of Protected Resources, National Marine Fisheries Service, regarding an application from Dr. Glenn R. VanBlaricom requesting authorization to take small numbers of California sea lions, Pacific harbor seals, and northern elephant seals by Level B harassment. Concurred with the Service's preliminary determinations concerning the impacts of the proposed activities on the subject species but noted that the Service should consult with the Fish and Wildlife Service as to the possible need to secure a separate authorization for the incidental taking of California sea otters. Recommended that (1) any authorization issued specify that, if a mortality or serious injury of a marine mammal occurs that appears to be related to the fireworks displays, further fireworks event be suspended while the Service determines whether steps can be taken to avoid further injuries or mortalities or until such taking can be authorized by regulations; and (2) before issuing the requested authorization, the Service be satisfied that the applicant's monitoring program is sufficient to detect the effects of the proposed research activities, including any mortality and/or serious injury resulting from startle responses or stampedes.	—	Incidental harassment authorization was issued on 23 September. Commission's recommendations were partially adopted. (See Chapter IX, Small-Take Authorizations.)

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
1 August	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on a permit application from Mr. Bob McLaughlin for authorization to harass several species of marine mammals during a commercial/educational filming project. Recommended approval of the requested permit with conditions.	—	Permit issued on 17 October; copy of permit was not received at year's end.
6 August	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on a permit application from Kate M. Wynne, University of Alaska, to conduct scientific research on three species of large whales. Recommended approval of the requested permit with conditions.	—	Action on the permit was pending at year's end.
6 August	Mr. Charlie R. Chandler, Division of Management Authority, U.S. Fish and Wildlife Service, on a scientific research permit application from Iskande Larkin, Ph.D., University of Florida, to import samples from West Indian manatees maintained in permanent captivity in Mexico. Recommended approval of the requested permit with conditions.	26 August	Permit was issued 26 August.
7 August	Mr. Charlie R. Chandler, Division of Management Authority, U.S. Fish and Wildlife Service, on a permit application from Jennifer L. Miksis, University of Rhode Island, to conduct scientific research on Florida manatees.	—	Action on the permit was pending at year's end.
20 August	Mr. Charlie R. Chandler, Division of Management Authority, U.S. Fish and Wildlife Service, on a permit renewal application from the Jacksonville Field Office, U.S. Fish and Wildlife Service, to conduct scientific research on Florida manatees for purposes of enhancement associated with rehabilitation and postrelease monitoring activities. Recommended approval of the requested permit with conditions.	—	Action on the permit was pending at year's end.
21 August	Ms. Kaja Brix, Office of Protected Resources, National Marine Fisheries Service, regarding the application submitted by the Lamont-Doherty Earth Observatory seeking authorization to take small numbers of marine mammals incidental to conducting oceanographic seismic surveys within the Storegga Slide area off the west coast of Norway. Recommended that prior to granting the requested authorization, the Service request clarification of several issues concerning the applicant's proposed monitoring and mitigation measures, and that the Service be satisfied that the monitoring program is sufficient to detect all marine mammals within and entering the safety zones.	—	Incidental harassment authorization was issued on 28 August. Commission's recommendations were generally not adopted. (See Chapter IX, Small-Take Authorizations.)
25 August	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on a permit application from Kathryn Ono, Ph.D., to conduct scientific research on harbor seals. Recommended approval of the requested permit with conditions.	20 November	Permit was issued on 2 October; the Commission's recommendations were adopted.

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
27 August	Mr. Charlie R. Chandler, Division of Management Authority, U.S. Fish and Wildlife Service, on a permit amendment request from Western Ecological Research Center, U.S. Geological Survey, to increase the number of sea otters authorized to be taken under the permit and to increase the number of surgical transmitter implants authorized under the permit. Recommended approval of the request with conditions.	31 October	Permit was issued on 31 October.
27 August	Mr. Charlie R. Chandler, Division of Management Authority, U.S. Fish and Wildlife Service, from the Sirenia Project, U.S. Geological Survey–Biological Resources Division) for authorization to continue scientific research after the accidental death of a manatee. Recommended that the applicant provide additional information concerning its plans to consult with experienced veterinarians to develop standardized biomedical monitoring protocols, and that after reviewing that information and the completed standardized protocols, the Service grant authorization for continuation of the permitted research activities.	23 September	Authorization was issued on 23 September.
29 August	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on a permit amendment request from the Center for Coastal Studies to allow the resampling of humpback whales authorized to be biopsy sampled under the permit. Recommended approval of the requested permit with conditions.	—	Action on the permit amendment was pending at year's end.
29 August	Mr. Craig Perham, Office of Marine Mammals Management, U.S. Fish and Wildlife Service, regarding proposed regulations to authorize the Alaska Oil and Gas Association to incidentally take small numbers of polar bears and Pacific walruses incidental to year-round oil and gas industry exploration, development, and production operations in the Beaufort Sea and adjacent northern coast of Alaska. Recommended that the Service: establish a mechanism to evaluate and, if appropriate, authorize the incidental taking of marine mammals resulting from activities associated with, but occurring outside of, the geographic location of the proposed oil and gas exploration, development and production; prior to finalizing the regulations, conduct a thorough analysis of possible impacts of oil and gas activities on the availability of polar bears to the village of Nuiqsut; modify its oil spill risk assessment to properly reflect the assumptions and uncertainties concerning the effects of oil spills on walruses and polar bears; in the process of developing a longer-term rule for allowing incidental take by industry, do a complete analysis of possible cumulative impacts on polar bears and walruses; describe in the final regulations the mitigation measures that will be required for industry to minimize impacts to polar bears; and prior to authorizing future incidental takes of polar bears from the Beaufort Sea population, develop and implement a monitoring program that has sufficient resolution to detect changes in vital parameters such as might be reasonably expected to occur.	—	Final rule was published on 28 November. Commission's recommendations partially adopted. (See Chapter IX, Small-Take Authorizations.)

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
4 September	Admiral Thomas H. Collins, U.S. Coast Guard, regarding clean-up work on Tern Island, French Frigate Shoals, Northwestern Hawaiian Islands. Recommended that the Coast Guard promptly fund the needed cleanup work on Tern Island and take immediate steps to coordinate that work with the U.S. Fish and Wildlife Service's seawall construction plans.	12 November	Coast Guard responded on 12 November, noted that it is reviewing the issue; later determined that cleanup would not be funded.
10 September	Ms. Laurie Allen, Office of Protected Resources, National Marine Fisheries Service, regarding the proposed rulemaking on the Zero Mortality Rate Goal (ZMRG). Recommended that the Service: adopt a modified version of option 1 as the most appropriate mechanism for determining when a fishery has met the ZMRG; modify option 1 by adding a second component that compels further reductions in mortality and serious injury for those stocks with high potential biological removal (PBR) levels; and determine that a fishery has met the ZMRG only if it results in a level of mortality and serious injury below the threshold established for that goal.	—	No response received as of 31 December.
12 September	Mr. Charlie R. Chandler, Division of Management Authority, U.S. Fish and Wildlife Service, on a permit application from the University of Florida/College of Veterinary Medicine to obtain specimen material from manatees. Recommended approval of the requested permit with conditions.	28 October	Permit was issued on 28 October.
12 September	Mr. Charlie R. Chandler, Division of Management Authority, U.S. Fish and Wildlife Service, on a permit application from Georgia Southern University to conduct scientific research on Florida manatees. Recommended approval of the requested permit with conditions.	—	Action on permit was pending at year's end.
12 September	Mr. Chris E. Yates, Office of Protected Resources, National Marine Fisheries Service, regarding the application submitted by the Scripps Institution of Oceanography seeking authorization to take small numbers of marine mammals by harassment incidental to conducting a marine seismic survey in the eastern tropical Pacific Ocean. Recommended that, prior to granting the requested authorization, the Service request written clarification of several issues concerning the applicant's proposed monitoring and mitigation measures, and that the Service be satisfied that the monitoring program is sufficient to detect all marine mammals within and entering the safety zones whenever the air guns are in use.	—	Incidental harassment authorization was issued on 17 October. Commission's recommendations were partially adopted. (See Chapter IX, Small-Take Authorizations.)

