**FINAL REPORT**

# Workshop on the Management of Hawaiian Monk Seals on Beaches in the Main Hawaiian Islands

**29-31 October 2002**
**Kauai Sheraton Resort**
**Koloa, Kauai, Hawaii**

**Cosponsored by**

**Marine Mammal Commission**
**National Marine Fisheries Service**
**Hawaii Division of Aquatic Resources**

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## Contents

## EXECUTIVE SUMMARY

Hawaiian monk seals occur principally in the Northwestern Hawaiian Islands and are one of the world's most endangered seals. In recent years, however, their numbers have increased significantly in the main Hawaiian Islands, particularly on the islands of Niihau and Kauai. Recent surveys suggest that at least 100 seals may now occupy the main Hawaiian Islands. While this increase raises promising new prospects for the species' recovery, it also poses new management challenges. For example, monk seals have hauled out and given birth on popular recreational beaches where they are subject to harassment by people, and on at least two occasions in the past two years, seals have bitten swimmers. Restricting human use of popular beaches could have significant impacts on local tourism-based economies. The occurrence of monk seals in the main Hawaiian Islands also raises new risks due to the possible transmission of diseases from pets, livestock, and feral animals to the wild monk seal population.

To address these issues, steps have been taken to increase research on the biology of monk seals in the main Hawaiian Islands, increase public awareness of monk seals, post temporary safety zones around hauled-out seals to keep people from approaching too closely, move some weaned pups from populated beaches to more remote areas and, on one occasion, to temporarily close a popular public beach to protect a mother-pup pair. Clear guidance on how to address different types of haul-out situations in the main Hawaiian Islands has not been developed. Therefore, the Marine Mammal Commission, the National Marine Fisheries Service, and the Hawaii Division of Aquatic Resources jointly convened a workshop on 29-31 October 2002 in Koloa, Hawaii, to (1) review information on monk seal haul-out patterns, (2) discuss potential actions to address monk seal haul-out events in the main Hawaiian Islands, and (3) identify additional research and management actions that may be needed.

Participants in the workshop included 70 people representing federal, state, and local agencies, volunteer groups, the local hotel and tourist industry, environmental organizations, and the scientific community. Invited papers were prepared on monk seal distribution and haul-out patterns, the potential role of the main Hawaiian Islands in the species' recovery, the effects of human disturbance on monk seals, disease considerations, legal considerations, management actions to date by federal and state agency officials and volunteers, possible management options, and the use of an adaptive management approach. The papers were sent to participants two weeks before the meeting to help stimulate ideas for discussion and were presented orally at the workshop. Major workshop findings are discussed below.

### Management Options

The National Marine Fisheries Service has lead responsibility under the Marine Mammal Protection Act and the Endangered Species Act for protecting monk seals. The Service, however, has been severely limited in addressing issues in the main Hawaiian Islands due in large part to limited staff and funding. Therefore, with little or no funding, state and local agency officials, volunteers, environmental groups, and local businesses have stepped forward to provide valuable assistance to protect hauled-out seals. Although most seals appear to have received adequate

protection, responses sometimes have been undertaken with little guidance on who should and should not be doing what. At times this has led to great frustration and strained relations among those attempting to help. Nevertheless, workshop participants broadly viewed the occurrence of monk seals in the main Hawaiian Islands as an important opportunity for the species' recovery that, with proper management, also could enrich socioeconomic opportunities for the islands' human population. Therefore, they expressed a strong desire to continue assisting response efforts to ensure that monk seals coexist with people in harmony in the main Hawaiian Islands.

There was broad recognition that, to achieve this end, far more must be done to improve communication and cooperation and to develop trust and respect among all involved groups. This was deemed essential for forging effective partnerships. Toward this end, it was recommended that island coordinators be designated or hired to work closely with local officials, businesses, residents, environmental groups, and volunteers on how to address local haul-out events. This is needed most urgently on Kauai, but also would be appropriate on other islands where monk seals haul out less frequently. Island coordinators should be permanently stationed on the island (or one of the islands) for which they are responsible. Depending on workloads, they might also help address local protection and management of sea turtles and perhaps other marine species. It was recognized that on Kauai monk seal response efforts likely would require the full-time attention of a coordinator for at least the immediate future because of the frequency with which seals haul out on the island.

To help monitor and manage haul-out events, it was recommended that a single toll-free telephone number be set up for the public to report monk seal sightings, with the calls or reported information forwarded to the island coordinators. Based on these reports, the coordinator would determine who, if anyone, should assess the event to ensure that necessary follow-up actions are taken. It was noted that extensive involvement by other agency officials and volunteers would be essential in order to respond quickly and effectively.

To clarify who should be involved and how, it was suggested that those involved in response efforts be organized into a three-tier system based on assigned duties and required authorizations. It was suggested that Level 1 include people who would assist with activities that do not involve the "taking" of monk seals as defined under the Marine Mammal Protection Act and the Endangered Species Act. These tasks might involve posting seal safety zones with signs and yellow tape, monitoring and recording data on the seals from a safe distance, and public education. Level 2 might include people who could do those activities plus disturb or handle seals for certain limited purposes, such as assessing potential injuries, herding them out of hazardous situations, disentangling some seals not seriously entangled or injured, and assisting people involved in Level 3 activities. Level 3 might include handling activities requiring the greatest degree of training and experience, such as treating injured or sick seals or moving animals to other locations. At each level, it was recommended that people be instructed as to what they should and should not attempt to do.

