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.

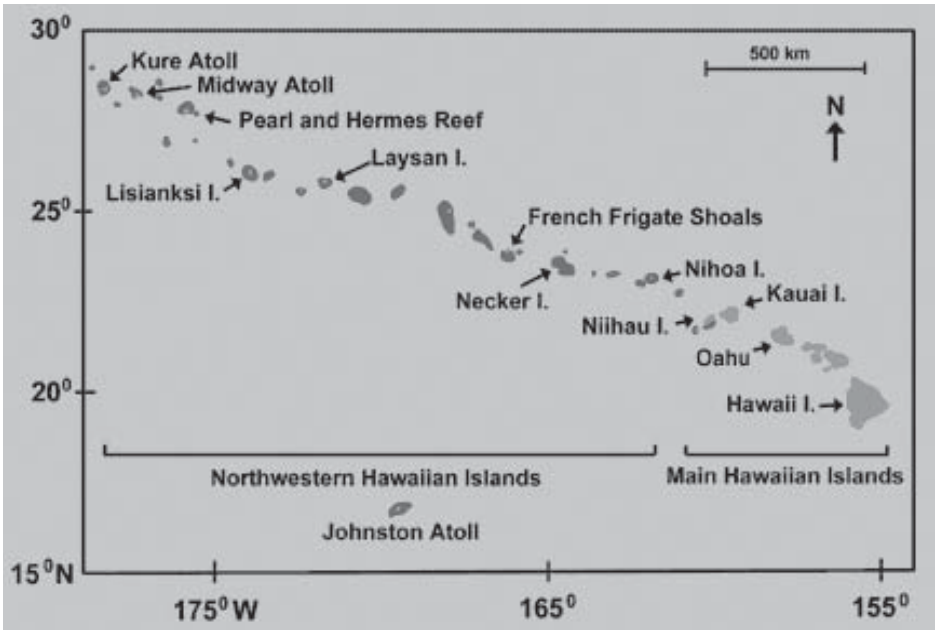

Figure 7. The Hawaiian Archipelago

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-

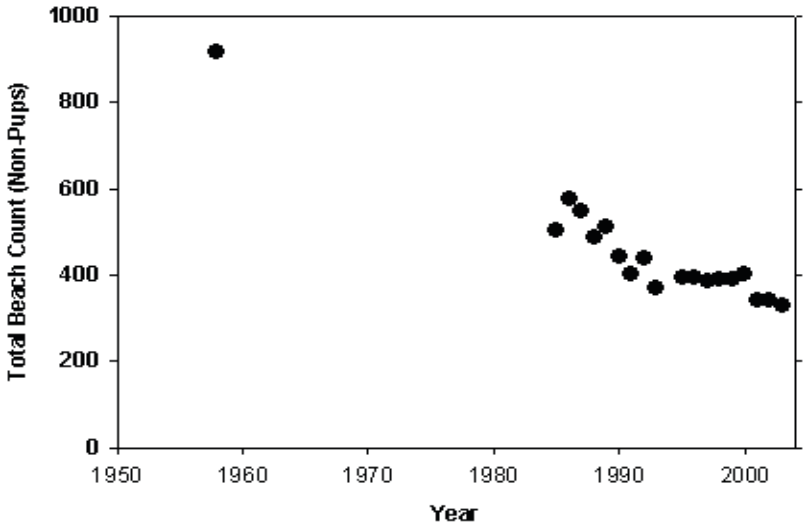

Figure 8. Combined mean total beach counts of Hawaiian monk seals (excluding pups) at all six major pupping colonies in the Northwestern Hawaiian Islands, 1958–2003. (Unpublished data provided by the National Marine Fisheries Service, Pacific Islands Fisheries Science Center.)

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