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
25 September	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on permit allocations from the University of Alaska Museum and Alaska Sea Otter and Steller Sea Lion Commission to conduct scientific research on cetacean and pinniped species (except walrus). Recommended that the Service consider adopting a generic approach for authorizing the collection and use of specimen materials by institutions for eventual use for research purposes. Concerning the subject applications, recommended approval of the requested permits with conditions.	23 December	University of Alaska Museum permit issued on 9 December; Commission's recommendations were adopted. Alaska Sea Otter and Steller Sea Lion Commission permit issued on 29 December; Commission's recommendations were adopted.
17 October	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on a permit application from the Southwest Fisheries Science Center to conduct scientific research on various species of pinnipeds and cetaceans in the waters off California, Oregon, Washington, Hawaii, Alaska, and in international waters. Recommended approval of the requested permit with conditions.	—	Permit was issued on 30 September; copy of permit was not received at year's end.
17 October	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on an amended permit application from the National Marine Mammal Laboratory to conduct scientific research on marine mammal species in the Antarctic. Recommended approval of the requested permit with conditions.	—	Permit was issued on 30 September; copy of permit was not received at year's end.

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
27 October	William T. Hogarth, Ph.D., National Marine Fisheries Service, regarding the release to the wild of five pilot whales that stranded in the Florida Keys. Among other things, noted that one of the animals, a dependent calf, was presumed to have been killed by sharks shortly after release. Requested clarification of: why the Service's draft criteria for release of the animals were not followed; what criteria were used by the Southeast Regional Office to determine that the whales were releasable and the basis for using those alternative criteria; and why the Southeast Regional Office discounted the majority recommendations of the experts with whom it consulted in this case. Encouraged the Service to investigate the Southwest Regional Office's decision to release the animals and, as soon as possible, to finalize the development and implementation of scientifically objective criteria for determining at what point rehabilitated marine mammals are returnable to the wild.	18 December	Response noted, among other things, that release of the five pilot whales as a group was a unique circumstance, and the Southeast Regional Office deviated from the Service's draft release criteria because they believed that all five animals had a better than even chance of surviving if released together. Noted that most of the experts consulted had never observed or examined the animals, and the biologists, veterinarians, and volunteers who had seen and worked with the animals believed that the whales had a good chance of survival and should be released. Noted that Service is in full agreement that release criteria are urgently needed and solicited the Commission's guidance and assistance in their development.

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
28 October	William T. Hogarth, Ph.D., National Marine Fisheries Service, regarding the Service's proposed strategy for reducing the risk of collisions between ships and right whales. Recommended that the Service: implement the dynamic area management measures on an expedited basis; use a two-tiered system for implementing vessel-related dynamic management areas; propose 12 knots as the maximum recommended speed for most areas where speed limits are necessary; propose a maximum speed of 12 knots for vessels operating in a managed area during the whale season and 10 knots if whales are sighted within a mile of the vessel in traffic lanes through the southeastern calving grounds and in Cape Cod Bay; and develop separate timetables for implementing the different measures because some of these can be implemented more quickly than others.	—	Proposed strategy not announced as of 31 December.
28 October	Mr. P. Michael Payne, Office of Protected Resources, National Marine Fisheries Service, regarding the application submitted by Lamont-Doherty Earth Observatory seeking authorization to take small numbers of marine mammals incidental to conducting oceanographic seismic surveys in the mid-Atlantic Ocean. Recommended that, before granting the requested authorization, the Service be satisfied that the monitoring program is sufficient to detect, with reasonable efficacy, marine mammals within and entering the safety zones.	—	Incidental harassment authorization was issued on 23 October. Commission recommendations generally not adopted. (See Chapter IX, Small-Take Authorizations.)
4 November	Mr. P. Michael Payne, Office of Protected Resources, National Marine Fisheries Service, regarding an application from the 30th Space Wing, U.S. Air Force, seeking authorization to harass small numbers of pinnipeds incidental to space vehicle and test flight activities from Vandenberg Air Force Base, California, and the Service's intention to propose regulations to govern the requested taking. Recommended issuance of the proposed regulations, provided that the research, mitigation, and monitoring activities described in the application are incorporated in the proposal.	—	Proposed rule was published in the *Federal Register* on 3 December.
13 November	Mr. Charlie R. Chandler, Division of Management Authority, U.S. Fish and Wildlife Service, on a permit amendment request from Charles J. Grossman, Ph.D., Xavier University, to conduct scientific research on captive manatees. Recommended approval of the requested permit with conditions.	9 December	Permit was issued on 9 December; copy of permit was not received at year's end.
13 November	Mr. P. Michael Payne, Office of Protected Resources, National Marine Fisheries Service, regarding the application submitted by Lamont-Doherty Earth Observatory seeking authorization to take small numbers of marine mammals incidental to conducting oceanographic seismic surveys in the northwestern Atlantic Ocean off Bermuda. Recommended that, before issuing the requested authorization, the Service ensure that the planned monitoring program is sufficient to detect, with reasonable accuracy, marine mammals within and entering the identified safety zones.	—	Incidental harassment authorization was issued on 14 November. Commission's recommendations partially adopted. (See Chapter IX, Small-Take Authorizations.)

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
17 November	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on a permit application from Sea World, Inc. to collect, receive, import/export, and analyze specimens from dead or captive cetaceans and pinnipeds for scientific research purposes. Recommended that the Service consider adopting a generic approach for authorizing the collection and use of specimen materials by institutions for eventual research purposes. Recommended that the requested permits for the specific applications be issued with conditions.	—	Action on the permit was pending at year's end.
17 November	Edwin P. Roberts, D.C., Florida Fish and Wildlife Conservation Commission (FFWCC), commenting on the possible review of the State's listing criteria for species that are endangered, threatened, or of special concern and the review of the status of the Florida manatee. Suggested that the FFWCC review and revise the state's listing criteria before completing its evaluation of the status of the Florida manatee. Noted that if the state were to designate the manatee as threatened under either the current or revised listing criteria, the Commission would recommend a thorough monitoring program so that a reduction in numbers of other manifestations of population problems could be addressed quickly.	—	FFWCC was reviewing alternative criteria at year's end.
24 November	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on permit applications from the National Museum of Natural History and Darla Ewalt, for authorization to acquire, import, and export marine mammal specimen material. Recommended that the requested permits be approved with conditions.	—	Action on permit was pending at year's end.
24 November	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on a request from the Alaska Department of Fish and Game to proceed with research activities under its permit authorizing scientific research on harbor seals. Recommended that authorization be granted to continue research in 2004 and 2005.	—	Action on permit was pending at year's end.