Recognizing that (1) activities under Levels 2 and 3 would involve disturbing or handling seals in ways that would constitute a "taking" as defined under the Marine Mammal Protection Act and the Endangered Species Act, and (2) it is vital to respond quickly to haul-out events — particularly when they involve injured or entangled monk seals or births — it was recommended

that the Service train and authorize an adequate pool of people on each island to carry out at least those activities identified under Level 2. Although Level 1 activities would not require formal authorization, it was felt that the people involved at this level should receive training and a certificate of participation in recognition of their important role and to ensure that their activities are carried out in a safe, consistent manner. The greatest number of people would be needed to carry out Level 1 activities, and many of them could be volunteers. Given the importance of promptly posting seal safety zones, Level 1 efforts by volunteers were recognized as the foundation of the response effort. People involved at Level 2 might include federal, state, and local agency officials and some volunteers. Involvement at Level 3 would be limited to trained professionals.

Other management recommendations included the following:

- a professional marketing consultant should review existing education materials and efforts to evaluate their effectiveness;
- a regular forum should be held to bring together stakeholders to share information and ensure consistency in outreach messages and information;
- simple, standardized data sheets based on those used by the National Marine Fisheries Service should be used to record data on monk seal haul-out incidents, and island coordinators should be provided computers to record data;
- officials and volunteers certified or authorized to assist in monk seal response work should carry identification cards or other means of identifying what they have been certified or authorized to do;
- posted seal safety zones should be as small as possible to be effective;
- the use of physical barriers to limit seal access to areas should be avoided except perhaps to keep animals off roads;
- herding or translocating seals should be considered only when (1) seals are "out of habitat" and in high-risk situations (e.g., on roads or boat ramps); (2) weaned pups are in high risk areas where they could acclimate to human attention; (3) seals are in natural habitat but at risk from an unusual event (e.g., a hazardous substance spill); or (4) seals exhibit aberrant behavior that poses risks to human safety; and
- a graduated set of methods should be developed for herding seals to safety such that the least disruptive methods are tried first.

**Implementing Identified Management Options**

After identifying recommended management options, workshop participants considered steps and identified individuals to help implement those measures. With regard to designating on-island coordinators, it was noted that the Division of Aquatic Resources, with funding from the National Marine Fisheries Service, contracted for a monk seal coordinator to work on Kauai through at least January 2003. This was considered a very positive step, and it was suggested that agency or foundation funding be sought to extend that position at least temporarily. To make the position permanent, it was suggested that (1) the Division of Aquatic Resources continue to explore the possibility of obtaining a grant from the National Marine Fisheries Service under provisions of section 6 of the Endangered Species Act, and/or (2) the National Marine Fisheries Service consider adding such positions as part of its efforts to create a regional office for Hawaii. In either case, as

workloads allow, it was noted that persons in this position also could assist or possibly, take a lead in addressing protected species management needs for sea turtles, dolphins, and humpback whales.

Workshop participants also identified other follow-up needs. In this regard, people were identified to:

- determine the best approach for establishing a toll-free telephone number for reporting sightings of monk seals, keeping in mind existing phone numbers for reporting information on other protected species;
- identify and pursue procedures to authorize state and federal officials and volunteers to carry out work, such as herding or disentangling seals, that would constitute a "taking" under the Marine Mammal Protection Act or the Endangered Species Act;
- define the roles and responsibilities of people involved in haul-out response efforts at each of several different levels using the three-level system described above as a guide;
- develop a framework for training people involved at each of the different response levels;
- develop protocols for activities involving herding, capturing, and moving seals; and
- explore the formation of a monk seal consortium composed of people and groups involved in monk seal conservation work to meet annually to share new information on monk seal research and management and provide advice on needed actions.

**Research Needs**

Workshop participants identified an extensive list of information needs that research might address to improve understanding and management of monk seals in the main Hawaiian Islands. The list included approximately 50 information needs in the following areas: population dynamics, life history and ecology; abundance and distribution, foraging and food needs, genetics, health and disease, interactions between seals and people, and the effectiveness of management activities. It was suggested that criteria for determining priority needs include whether the research was likely to change conservation and recovery efforts and what the costs would be in terms of staff needs and funding. A few priority research topics were suggested, but in the time available they were not fully discussed, nor was the list considered complete. Those suggested included:

- assessing the effectiveness of seal safety zone boundaries;
- tagging all seals;
- identifying prey species and feeding areas;
- determining overlap between seal foraging grounds and commercial/recreational fishing areas;
- forming a group to help develop a geographic information system on monk seals in the main Hawaiian Islands;
- identifying individual seal haul-out patterns and site fidelity; and
- comparing patterns of human activity and seal habitat use.

It was noted that research priorities for the main Hawaiian Islands would be considered by the Hawaiian Monk Seal Recovery Team during its ongoing work to update the Hawaiian Monk Seal Recovery Plan.

# Workshop on the Management of Hawaiian Monk Seals on Beaches in the Main Hawaiian Islands

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## I. Introduction

Hawaiian monk seals, one of the world's most endangered seals, occur principally in the Northwestern Hawaiian Islands (NWHI). In recent years, however, monk seals have begun hauling out in increasing numbers in the main Hawaiian Islands to rest, molt, and give birth. Although this trend raises significant prospects for expanding the species' range and increasing its abundance, it also raises challenging new management issues. Some haul-outs and births have occurred on popular recreational beaches, particularly on Kauai, where seals have been harassed and disturbed by people, pets, and feral animals. In at least two cases, seals have bitten swimmers and exhibited aggressive behavior toward people, and pets and feral animals have bitten seals, raising concern about the transmission of new diseases to the wild seal population. These issues were identified as being in need of attention at a review of the Hawaiian monk seal recovery program held by the Marine Mammal Commission on 15-17 April 2002. The report[1] of the review recommended that a workshop be held as soon as possible to examine the full range of possible management actions that might be used to respond to monk haul-out events in the main Hawaiian Islands.

To follow up on this recommendation, the Marine Mammal Commission wrote to the National Marine Fisheries Service and the Hawaii Division of Aquatic Resources on 7 June 2002 asking that they join the Commission in funding and organizing such a workshop. Both agencies agreed and a workshop organizing committee was formed with representatives of the Commission (David Laist and Lloyd Lowry), the Service (George Antonelis, Thomas Eagle, and Charles Karnella), and the Division (Jeffrey Walters). The committee developed terms of reference (Appendix 1) and an agenda (Appendix 2) for the meeting, identified a list of invited participants and papers, and oversaw related preparations.

The workshop, chaired by Lloyd Lowry, was held on 29-31 October 2002 at the Sheraton Kauai Resort. As noted in the terms of reference, the goals of the workshop were to (1) review information on monk seal haul-out patterns and their interactions with both people and animals on beaches, (2) consider existing and potential plans to manage monk seal haul-out events in the main Hawaiian Islands, and (3) examine research and management actions to mitigate potential adverse interactions between monk seals and people on beaches in the main Hawaiian Islands. To ensure a broad perspective, invited participants included representatives of federal, state, and county agencies, volunteer organizations, environmental groups, the Hawaii tourist and hotel industry,

[1] Marine Mammal Commission. 2002. Report to the Marine Mammal Commission: Hawaiian Monk Seal Program Review, Honolulu, Hawaii, 15–17 April 2002. Bethesda, MD. 33 pp.

marine mammal scientists and veterinarians, and the native Hawaiian community. Seventy people (see Appendix 3) participated in the workshop.

To help prepare participants for workshop discussions, several papers (see list in Appendix 4) were solicited on monk seal haul-out patterns and behavior, human disturbance of seals, disease considerations, actions taken to date to respond to monk seal management issues in the main Hawaiian Islands, possible options for responding to monk seal haul-out events, and an adaptive management approach. These papers were completed and sent to participants two weeks before the workshop to allow time to review relevant background information and consider possible management options. The papers were presented and discussed on the first day of the workshop, after which participants split into four working groups to discuss details of the identified management options. Following the working group meetings, participants met in plenary sessions to discuss the results of the working group sessions, how an effective response effort might be implemented, and research needs. Results of the workshop are described below.

## II. Invited Papers and Presentations

Summaries of background information compiled in papers prepared for the workshop were presented and discussed on the first day of the meeting[2]. The papers, listed in Appendix 4. Key points raised during the presentations and discussion are described below.

### 1. Distribution and Abundance of Hawaiian Monk Seals in the Main Hawaiian Islands (Jason D. Baker and Thea C. Johanos)

Most recent information on the distribution and abundance of monk seals in the main Hawaiian Islands comes from aerial surveys conducted in 2000 and 2001 and opportunistic sighting reports by the public and government officials recorded by the Honolulu Laboratory of the National Marine Fisheries Service. Aerial counts in the main Hawaiian Islands combined with ground sightings of seals not seen from the air produced minimum counts of 45 monk seals in 2000 and 52 seals in 2001. When surveying monk seal colonies in the Northwestern Hawaiian Islands, scientists estimate that 50 to 65 percent of the animals are in the water at any given time and thus are not seen during an aerial count. Thus, the population is estimated at two to three times the number of seals counted. Although the NWHI correction factor may not be appropriate for the main Hawaiian Islands, the data suggest that more than 100 seals may now live in the main Hawaiian Islands – a number that likely equals or exceeds the number of seals on the Midway Islands, which is considered to be one of the species' main breeding sites. The number of documented births in the main Hawaiian Islands has increased significantly in recent years. Only two births were recorded before 1990, but since then 39 have been documented. Although sightings or births have now been reported on all of the main Hawaiian Islands, most have been on Niihau and Kauai. Records of sightings and births tend to decrease along the island chain from

[2] The background papers are listed in Appendix 4 and are available on the Marine Mammal Commission's web site (www.mmc.gov) or can be requested by writing to the Marine Mammal Commission, 4340 East-West Highway, Room 905, Bethesda, MD 20814.