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
25 November	Mr. P. Michael Payne, Office of Protected Resources, National Marine Fisheries Service, regarding the draft 2003 stock assessment reports for marine mammals in the U.S. Atlantic, Pacific, and Alaska regions. Recommended that the Service: work with the scientific review groups from each region and the Marine Mammal Commission to investigate means to update the data in the stock assessment reports in a more timely fashion, and to better coordinate the review process for the reports; develop a more systematic approach for reporting information on fisheries interactions based on consistent application of data standards for observer coverage and quantitative assessment of our ability to detect mortality and serious injury of marine mammals; review its interpretation of population parameters and status in the absence of adequate information, identify measures that can be used to convey the associated uncertainty, and incorporate those measures in the stock assessment reports; prepare stock assessment reports on prospective stocks, or at the least incorporate information on the applicable parameters in the current stock assessment report; use the stock assessment reports as a basis for an overall assessment of key issues/problems, and use that assessment to facilitate planning and setting of priorities for future research; and review and revise its approach for determining when right whales have been seriously injured.	—	Action on final assessment reports pending at year's end.
25 November	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on a permit amendment request from James Darling, Ph.D., to authorize the harassment of additional humpback whales under the permit. Recommended approval of the requested permit with conditions.	—	Action on the amendment was pending at year's end.
5 December	Ms. Mary Colligan, Northeast Regional Office, National Marine Fisheries Service, regarding the Service's determination that action on a petition to revise the current critical habitat boundaries for North Atlantic right whales "is not warranted at this time." Recommended that the Service conduct the analyses necessary to identify how the existing critical habitat areas should be modified based on the available information already in hand and proceed with modifying the designated right whale critical habitat boundaries based on that analysis as quickly as possible.	—	Action pending at year's end.
9 December	Mr. Stephen L. Leathery, Office of Protected Resources, National Marine Fisheries Service, on a permit application from Peter Stein, Ph.D., to conduct scientific research on gray whales and several other species of marine mammals. Recommended approval of the requested permit with conditions.	—	Permit was issued on 24 December; Commission's recommendations were adopted.

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
18 December	Mr. P. Michael Payne, Office of Protected Resources, National Marine Fisheries Service, regarding the application submitted by Lamont-Doherty Earth Observatory seeking authorization to take small numbers of marine mammals by harassment incidental to conducting oceanographic seismic surveys in the southeastern Caribbean Sea and adjacent Atlantic Ocean. Reiterated previous recommendations on similar requests that, before issuing the requested authorization, the Service ensure that the planned monitoring program is sufficient to detect, with reasonable accuracy, marine mammals within and entering the identified safety zones. Recommended that the Service: consult with the applicant about incorporating a marine mammal research component into future operations to develop data on the effectiveness of ramping-up the sound source and on the avoidance behavior of marine mammals once peak pressure levels have been attained; consider requiring the applicant to augment the proposed observer program with passive or active acoustic monitoring; require that postsurvey monitoring be conducted as part of any small-take authorization for the proposed survey.	—	Issuance of the incidental harassment authorization was pending at year's end. (See Chapter IX, Small-Take Authorizations.)
22 December	Mr. P. Michael Payne, Office of Protected Resources, National Marine Fisheries Service, regarding an application from the 30th Space Wing, U.S. Air Force, seeking authorization to harass small numbers of pinnipeds incidental to space vehicle and test flight activities from Vandenberg Air Force Base, California, from 1 January 2004 through 31 December 2008, and the Service's proposal to issue regulations to govern that take. Recommended that the proposed rule be issued provided that (1) the mitigation and monitoring activities described in the Service's *Federal Register* notice and the application are incorporated into the rule; (2) acoustic and biological monitoring be conducted on new space and military launch vehicles during at least the first launch and during the first three launches of the Atlas V and Delta IF space launch vehicles, whether or not the launches occur during the harbor seal pupping season; (3) continuation of the research program being carried out under scientific research permit No. 859-1680 is made a condition of the rule; and (4) the authorized activities be suspended, pending review, if there are any indications that the activities covered by the rule may be causing marine mammal mortalities or injuries or are affecting the distribution, size, or productivity of the potentially affected populations.	—	Issuance of the proposed rule was pending at year's end.

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
31 December	Mr. P. Michael Payne, Office of Protected Resources, National Marine Fisheries Service, regarding measures for reducing marine mammal mortality and serious injury from direct fishery interactions, specifically with regard to mid-Atlantic bottlenose dolphins and North Atlantic right whales. Recommended: continued investigation of bottlenose dolphin stock structure in the mid-Atlantic region; continued surveys of mid-Atlantic bottlenose dolphins to confirm recent estimates of abundance and investigate bias from overlapping distributions of coastal and offshore ecotypes; additional assessment of inshore dolphins to estimate abundance and fishery-related mortality and serious injury; development of standards for acceptable accuracy and precision of estimates of abundance and, particularly, mortality/serious injury, and development of alternative assessment methods when observer programs do not provide reasonably precise estimates of mortality/serious injury; review and improvement of coordination of fishery management efforts with conservation and take-reduction efforts to ensure that fisheries managers assume responsibility for adopting measures to regulate fishing in ways that provide needed protection for marine mammals; and a fundamental change in the management strategy for reducing entanglement-related mortality and serious injury of North Atlantic right whales. Recommended that the Service immediately convene a scientific review team composed of experts in marine mammal conservation, fisheries management, and ecosystem management to develop medium-term and long-term strategies to address fundamental changes in managing fishery interactions with the North Atlantic right whale.	—	—
31 December	Ms. Laurie K. Allen, Office of Protected Resources, National Marine Fisheries Service, regarding the need to review and revise the Service's application instructions for scientific research and enhancement permits. Recommended that the Service revise its application instructions for scientific research and enhancement permits.	—	—

Date of MMC Letter	MMC Comments	Date of Agency Response	Agency Response
31 December	Ms. Laurie K. Allen, Office of Protected Resources, National Marine Fisheries Service, regarding the lengthy and overly burdensome process required to obtain a scientific research permit. Recommended that the National Marine Fisheries Service and the U.S. Fish and Wildlife Service develop ways to better coordinate analyses of applications under the Marine Mammal Protection Act, the Endangered Species Act, and the National Environmental Policy Act. Recommended that the National Marine Fisheries Service: explore options for better coordinating and consolidating application processing under the multiple statutes; evaluate and, as necessary, restructure the current system for conducting permit-related consultations under the Endangered Species Act; develop measures to hasten the preparation of programmatic assessments under the National Environmental Policy Act, either in-house or through contractors; review application instructions for scientific research permits and enhancement permits under the Marine Mammal Protection Act and the Endangered Species Act; and consider ways to free up staff to work on scientific research issues.	—	—
31 December	William T. Hogarth, Ph.D., National Marine Fisheries Service, regarding the Marine Mammal Health and Stranding Response Program. Requesting a meeting with staff involved in the Marine Mammal Health and Stranding Response Program to explore in detail the potential costs and benefits associated with conducting a review of the Marine Mammal Health and Stranding Response Program.	—	—