Niihau and Kauai in the northwest to the island of Hawaii in the southeast. Although incidental reports are biased toward seals sighted in populated areas, aerial surveys confirm that seals tend to frequent remote areas where human access is limited. Births occur almost exclusively in relatively remote areas; only one female is known to have given birth on a popular beach (Poipu, Kauai).

## 2. The Role of the Main Hawaiian Islands in the Recovery of the Hawaiian Monk Seal (Timothy J. Ragen)

Hawaiian monk seals evolved 14 to 15 million years ago at which time the Hawaiian archipelago looked very different than it does today. Because there is no fossil or archeological evidence of monk seals in the main Hawaiian Islands, it is unclear whether they occurred there prior to the arrival of the Polynesians. In any case, their recent occurrence in the main Hawaiian Islands may enhance the prospects for the species' recovery.

Several factors suggest that the increased occurrence of seals in the main Hawaiian Islands will improve the species' prospects for recovery. Monk seals occur as a metapopulation (i.e., a group of relatively discrete subpopulations) with six major colonies in the NWHI. Historical records suggest that several of these colonies have disappeared and recovered at various times since the 1800s. A new breeding group in the main Hawaiian Islands could reduce the likelihood of all subpopulations disappearing at once, and therefore reduce the species' risk of extinction. The occurrence of seals in the main Hawaiian Islands also vastly increases available foraging and haul-out habitat and greatly expands the species' geographic range, thereby decreasing the impact of catastrophic events that may affect a part of its range. A growing seal population in the main Hawaiian Islands also will increase the species' overall abundance and minimize risks of losing genetic diversity, which should reduce extinction risks. Against these positive factors is a potential negative factor – the possible introduction of diseases that could decrease the species' survival prospects. That is, diseases transmitted to seals by terrestrial animals not found in the NWHI could spread throughout the species' range.

To date, recovery efforts have focused almost exclusively on monk seals in the NWHI. With their increasing occurrence in the main Hawaiian Islands, that focus needs to be expanded. Although this occurrence is not without risk to the species as a whole, it could increase the species' chances of long-term survival, increase public awareness and support for monk seal recovery work, and help improve the species' status to a point where it could be downlisted or delisted from the U.S. endangered and threatened species list. Such prospects could depend in large part on the extent to which people in the main Hawaiian Islands are willing and able to coexist with monk seals.

## 3. Monk Seal Movement and Haul-Out Patterns in the Northwestern Hawaiian Islands (Albert L. Harting, Thea C. Johanos, and George A. Antonelis)

Because of differences in habitat availability and type, monk seal haul-out patterns in the NWHI may differ from those in the main Hawaiian Islands. Notwithstanding this uncertainty, inter-atoll movements and age-specific site fidelity in the NWHI suggest several common trends. Young monk seals almost always remain at their island of birth. Inter-atoll movements of older

animals are more frequent, but appear to differ between colonies at the western and eastern ends of the NWHI. By age 15, more than 25 percent of seals tagged at colonies in the western end of the NWHI had moved to other islands (usually the nearest neighboring island), while less than 10 percent of those in colonies at the eastern end of the chain had moved to other atolls. Considering the distances between the main Hawaiian Islands, it seems likely that there would be considerable movement of seals between those islands.

Monk seals in the NWHI show preferences for pupping, molting, and resting habitat. At the Midway Islands, for example, females with pups and molting seals tend to segregate from other seals and use certain sections of beach more frequently than other areas. There also are seasonal shifts in the sections of beaches used as haul-outs. A variety of factors may influence the selection of haul-out sites, including vulnerability to human disturbance and shark predation, exposure to wind and surf, accessibility from water, proximity to foraging areas, and type of substrate. Females with pups appear to prefer haul-outs adjacent to shallow water where shark predation risks may be lower and on the leeward side of islands where surf action is minimal. Seals can display a great deal of individuality with some animals likely to use unexpected habitats.

Based on experience at French Frigate Shoals, limits on prey availability may not cause seals to move to other islands. However, this atoll also is farther from its neighboring islands than are other atolls, and this may have limited emigration despite apparent prey limits over the past decade. Efforts to capture and move young monk seals suggest that, once moved to another island, they likely will remain there and not return to their initial capture site.

### 4. Responses of Monk Seals to Human Disturbance and Handling (William G. Gilmartin)

Over the past 50 years, trends in the numbers of seals hauling out at Kure Atoll, the Midway Islands, and Tern Island at French Frigate Shoals have been inversely related to human disturbance. At each of these sites, seal numbers declined following occupation by the Coast Guard or the Navy. Sources of disturbance included people and vehicles on the beaches and harassment by dogs. After these sources of disturbance were minimized, monk seal numbers increased at each of these sites, even though human presence continued. Repeated beach disturbance over time may be an important reason for seals to abandon otherwise preferred haul-outs. Exposure to noise from very low flying aircraft does not always alarm or cause hauled-out monk seals to flee into the water. For reasons that are not clear, seals in the main Hawaiian Islands appear to be more tolerant of human presence than those in the NWHI. Pups appear to be more tolerant of people than older seals, and adult males seem more tolerant of people than females, particularly mothers with pups. In the water, monk seals are much less wary of people and will often approach divers.

Restraining monk seals for purposes of tagging or sedating them to attach telemetry tags and other scientific equipment does not appear to reduce their subsequent survival rates or alter inter-atoll movement rates.

## 5. Handling Risks and Disease Considerations of Hawaiian Monk Seals in the Main Hawaiian Islands (Robert C. Braun)

The possible transmission of diseases and pathogens from livestock, pets, and feral animals to seals is a serious concern. To date, diseases and pathogens have not been linked to any monk seal population trends. There are few data on monk seal disease exposure in the main Hawaiian Islands, and seals in the NWHI may have benefitted by their isolation from diseases associated with human communities. Pathogens known to cause diseases in pinnipeds include heart worm (spread by mosquitoes and fleas), canine distemper (a virus transmitted by dog or wild animal bites), leptospirosis (a ubiquitous bacteria in the urine of livestock and rodents), toxoplasma (a single-celled organism commonly found in cat and dog feces), and brucella (a bacteria found in seals, livestock, and feral animals). Diseases and pathogens historically less likely to cause disease in pinnipeds include certain viruses (e.g., herpes, calici, influenza, West Nile, adeno, and corona), salmonella, chlamydia, and various parasites.

To address potential disease concerns, a surveillance program should be established to monitor seals in the main Hawaiian Islands for the presence of diseases. All involved agencies and groups should cooperate in maintaining a vigilant stranding response effort to pick up sick, moribund, and dead seals for sampling and testing. Contingency plans for responding to unusual mortality events also should be developed and available to implement promptly if needed.

## 6. Legal Requirements under the Marine Mammal Protection Act, the Endangered Species Act, and State Law (Michael L. Gosliner)

The Marine Mammal Protection Act and the Endangered Species Act impose similar restrictions on taking of Hawaiian monk seals. Under both Acts, taking includes harassing, capturing, and killing animals, and restrictions on taking apply to both management activities and public activities. If hazing, capturing, or otherwise disturbing monk seals is needed to manage monk seals in the main Hawaiian Islands, taking authorization would be required under both Acts. Under the Marine Mammal Protection Act, such authorization might be sought through (1) permits for either scientific research or enhancing the recovery of depleted populations [§ 101(a)(1) and 104(c)]; (2) a waiver of the moratorium on taking [§ 101(a)(3)]; (3) non-lethal deterrence provisions allowing people to protect their personal safety and property [§ 101(a)(4)]; (4) a "small take" authorization to take marine mammals incidental to other lawful activities [§ 101(a)(5)]; (5) a provision allowing marine mammals to be killed in life-threatening situations [§ 101(c)]; and (6) provisions allowing public officials to take marine mammals to protect public health and welfare or remove nuisance animals non-lethally [§ 109(h)]. Each of these alternatives has limitations with regard to authorizing the capture or moving of monk seals for management purposes, and it is not clear which may be most appropriate. Another alternative would be to seek an amendment to the Act to specifically authorize any taking managers might need to pursue.

Authorization for taking monk seals also would need to be obtained under the Endangered Species Act. The two most likely approaches would be to seek either a scientific research permit or an enhancement permit.

## 7. Whose Beach Is It Anyway?: Managing Children's Pool, La Jolla, California (James H. Lecky)

In the mid-1990s a small, protected beach (about 150 feet wide) set aside as a safe swimming beach in La Jolla, California, and known as "Children's Pool," became a haul-out site for more than 60 non-endangered harbor seals. The presence of harbor seals sparked local controversy about whether they should be deterred from using the beach in order to allow continued public use. The seals became a popular attraction for tourists and local residents, but their presence also constrained human use. Restricted water circulation in the area caused by a jetty resulted in elevated seal fecal coliform counts in adjacent waters. The National Marine Fisheries Service advised city and county officials that the seals might be removed under authority of section 109(h) of the Marine Mammal Protection Act to protect public health and welfare and remove nuisance animals. After considerable public debate, local officials decided not to deter seals from the beach. Instead, rope barriers and signs have been used successfully to keep people away from the part of the beach used by seals.

## 8. Management Experience To Date: National Marine Fisheries Service (Margaret A. Dupree)

The National Marine Fisheries Service establishes regulations and guidelines to implement required protection of Hawaiian monk seals under both the Marine Mammal Protection Act and the Endangered Species Act. To educate the public about monk seals and related protection needs, the Service has prepared print and television messages, developed public viewing guidelines, and produced signs and other information. Since 1991 there have been five high-profile pupping events in the main Hawaiian Islands. Actions taken to respond to them have included preventing human approaches within certain distances around mothers-pup pairs, rescheduling beach events, and moving pups after weaning to more remote locations to reduce interactions with people and animals. Efforts to install a temporary fence on the beach and a floatline in the water have caused temporary entanglements of seals, and any further use of such approaches should be examined carefully. Service staff to respond to haul-out events is limited, and therefore assistance is often sought from state and county officials and community volunteers. To help in this regard, the Service has provided signs, posts, and other supplies to help mark safety zones around hauled-out seals. Actions that may involve taking seals must be weighed against the risks of injuring seals or exposing them to possible threats at relocation sites.