Appendix B

STATEMENTS OF THE MARINE MAMMAL COMMISSION

Statement of David Cottingham
Executive Director, Marine Mammal Commission
Submitted to the Senate Committee
on Commerce, Science, and Transportation
for the Hearing Regarding Reauthorization of
the Marine Mammal Protection Act
16 July 2003

Thank you for providing the opportunity for the Marine Mammal Commission to share its views with the Committee regarding reauthorization of the Marine Mammal Protection Act. We recently observed the Act's 30th anniversary and took that opportunity to reflect on the statute's successes and the challenges that remain. Under the Marine Mammal Protection Act, much has improved. Many marine mammal populations have grown significantly since passage of the Act, including some stocks of large whales that had been threatened by commercial whaling. Observed dolphin mortality associated with the eastern tropical Pacific tuna fishery has been reduced from hundreds of thousands per year to less than 2,000. Nevertheless, the depleted dolphin stocks used to locate schools of large tuna do not appear to be recovering as one would expect. Other species and stocks, such as northern right whales and Hawaiian monk seals remain critically endangered. New threats to marine mammals are emerging, such as retreating ice coverage in polar areas, which is having adverse effects on habitats used by Arctic species such as the polar bear. Other possible threats require further study, such as noise in the marine environment, that may be disrupting or interfering with vital marine mammal behaviors. The Commission is in the process of planning a series of international workshops on the effects of ocean noise to identify information gaps and the actions needed to help us better understand the nature and extent of the possible impacts and to identify needed management actions.

In previous testimony concerning the Marine Mammal Protection Act, the Commission's Chairman has observed that most research and conservation actions involving marine mammals are taken in response to acute, often controversial conservation problems. Current legislation largely reflects this reactive approach to management. As we focus on past and emerging crises, we may miss opportunities to develop a more broad-based, interdisciplinary, and anticipatory approach to research and management that could enable us to identify and act to address potential conservation problems before they become serious and controversial. Along these lines, the Commission is convening a meeting of international marine mammal experts this summer to identify comprehensive research needs and to map out a long-term strategy for pursuing such projects. I would be happy to discuss these and other efforts being carried out by the Commission in furtherance of its responsibilities under the Marine Mammal Protection Act during this hearing as time permits or at another time at the Members' convenience. I now turn to the immediate task at hand, providing you with our recommendations concerning reauthorization of the Act.

The Marine Mammal Protection Act was last reauthorized in 1994, at which time Congress enacted significant amendments to the statute. While those amendments, for the most part, have improved operation of the Act, ten years of experience with implementing those provisions have uncovered certain problems that we and the other agencies charged with implementing the Act believe merit the Committee's attention during reauthorization. In large part, the recommended amendments included in the Administration's bill were developed to address those shortcomings. The Commission participated on an inter-agency working group to develop the Administration's proposal. Passage of the bill that we and the other agencies testifying before you today have developed will lead to more effective conservation of marine mammals. Although other, technical amendments have been proposed, the key issues addressed in the Administration bill are summarized below.

The 1994 amendments added section 119 to the Act to encourage the National Marine Fisheries Service and the Fish and Wildlife Service to enter into cooperative agreements with Alaska Native organizations to conserve ma-

rine mammals, to provide co-management of subsistence use, and to authorize funding for activities under those agreements. The process has worked well, and cooperative agreements are in place with a number of Alaska Native organizations. The key shortcoming with the existing provision is that it does not provide a mechanism for true harvest management under which the parties can establish enforceable limits on the numbers of marine mammals that may be taken for subsistence and handicraft purposes or on the time and manner of taking. Having such authority would have allowed the resource agencies and Native leaders to implement responsible harvest management measures to stave off situations such as that that led to depletion of the Cook Inlet stock of beluga whales. As it was, the National Marine Fisheries Service and the majority of Native hunters had little recourse but to watch as a small group of hunters seeking financial gain overharvested the stock to the point of depletion. It was only after the Service designated the stock as depleted that it was able to establish mandatory limits on further taking by Alaska Natives. By that point, however, the population had been reduced to such low numbers that draconian measures were needed to bring about recovery of the stock — restrictions that could have been avoided if effective management could have been implemented earlier. The Administration bill includes a proposal, worked out cooperatively with Alaska Native representatives, that would cure this statutory deficiency and minimize the risk that similar situations will arise in the future.

The permit provisions of the Act were significantly revised in 1994. The package of permit-related amendments enacted at that time added a new, generally applicable prohibition to the Act — a prohibition on exporting marine mammals. Being focused on permits, however, the amendments neglected to provide exceptions to authorize marine mammals, and marine mammal parts and products, to be exported in all cases where such exports previously had been allowed. In fact, the only exceptions included in the 1994 amendments pertained to exports for purposes of public display, scientific research, and species enhancement. Exceptions authorizing exports in other situations are needed, including for handicrafts made and sold by Alaska Natives, as part of cultural exchanges among Alaska Natives and Natives from other Arctic countries, under waivers of the moratorium, etc. The Administration bill takes a comprehensive approach to this problem by including specific authority not only for exports, but related transport, purchases, and sales.

Although transfers of marine mammals currently are authorized for purposes of public display, scientific research, and enhancement to foreign facilities that meet requirements comparable to those applicable to U.S. facilities, no mechanism is in place for issuing permits to authorize a foreign applicant to take and export marine mammals directly. That is, sections 101(a)(1) and 104(a) of the Act refer only to permits authorizing the taking or importing of marine mammals, but not exports. The amendments set forth in the Administration bill would clarify that such permits can be issued to qualified applicants. We understand that some representatives of the public display community are concerned that the Administration bill would require facilities to obtain permits for exports where one is not required now. A close examination of the proposed amendments will reveal that this is not the case. Transfers from domestic facilities to foreign facilities that meet the Act's comparability requirements would still be allowed without a permit. However, under the Administration's proposal, issuance of an export permit to a foreign applicant in the first instance would become an available option. That is, the proposed authority for issuing export permits would supplement, but not roll-back, the 1994 permit amendments.

One other problem created by the 1994 amendments related to exports pertains to the prohibition section of the Act. As originally enacted in 1972, the prohibition on transporting, purchasing, and selling marine mammals applied only if the animal had been taken in violation of the Act. Recognizing that this created untenable enforcement problems — for example, when the animal was originally taken for a permissible purpose, e.g., Native subsistence, but later transferred for an impermissible purpose — Congress amended the provision in 1981 to remove the linkage between the underlying taking and the subsequent, unauthorized act. For unexplained reasons, and perhaps inadvertently, when the export prohibition was added to section 102(a)(4) in 1994, the drafters reverted to the pre-1981 language. This has resurrected the enforcement difficulty that Congress recognized and originally fixed more than two decades ago. A similar amendment to fix the problem anew is needed now.