Other monk seal management actions in the main Hawaiian Islands have included moving 21 adult male seals to the main Hawaiian Islands in 1994, responding to reports of distressed seals (e.g., eight seals with embedded fish hooks and seven entangled in rope or line since 1999), responding to hazardous material spills (e.g., oil and fishing gear), and removing a stray elephant seal from the Hawaiian Islands to eliminate the possibility of disease.

## 9. Management Experience To Date: Hawai'i Department of Land and Natural Resources (Jeffrey S. Walters and Donald Heacock)

Under state law, the Hawaii Department of Land and Natural Resources is charged with managing and conserving State marine and fresh water resources. Under this authority, and in cooperation with the National Marine Fisheries Service and other agencies and groups, biologists in the Department's Division of Aquatic Resources and staff of the Division of Conservation and Resources Enforcement (DOCARE) are called upon to check reported monk seal haul-outs, enforce harassment prohibitions, control crowds near seals, educate the public, and assist in tagging, moving, and disentangling seals. When injured or entangled seals are found, staff and veterinarians from the National Marine Fisheries Service are called on to respond. In general, the Department seeks to establish harmony between people and seals and considers monk seals in the main Hawaiian Islands a cause for celebration, not a problem.

Under state law, monk seal harassment is classified as a misdemeanor. Most reported cases involve tourists unfamiliar with protection requirements, and very few cases have been prosecuted. Public education and outreach efforts have focused on printing and distributing posters and brochures, holding workshops, and giving talks to the public. It was suggested that a short film on monk seals be made to show on aircraft arriving in Hawaii or in hotel rooms as a way to reach island visitors. It also was suggested that (1) greater outreach efforts be made to encourage tolerance of seals by fishermen, (2) procedures be developed to keep seals off roads and address interactions between dogs and seals, and (3) a "good Samaritan" policy be clarified to allow people to help distressed seals.

## 10. Management Experience To Date: Volunteer Monk Seal Watch Programs on Kauai and Maui (Tim Robinson and Hannah Bernard)

Local citizens on Kauai concerned about monk seal protection have formed a volunteer Monk Seal Watch Program in cooperation with the Hawaii Department of Land and Natural Resources and with assistance of the Hawai'i Wildlife Fund, a 501(c)(3) organization that handles the program's funds. Their major activities include reporting haul-out events to the Department and the National Marine Fisheries Service, posting safety zones around seals with signs and yellow tape, removing those materials after the seal leaves, monitoring hauled-out seals, and educating the public about monk seal protection needs. To educate the public, program volunteers place information on monk seals in hotel rooms, prepare articles for local tourist magazines and visitor guides, present classroom talks, and talk with people at haul-out sites. They also have developed a web page (www.kauaimonkseal.com). Program volunteers are often the first and only people to respond to monk seal haul-out events, particularly when seals haul out for a few hours to rest. Such work is among the most visible to the public and addresses some of the most important protection needs.

In 2001 program volunteers became frustrated with the guidance and direction provided by the National Marine Fisheries Service's Pacific Islands Area Office. This reached a head when Kauai's best-known swimming beach was closed for several weeks at the Service's behest to protect

a female monk seal and her pup. Local residents and businesses were very upset at the action, monk seal watch volunteers were placed at odds with some in the community, and some volunteers withdrew from the program. This situation underscored the need for greater cooperation and respect in balancing perspectives among involved parties at local, state, and federal levels.

A similar volunteer monk seal watch program operates on Maui. A potentially controversial haul-out event occurred on that island when a female monk seal hauled out on a beach where a wind surfing contest was being held. In that case, the beach was left open with a 50-foot seal safety zone marked off with yellow tape. People on the beach respected the established line, thereby providing needed protection for the seal. Avoiding beach closures and relying on marked seal safety zones whenever possible were considered important for maintaining local support for monk seal protection.

Among other things, it was noted that current Service guidelines calling for a 150-foot safety zone around seals may be overly protective and is unrealistic for many beaches where monk seals haul out, and the guidelines should be modified. It also was suggested that management of monk seal haul-out events be vested in a local entity. Ideally, a monk seal biologist should be stationed permanently on an island to oversee response efforts for monk seals and begin to address some of the many long-term research needs for monk seals in the main Hawaiian Islands. In the long term, their duties might also include sea turtles and perhaps other protected marine species. The cost-effectiveness of a full-time coordinator on Kauai would likely be significant over time for both research and management purposes. In light of current staffing and funding, it was suggested that authority over monk seal haul-out events in the main Hawaiian Islands be vested with the Honolulu Laboratory, rather than the Pacific Islands Area Office, because of the Laboratory staff's greater knowledge and hands-on experience working with monk seals.