Another key aspect of the 1994 permit amendments was clarifying that exclusive jurisdiction for most aspects of the maintenance of marine mammals in captivity rests with the Animal and Plant Health Inspection Service under the Animal Welfare Act. One result of this shift in agency jurisdiction was the nullification of a longstanding National Marine Fisheries Service policy against authorizing traveling cetacean exhibits. Although the Animal and Plant Health Inspection Service has recognized that such exhibits pose heightened risks to the animals involved, it does not believe that it has sufficient authority to prohibit them by regulation. Because of this, and the undue risks posed to dolphins and other cetaceans in transient facilities, the Commission and other agencies recommend that these exhibits be expressly precluded by statute.

Another issue concerning captive marine mammals that merits Congressional attention is the release of long-term captive marine mammals. The release of these animals poses risks both to the animals being released and to the wild populations with which they come into contact.

As such, releases should only be attempted when there has been sufficient training and health screening of the animals to be released and when an adequate monitoring program is in place. While releases arguably constitute harassment under the current definition of that term, there is a need for certainty that releases are prohibited absent specific authorization. In this regard, we note that the Administration's proposed release amendment would not apply to the return of stranded/rehabilitated animals or to temporary releases undertaken as part of the training or deployment of marine mammals as part of the Navy's marine mammal program.

The centerpiece of the 1994 amendments was the adoption of a new regime to govern the incidental take of marine mammals by commercial fisheries. By focusing on whether or not the catch is sold, however, the amendments created a situation where certain "recreational" fishermen, who fish in the same areas as commercial fishermen, use identical or similar gear, and target the same species, are not covered under the regime simply because they choose to keep the fish for their own use. The Administration proposal would address this incongruity by expanding the current regime to include not only commercial fisheries, but recreational fisheries that take marine mammals frequently or occasionally (category I or II fisheries). In this way, these fishermen would be covered under the section 118 taking authorization and would be accountable for implementing take reduction measures and for meeting the reporting and other requirements applicable to their commercial counterparts. The Administration bill also includes proposed amendments to section 118 designed to improve the operation of the take reduction process.

Another important change to the Marine Mammal Protection Act enacted in 1994 was the addition of a statutory definition of the term "harassment." That amendment was intended to bring greater certainty to determining what would and would not constitute a taking by harassment. However, that amendment has not had the desired result. Some argue that the definition is too narrow in that it requires an underlying "act of pursuit, torment, or annoyance" to constitute harassment. Others observe that the definition is too broad in that it arguably includes acts with any potential to disturb a marine mammal. The Administration proposal would address both of these concerns. First, it would expand the definition to clarify that it includes any act that has, or can be reasonably be expected to have, certain impacts. Second, the proposed definition would raise the threshold for Level B harassment to the point where disturbance would have to occur or be likely to occur. In addition, the Administration proposal contains a new subpart that would address activities directed at marine mammals (e.g., intentional pursuit or close approaches) that are likely to cause disturbance, regardless of whether the response is significant or not.

There are also provisions of the Act apart from those amended in 1994 that need to be revisited during the reauthorization process. For instance, certain provisions have not been updated to reflect changed circumstances since they were originally enacted 30 years ago. Foremost among these are the penalties and fines available under the Act, which have not been increased since originally enacted in 1972. The Administration proposal would bring the Marine Mammal Protection Act penalty provisions into parity with those under other natural resource statutes and reflect changed economic circumstances since the early 1970s.

Likewise we advocate updating a spending limit peculiar to the Marine Mammal Commission. Section 206(4) of the Act authorizes the Commission to secure the services of experts or consultants, but limits the amount that can be spent to $100 per day. That limit essentially precludes us from obtaining these types of services in today's economy. To address this problem, the Administration bill would eliminate the $100 limit and put the Commission on an equal footing with other Federal agencies when it comes to procuring such services.

The Marine Mammal Commission also believes that there is a need to improve enforcement efforts under the Marine Mammal Protection Act. In this regard, the Administration proposal would tighten the harassment definition to make cases based on directed taking easier to prove. The Administration bill would also allow the National Oceanic and Atmospheric Administration to retain fines collected for violations of the Act, which could be used to offset enforcement expenses. This is something that the Fish and Wildlife Service is currently authorized to do. In addition, the Administration bill would direct the National Marine Fisheries Service and the Fish and Wildlife Service to pursue cooperative agreements with State law enforcement agencies to improve local enforcement efforts under the Marine Mammal Protection Act.

Another major challenge under the Marine Mammal Protection Act reflected in the Administration bill is securing the recovery of highly endangered species, such as the northern right whale. The North Atlantic stock, which numbers about 300 individuals, remains vulnerable to extinction due, in part, to ship strikes and entanglement. The Administration bill highlights the ship strike issue as one requiring priority attention. One of the difficulties impeding progress in addressing this source of mortality is a lack of agreement concerning the existing legal authorities that can be brought to bear on the issue. In this regard, the Marine Mammal Commission has just entered into a contract for an independent assessment of what can be done under current legislation and existing international agreements to address this problem.

That concludes my testimony. I would be pleased to respond to any questions that you may have.

Statement of David Cottingham
Executive Director, Marine Mammal Commission
Submitted to the House Committee on Resources, Subcommittee on Fisheries Conservation, Wildlife and Oceans for the Hearing Regarding Reauthorization of the Marine Mammal Protection Act
24 July 2003

Thank you for providing the Marine Mammal Commission with the opportunity to present its views on H.R. 2693, the Marine Mammal Protection Act Amendments of 2003, and to share its thoughts on other issues related to reauthorization of the Marine Mammal Protection Act that currently are not addressed in the bill. You also requested that the Commission provide you with an update of its progress toward convening an international conference, or series of conferences, to survey acoustic threats to marine mammals and develop means of reducing those threats, as called for under the Fiscal Year 2003 omnibus appropriations legislation enacted earlier this year.

As noted in your invitation to testify, H.R. 2693 has many similarities to H.R. 4781, which was passed out of this subcommittee during the last session of Congress. The current bill also contains several important improvements that respond to concerns expressed by the Commission and others at the 13 June 2002 reauthorization hearing. Among these are extension of the proposed amendments to section 101(a)(6) of the Act to include export authorizations that would conform with all of the import provisions enacted in 1994; provision of specific authorizations for cooperative agreements under section 119 of the Act; expansion of the proposal to include certain recreation and subsistence fisheries under the incidental taking regime established under section 118 of the Act; amendments to various provisions of Title IV of the Act to clarify that they apply to entanglements, as well as strandings; and a redefinition of the term harassment. In addition, H.R. 2693 includes proposed amendments to section 101(a)(5) of the Act that respond to problems with the existing provisions raised by the Administration earlier this year in the context of the Department of Defense's Readiness and Range Preservation Initiative.

Although H.R. 2693 includes several of the key elements contained in the Administration bill transmitted to Congress last February, it also omits some of the recommended amendments. Foremost among these is the proposal worked out jointly by the Commission, the Fish and Wildlife Service, the National Marine Fisheries Service, and representatives of the Alaska Native community to expand the existing section 119 authority to enable the parties to enter into enforceable harvest management agreements. It is not clear whether these omissions reflect determinations by the Committee that certain issues should not or need not be addressed during the reauthorization process, or whether the Committee intends to pursue these other issues, but has yet to develop specific language. We encourage the Committee to give additional consideration to including all of the Administration's recommended amendments in the legislation. Regardless of whether they represent major substantive changes, such as management of subsistence harvests, or mere technical corrections, each is expected to improve or clarify the Act. In this regard, we remain available to work with the Committee and its staff and would welcome the opportunity to provide additional explanation of the rationale behind these proposals or otherwise respond to any concerns that you may have with respect to any of the elements in the Administration's bill.

I will begin by discussing the Commission's observations regarding the provisions included in H.R. 2693.

Section 3 — Technical Corrections

The Commission concurs that the proposed corrections are appropriate and should be made. It is unclear, however, why other technical amendments are not also being proposed. We believe that other such corrections are in order, such as the deletion of section 114 and references thereto made in other sections of the Act, deletion of section 120(j), and those corrections set forth in section 520 of the Administration's proposed bill. Also, the change that would be made under section 3(b) of the bill appears to duplicate the amendment set forth in section 6(5)(B) of the bill. Presumably one of these provisions should be deleted.

Section 4 — Limited Authority to Export Marine Mammal Products

As noted in previous Commission testimony, several provisions of the Act were not revised in 1994 to reflect the prohibition on exporting marine mammals that was added at that time. One of these is section 101(a)(6), which authorizes the import, but not the export, of marine mammal products for purposes of cultural exchange and by U.S. citizens in conjunction with travel abroad. As such, the Commission agrees that an export authorization needs to be added to this section. At the previous reauthorization hearing before this Committee, the Commission recommended that the export authorization contained in H.R. 4781 be expanded to include exports of legally possessed marine mammal products by U.S. citizens traveling abroad. We are pleased that the current bill has adopted this recommendation. We are concerned, however, with the specific language of that

provision. Unlike the Administration's proposal, the provision in H.R. 2693 would allow exports, but would not require that the marine mammal item exported by the U.S. citizen be returned to the United States upon completion of the travel. This could result in enforcement problems by creating a significant loophole that would allow for the export and subsequent sale of marine mammal products once they are outside the jurisdiction of the United States. In this regard, we note that, unlike the proposed cultural exchange provision, there is nothing that limits such exports to non-commercial purposes. Further, we note that the statutory definition of the term "marine mammal product" includes any item of merchandise that consists of, or is composed of, any marine mammal part, and would include items such as tanned, but unworked, seal skins; raw walrus ivory; marine mammal bones; and, perhaps, even polar bear gallbladders. This would go far beyond what was envisioned under the 1994 amendment pertaining to imports, which, as explained in the House report, was included primarily to enable U.S. citizens who obtain marine mammal handicrafts in Alaska to return home via Canada without encountering problems when they re-enter the United States.

Section 6 — Take Reduction Plans

Although structured somewhat differently than the Administration's proposal to expand the section 118 incidental take regime to include recreational and subsistence fisheries that frequently or occasionally kill or seriously injure marine mammals, this section of H.R. 2693 incorporates most of the substance of that proposal. The Commission believes that this proposal is significantly improved over the one included in H.R. 4781. This is much more comprehensive. It would include these fisheries under the section 118 incidental take authorization and, in so doing, would make them subject to the registration, monitoring, reporting, and take reduction requirements applicable to their commercial counterparts.

There are, however, some differences between the proposed amendments in H.R. 2693 and the Administration's proposal that merit discussion. For example, section 404(h)(5) of the Administration bill would add the word "commercial" to section 118(c)(3)(E) to clarify that this provision applies only to category III commercial fisheries. By not incorporating such a change to this subparagraph, H.R. 2693 could be interpreted as including non-commercial fisheries (other than those listed under section 118(c)(1)(A)(i) and (ii)), thereby allowing incidental taking by participants in those fisheries, but also requiring those fishermen to report any incidental marine mammal mortalities or injuries that may occur. Although we have no objection to placing such a requirement on those non-commercial fisheries not included on the expanded list of fisheries, this may not have been the intent of the drafters of the bill.

Consistent with the Administration's proposal, H.R. 2693 would amend subparagraphs (A) and (B) of section 118(d)(4), which pertain to priorities for placing observers on vessels engaged in category I and II fisheries, to apply to both commercial and non-commercial fisheries. No similar amendment to subparagraph (C) is included in the bill. Presumably this third-tier criterion should similarly factor in taking from all category I and II fisheries, not just commercial fisheries.

The proposed expansion of section 118 to include some recreational and subsistence fisheries has ramifications for other provisions of the Act as well. Recommended changes to these other provisions that we believe should be made to conform them to the proposed amendments to section 118 are set forth in section 404 of the Administration bill. We believe that the Committee should give further consideration to including these conforming amendments as it considers H.R. 2693. For example, unless section 101(a)(5)(E) is modified, there would be no mechanism for authorizing the incidental taking of marine mammals listed under the Endangered Species Act by non-commercial fishermen, even when such taking would have a negligible impact on the species.

Section 7 — Pinniped Research

The Commission agrees that more needs to be done to develop effective, non-lethal methods for deterring pinnipeds from engaging in harmful interactions with fishing operations. Presumably this is the focus of the proposed amendment, inasmuch as paragraph (2) of the proposed provision would require the Secretary to include representatives of the commercial and recreational fishing industries among those tasked with developing the research program. However, by referring more generally to "nuisance pinnipeds," the provision suggests that its intent is broader than just fishery interactions. It therefore would be helpful if the Committee, in its report on the bill, were to provide additional guidance as to what constitutes "nuisance pinnipeds" and the types of problems it expects the program to address.

Section 8 — Marine Mammal Commission

We appreciate the Committee's interest in providing the Commission with greater flexibility in allocating its resources to meet its responsibilities. However, the appropriation levels that would be authorized under subsection (c) should be made consistent with the levels contained in the President's Budget.

As reflected in the Administration bill and past Commission testimony, the limitation on the daily amount that the Commission can spend on experts or consultants has effectively precluded us from using such services for some time. We appreciate the Committee's recognition of this problem and welcome the amendment in subsection (b),

which will put the Commission on an equal footing with other agencies in our ability to make use of such services.

Section 10 — Polar Bear Permits

As the Commission has noted in previous testimony before the Committee concerning reauthorization of the Marine Mammal Protection Act, there is little purpose served by the notice and comment requirements of section 104 as they pertain to the issuance of permits authorizing the importation of polar bear trophies from Canada. The only question for the Service to consider at the application stage is whether the bear was legally taken from an approved population. As such, the Commission supports the intent of the proposed amendment. We do, however, have two drafting suggestions. In proposed paragraph (3), the phrase "required to be" should be inserted after the words "application was" to clarify that this provision applies whenever a notice should have been published, whether or not publication actually occurred. Also, a conforming amendment is needed to the first sentence of section 104(c)(5)(D) to delete the phrase ", expeditiously after the expiration of the applicable 30 day period under subsection (d)(2),".

Section 11 — Captive Release Prohibition

This provision is patterned on a proposed amendment contained in an earlier version of the Administration bill. Since that time, the Administration has tried to tighten-up its proposal to clarify that it applies only to marine mammals maintained in captivity at a facility and that it does not apply to temporary releases of marine mammals for military and research purposes by the Department of Defense. We suggest that the Committee consider including similar limitations in its proposal.