## III. Identification of Possible Management Options

Following the presentation of invited papers, workshop participants were asked to review a list of possible management options to be examined by the working groups. The list was derived from a paper[3] circulated to participants along with other background papers before the meeting. Noting that the working groups would be assigned different subsets of options and asked to identify criteria and protocols to implement them, the participants were asked for any additions, deletions, or changes. After a brief discussion, the group agreed that the list as presented was appropriate and the options were assigned to the four working groups as shown in Table 1.

## IV. Recommended Criteria and Protocols for Management Options

On day two of the workshop, four working groups were formed to develop advice on implementing the suggested management options. The working group reports are provided in

[3] Possible Management Response Options for Responding to Hawaiian Monk Seal Haul-Out Events in the Main Hawaiian Islands, by David W. Laist

Appendices 5-8. The major findings of each group were then summarized and discussed in a plenary session.

**Table 1. Possible management options for responding to monk seal haul-out events in the main Hawaiian Islands**

| | | |
|---|---|---|
| 1. | Modify existing public education and outreach programs | (Working Group A) |
| 2. | Modify existing reporting network as necessary | (Working Group B) |
| 3. | Receive monk seal haul-out report; take no action | (Working Group B) |
| 4. | Receive monk seal haul-out report; dispatch on-site investigator to verify and assess situation | (Working Group B) |
| 5. | Based on site investigator's findings, take no action | (Working Group B) |
| 6. | Based on site investigator's findings, post monitor | (Working Group C) |
| 7. | Based on site investigator's findings, establish a no-entry perimeter around seals/close part of the beach | (Working Group C) |
| 8. | Based on site investigator's findings, install a temporary physical enclosure to contain or protect the seal during a sensitive period (e.g., pupping) | (Working Group C) |
| 9. | Based on long-term seal occurrence patterns, install a permanent physical barrier to exclude seals from certain land or water areas | (Working Group C) |
| 10. | Based on site investigator's findings, haze seal to discourage its presence at that location | (Working Group D) |
| 10. | Based on site investigator's findings, capture and relocate seals | (Working Group D) |
| 11. | Based on site investigator's findings, dispatch rescue/medical intervention team | (Working Group D) |

## 1. Working Group A — Public Education and Outreach (Appendix 5)

Working Group A noted that education and outreach efforts are vital for increasing public awareness of monk seal protection needs and preventing problems between seals and people. Given the limited resources, it urged that the effectiveness of existing outreach materials and efforts be assessed. It recommended that a professional marketing consultant be sought (*pro bono* if possible) to review and evaluate existing materials and efforts, and that a group of education and interpretive experts involved in related outreach efforts be formed to assist in this review.

The group also noted that there is a need to better coordinate the preparation of educational materials and target outreach messages. Efforts should be focused on specific audiences within two primary groups: visitors and residents. As appropriate, brochures, pamphlets, videos, fact sheets, and inserts in visitors guides should be used, with each translated to foreign languages when appropriate. Because many visitors mistakenly assume that resting or sleeping seals are dead or distressed, it is especially important to educate the public about normal monk seal behavior. Education efforts by volunteers have been very helpful and should be encouraged; however, closer

ties between volunteers and agency officials are needed. It was recommended that assistance and recognition of volunteer efforts by the agencies be incorporated into the Hawaiian Monk Seal Recovery Plan, now being revised. It also was suggested that volunteers be given t-shirts and/or identification cards to recognize their role in monk seal protection efforts. It also was noted that a regular forum should be held to bring together stakeholders to share information and ensure consistency in outreach messages and information.

As a general matter, Working Group A noted that greater effort was needed to work with local authorities and residents on decisions concerning measures to protect seals from unleashed dogs and to establish seal safety zones – particularly around mother-pup pairs. It also was recommended that an individual should be assigned to each island or group of islands to coordinate local volunteers, businesses, and agency officials when responding to monk seal haul-outs and that person might also address management events for other marine protected species (e.g., spinner dolphins or humpback whales) as workloads allow. Because coordinators will need to work closely with all interested parties and groups, training and experience in building a cooperative team approach was considered an especially important qualification for this position.

### 2. Working Group B — Improve and Maintain a Reporting System/ Deploy Site Investigators (Appendix 6)

Working Group B first considered ways of improving the system for reporting the presence of monk seals in the main Hawaiian Islands. An effective reporting system is important both for gathering data on monk seal haul-out patterns and initiating management action. To meet both purposes, it was suggested that reports of all sightings (both at sea and on land) be encouraged, and that a toll-free number (e.g., 1-800 SEE-SEAL) be set up so that calls or sighting reports would be forwarded to an island coordinator. This toll-free number should be advertised in brochures and other education materials. When a sighting report is received, the first questions to ask are how to reach the caller (in case the call is cut off), the status of the seal, when and where it was seen, the proximity of people to the seal, and whether the seal is already in a marked-off area. As possible, other information on existing data sheets used by the National Marine Fisheries Service should then be sought. A simple data sheet in electronic or paper form should be used to record reported data. If possible, it was suggested that callers be provided information on the seal they are reporting or advised where to go for further information to make their effort more satisfying. To operate the system, funding is needed to support a county/island coordinator, a telephone system to receive and relay sighting reports, and computers to record data. It was also recommended that an annual report be prepared to summarize information on reported sightings.