Section 12 — Stranding and Entanglement Response

This section incorporates most of the provisions pertaining to Title IV of the Marine Mammal Protection Act recommended in the Administration bill. As such, it is a welcome addition to the House bill as compared to the bill introduced in 2002. The one substantive difference is the omission in H.R. 2693 of the amendment proposed in section 511 of the Administration bill. This amendment to section 405 of the Act would provide the National Marine Fisheries Service the flexibility to use other funds appropriated under the Act, not just those specifically earmarked for addressing unusual mortality events, when needed to respond to such events. We believe that this is a worthwhile amendment and encourage the Committee to give it additional consideration.

Section 13 — Definition of Harassment

The proposed redefinition of the term "harassment" in H.R. 2693 is similar, but not identical, to that included in the Administration bill. As such, there are elements with which we agree, but parts that we think may cause problems if enacted. For example, for an act to constitute Level A harassment under the introduced bill, there must be "the probability" that a marine mammal or marine mammal stock will be injured. The inclusion of this threshold suggests that it must be more likely than not that an injury will result from the particular action being considered. That is, if there is a 25 percent chance that a marine mammal will be injured by exposure to a particular stimulus, a one-time exposure would not necessarily be considered harassment, even though the risk of injury is substantial. As such, we recommend replacing the word "probability" in the Level A harassment definition with a more inclusive phrase such as "significant potential," as used in the Administration's proposal.

Like the existing definition of Level B harassment and that recommended by the Administration, the proposal in H.R. 2693 contains a list of behaviors that, if disrupted to the extent specified, would constitute harassment. We are concerned, however, that the list of specifically identified behaviors in the House bill does not include sheltering, which is an element of both the existing definition and the Administration's proposal. For example, the resting behavior of spinner dolphins in Hawaii, in secluded, inshore areas clearly fits within the notion of sheltering. It is not as clear that such behavior would be encompassed by the terms "care of young, predator avoidance, or defense," which are the closest associated terms under the proposed harassment definition in H.R. 2693. Further in this regard, we note that the terms "care of young," "predator avoidance,"and "defense" included in the proposed definition of Level B harassment are not very precise terms. Absent clarification, their inclusion in the definition may lead to implementation difficulties and, perhaps litigation.

We are also concerned about the "potential to disturb" threshold set forth in the second clause of the proposed harassment definition. The agencies that developed the Administration's proposed definition rejected this language as being overly broad, inasmuch as it would include even a very remote possibility that disturbance might occur. We believe that the standard included in the Administration proposal, "disturbs or is likely to disturb," provides a more appropriate delimitation concerning what activities should be covered under this part of the harassment definition.

The Commission is pleased that the Committee has recognized the value of including a directed taking provision in the definition of Level B harassment, as recommended by the Administration. Absent this second prong, it would be much more difficult, if not impossible, for the regulatory agencies to bring enforcement cases in response to activities that traditionally have been considered harassment. Even in a case when a marine mammal had been intentionally pursued, the government, to prevail, would need to show not only that the animal was disturbed by the pursuit, but that the resulting disruption was somehow "biologically significant." For example, is the disturbance that

results from chasing a dolphin along a beach for a few hundred yards with a jet ski biologically significant? Arguably not. Nevertheless, it should be considered harassment.

We are concerned, however, about the inclusion of the phase "is likely to impact the individual" in this second part of the Level B harassment definition (clause iii). It raises a possible defense in a traditional harassment case that, even though a marine mammal was clearly disturbed by the directed activities of the defendant, the disturbance somehow did not have any impact on the health or well-being of the animal. It may be that the intent of the provision is to include all directed activities that are likely to disrupt one of the listed marine mammal behaviors. If this is the case, it should be clarified, either in the statutory language or the accompanying legislative report.

Section 14 — Incidental Takings of Marine Mammals

The first three parts of the section parallel amendments to section 101(a)(5) of the Act proposed by the Administration in the context of the Department of Defense's Readiness and Range Preservation Initiative. They address the so-called "small numbers" and "specified geographical region" limitations of those incidental taking provisions. Recognizing that any incidental taking authorizations issued under section 101(a)(5) would still require a negligible impact determination, the Commission has no objection to these amendments.

The fourth paragraph of this section introduces a new element to section 101(a)(5) — a general authorization for certain activities that will have a negligible impact on the affected marine mammal stocks. The Commission supports the idea of including a general authorization provision for certain types of activities that have low-level impacts on marine mammals that do not merit the more rigorous authorization processes established under section 101(a)(5)(A) and (D). We are concerned, however, that the proposed general authorization included in H.R. 2693 is overly broad and apparently would include all activities that currently receive authorizations under the existing provision (i.e., those determined to have a negligible impact).

Before we can comment further, additional description of the proposal is needed. For example, how would the general authorization relate to the existing authorization provisions? Existing section 101(a)(5)(A), which requires the issuance of regulations, allows for the authorization of all types of incidental taking (including mortalities), provided that a negligible impact finding is made and certain other requirements are met. Section 101(a)(5)(D) provides a streamlined, notice-and-comment procedure for takings by harassment. It would follow that a general authorization would apply to some further subset of activities, such as those that involve taking only by Level B harassment, or those that so clearly meet the negligible impact requirement that a more involved authorization process is not warranted. If this is the intention of the provision, we do not think that it is reflected in the language of the bill. Even if the provision were limited to takings by Level B harassment, we may have concerns about using a truncated authorization procedure, inasmuch as the proposed redefinition of that term under section 13 of the bill, would include only biologically significant disruptions of marine mammal activities. That is, there would no longer be a de minimus aspect to Level B harassment that would warrant a general authorization of all such activities.

We are also concerned with the extent of the information that those seeking coverage under the general authorization would be required to submit. For instance, there is no requirement that the "applicant" provide a description of the activities that will be conducted. Without such information, it is not clear how the Services can determine whether the activities fit within the scope of the general authorization.

Depending on what activities and levels of taking would be included under the general authorization, we also may have concerns about the anticipated public involvement in the authorization process. Currently, all incidental take authorizations under section 101(a)(5) are subject to substantial public notice and review requirements. Although the public apparently would have such opportunities at the stage where the general authorization and implementing regulations are issued, no similar opportunity appears to be provided for determinations as to whether specific activities fit within the scope of the general authorization. This could be a major shortcoming of the proposal if negligible impact determinations will be deferred until specific activities are reviewed at this later stage.

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The issues not addressed in H.R. 2693 that we believe merit consideration by the Committee as it considers reauthorization of the Marine Mammal Protection Act are, by and large, those included in the Administration bill transmitted to Congress earlier this year. A brief summary of those provisions follows.

As previously discussed before this Committee, we and others believe that there is a need to expand the existing authority of section 119 of the Act to enable the National Marine Fisheries Service and the Fish and Wildlife Service to enter into cooperative harvest management agreements with Alaska Native tribes and Native organizations authorized by those tribes. The Commission believes that such a provision, if carefully crafted, would help guarantee that conservation measures, when necessary, can be implemented before a marine mammal population has been reduced to a point where it is depleted. We note that such a provision, although generally supported by diverse constituencies, has been omitted from the introduced bill. We

hope that this does not reflect a determination that a harvest management amendment does not merit further consideration.

In addition to the proposal to expand the section 118 incidental taking regime to include some non-commercial fisheries, which has been adopted in H.R. 2693, we believe that certain other clarifying amendments to this section are in order. Section 118 currently requires that a take reduction plan be developed for each strategic stock that interacts with a category I or II fishery, regardless of the level of such interactions or whether the reason the stock is considered to be strategic is largely independent of fisheries interactions. The Commission recommends that the Committee consider an amendment to specify that a take reduction plan need not be prepared for those strategic stocks for which mortality or serious injury related to fisheries is inconsequential. The Commission also believes that further consideration should be given to an amendment proposed by the Administration to clarify that it constitutes a violation of the Act to participate in any category I or II fishery without having registered under section 118, regardless of whether incidental takes occur. A related amendment that also needs to be considered would specify that all participants in category I or II fisheries, whether registered or not, are subject to the observer requirements of section 118. The Commission also believes that revisions to this section are needed to enable the responsible agencies to obtain reliable information on the numbers and types of fishery-related mortalities and injuries involving California sea otters. Previous Commission testimony has noted that available funding has not always been sufficient to place observers within all fisheries that need to be monitored or to place them at levels needed to provide statistically reliable information. We again call this issue to your attention and recommend that you consider possible solutions, including securing contributions from the involved fisheries.

The draft bill has picked up on some, but not all, of the permit-related issues highlighted by the Commission and others during previous hearings on Marine Mammal Protection Act reauthorization. The Commission continues to be concerned about the appropriateness of maintaining certain marine mammals — most noticeably cetaceans — in traveling exhibits, which present special problems for successful maintenance. We again encourage the Committee to look at this issue more closely. Further, we believe that sections 101(a)(1) and 104 of the Act need to be amended to specify that export permits can be issued directly to foreign facilities.

We also are concerned that the current system for authorizing exports of marine mammals to foreign facilities does not work particularly well. We believe, as we recommended in a 3 April 2002 letter commenting on the National Marine Fisheries Service's proposed public display permit regulations, that it would be useful if Congress and the interested parties reviewed the current system to identify whether there are better ways to achieve the goal of providing reasonable assurance that marine mammals exported from the United States will be well cared for throughout the duration of their maintenance in captivity, and that realistically reflect the ability of U.S. agencies to identify and correct deficiencies at foreign facilities, while not establishing unnecessary barriers to the exchange of marine mammals among qualified facilities. We hope that this is an undertaking that the Committee will want to endorse.

There is also a need to review the issue of exports in contexts other than permits and cultural exchanges. For example, the Act's waiver provisions under section 103 do not specifically provide for the authorization of exports. Likewise, section 101(b) of the Act, which relates to taking by Alaska Natives, authorizes the manufacture and sale of traditional handicrafts, but does not specifically authorize exports of such items.

On a related point, we continue to believe that there is a need to revise section 102(a)(4) of the Act, which, as amended in 1994, reinstituted an once-jettisoned impediment to effective enforcement of the Act. That section requires the government, in an enforcement proceeding under the provision, to show not only that the transport, purchase, sale, or export of a marine mammal or marine mammal product was unauthorized, but also that the taking underlying such actions was in violation of the Act. This problem had previously been recognized and rectified by Congress in 1981. The Commission urges the Committee to remedy this problem once again.

The penalties that may be assessed for violations of the Act have not been increased since its original enactment 30 years ago. This being the case, the maximum penalties available under the Marine Mammal Protection Act are quite low as compared to other natural resources statutes. We encourage the Committee to review the penalties available under sections 105 and 106 and consider increasing them to reflect changes in economic circumstances since 1972. The Commission also encourages the Committee to give consideration to amending the forfeiture provisions of section 106 to allow the seizure and forfeiture of a vessel's cargo (i.e., catch) for fishing in violation of section 118.

Another enforcement-related amendment that the Committee might want to consider concerns how penalties assessed under the Act may be used. A freestanding amendment, enacted in 1999 and codified as part of the Marine Mammal Protection Act, authorizes the Fish and Wildlife Service to use fines collected under the Act for activities directed at the protection and recovery of marine mammals under the agency's jurisdiction. We believe that similar authority for the National Marine Fisheries Service would likewise benefit that agency's ability to carry out its responsibilities under the Act.

Another provision that merits review by the Committee is section 110, which identifies specific research proj-

ects to be carried out by the regulatory agencies. The time frames for completing the existing activities set forth in this section have elapsed. As such, those provisions that are no longer operative should be deleted. In their place, the Committee should consider a more generic directive to the agencies, enabling the agencies to pursue pressing, broad-scale projects. Among the studies that might be worthwhile are an investigation of ecosystem-wide shifts in the Bering and Chukchi Seas and an examination of possible changes in the coastal California marine ecosystem that may be contributing to the recent declines in the California sea otter population.

As noted above, section 405 of the Act allows appropriations to be placed in the Marine Mammal Unusual Mortality Event Fund only if specifically earmarked for use with respect to unusual mortality events. Thus, funds generally appropriated to the National Marine Fisheries Service for implementing the Marine Mammal Protection Act may not be used for such purposes, even in years when a large number of unusual mortality events might occur. The Commission recommends that greater flexibility be provided in how unusual mortality responses can be funded.

Although the Marine Mammal Protection Act establishes explicit procedures to address lethal takes and serious injuries due to fisheries, it is important to note that there are other ways by which marine mammals are lethally taken or seriously injured incidental to human activities. The Committee may wish to consider whether activities such as, for example, boat or ship strikes of whales might be dealt with more effectively through a take reduction process or some other mechanism.

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The Commission appreciates the inclusion in our FY 2003 budget of an appropriation to conduct "...an international conference, or series of conferences, to share findings, survey acoustic 'threats' to marine mammals and develop means of reducing those threats while maintaining the oceans as a global highway of international commerce." Since the appropriation passed in March, we have been busily working on this important project.

We have met with Senate and House to solicit their advice and to clarify the intent behind the legislative directive. We have also met with a wide range of affected interests such as the oil and gas industry, oceanographers from major research institutions, the environmental community, and Federal agencies including the National Science Foundation, the Minerals Management Service, the Navy (both its operations and research components), the National Marine Fisheries Service, the Coast Guard, and the State Department. From these meetings, we developed a good understanding of potential environmental threats that might be caused by sound in the oceans and how to produce a series of reports to address research priorities and appropriate mitigation measures. We hope the reports will be useful to Congress, federal agencies, and the public.

We plan to hold a series of policy dialogues in which various interests will participate. We entered into an agreement with the U.S. Institute for Environmental Conflict Resolution (also known as the Udall Center) in Tucson, Arizona, to assist us with the dialogues. We are about to select a team of professional facilitators to help with the dialogues. We are exploring whether there will be a need to charter the group holding the dialogues as a federal advisory committee under the Federal Advisory Committee Act. We will hold the first meeting of the group as soon as possible, probably early in 2004.

We appreciate the Committee staff's help in discussing this project as it has evolved. We will remain in contact with them as we progress.

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This concludes my testimony. The Commission appreciates the opportunity to provide testimony to the Committee on H.R. 2693, and to update you on our progress in convening the conferences called for under the Commission's FY 2003 appropriation. I would be pleased to try to answer any questions that you may have.