Not all reports will require a response (e.g., when the location is unclear, the sighting is not current, or the sighting has already been reported and addressed). In general, it was noted that someone should be sent to assess any haul-out reports involving a birth, an injured or entangled seal, or harassment. For other reports, this decision should be based on the following factors: logistical considerations (e.g., accessibility of the location or weather conditions), implications for the community (e.g., people are upset about the presence of the seal or there are public relations implications); and data needs. It was suggested that people investigating a haul-out report be trained

or have experience in responding to such events, and that the island coordinator and a number of others be authorized to take action up to, but not including, medical treatment (e.g., moving a seal out of harm's way, disentangling animals, or disturbing seals to collect necessary information).

### 3. Working Group C — Post Monitors/Post Seal Safety Zones/ Install Physical Barriers (Appendix 7)

Working Group C concluded that decisions to post monitors or establish seal safety zones would depend on the circumstances (e.g., the setting and number of seals involved) and the judgment of site investigators. It was suggested that monitors be posted at a haul-out site when the seal needs to be assessed for possible follow-up needs. Factors to be considered in this regard include the seal's health and the presence of people or animals that might harass the seal. People posted to monitor seals should be informed about the legal implications and receive training in how to monitor the status of seals, provide information to the public, how to handle truculent people, and who to call for enforcement, medical, or other types of assistance.

It was noted that posting seal safety zones is an effective tool, important principally as a way to inform the public that a seal is present and to help them avoid disturbing the animal. Simple barriers made of yellow tape, posts, and small signs seem very effective in most situations, especially when no monitors are present. It was noted that posted zones should not be considered legal boundaries for purposes of enforcing harassment prohibitions. It was suggested that the size of restricted areas should be as small as possible, rather than as large as possible, and that boundaries should be based on the best judgment as to what is needed prevent disturbance in a given situation. Individuals who will be involved in setting up restricted areas should be given guidance and training.

The use of barriers to prevent seals from moving into areas was not considered a good idea except possibly to keep animals away from particularly hazardous situations, such as roadways.

### 4. Working Group D — Haze Seals/Translocate Seals/Medical Intervention (Appendix 8)

Working Group D concluded that hazing or translocating seals should be a "last ditch" response used only after other means of avoiding adverse interactions have been tried or ruled out. It was believed that such efforts should not be used simply because seals are in inconvenient places. It was noted, however, that these options might be used in situations such as (1) seals that are "out of habitat" or in high-risk areas (e.g., on roads or boat ramps); (2) weaned pups in high-risk areas where they would acclimate to human attention; (3) seals threatened by an unusual event (e.g., a hazardous substance spill); and (4) seals exhibiting aberrant behavior that poses risks to human safety or seal survival. Responses to such events should be graduated, starting with mild harassment to herd animals away from danger and ranging to translocating animals to other areas as a last resort.

If moving or translocating seals is considered, trained personnel should identify the individual seals causing the problem, assess their health before moving them, and inform the public of the need for the action. The working group did not like the term "hazing" since the purpose was

to make the seal move rather than to distress it. It was recommended that a series of measures, with increasing levels of intervention, be developed for use in situations when seals must be moved. For example, the first move might be approaching a seal waving one's arms and, if that fails, brushing them with palm fronds. Some techniques are more appropriate for moving mother-pup pairs. With regard to translocating seals to another area, the working group did not attempt to identify where seals should be moved, but did recommend that they not be translocated to the NWHI because of the risk of transmitting disease to seal populations there. It was noted that weaned pups likely would stay where they are moved for some period of time, but that older animals may not. Captive maintenance was not considered a good idea unless intensive care was required to treat a serious injury.

As a general matter, plans and methods for herding or translocating seals should be developed in advance and in consultation with stakeholders. It was thought that a sufficient number of people, including those outside of the National Marine Fisheries Service, should be trained and authorized to herd seals so that situations requiring such action could be addressed promptly. People so authorized should carry identification to help ensure that people attempting to do this have received appropriate training and authorization. Whenever seals are herded or translocated, debriefing sessions should be held to determine which methods were effective and which were not.

## E. General Discussion of Management Options

Following presentation of the working group findings, the floor was opened for general discussion. The comments focused on a need to identify who would be responsible for what actions when responding to monk seal haul-out events. To better coordinate and organize this work, the group agreed that an on-island coordinator should be assigned to oversee work by involved volunteers, local agencies, and businesses on Kauai. This individual might also begin to address research needs for main Hawaiian Island monk seals and eventually help with issues relative to sea turtles and perhaps other species, as well as monk seals, depending on workloads. It was noted that the Hawaii Division of Aquatic Resources, with funding from the National Marine Fisheries Service, recently contracted with Mr. Shawn Farry to serve this function for monk seals through at least January 2003. This step was welcomed and endorsed by workshop participants. It was suggested that coordinators also be identified for other islands or groups of islands, depending on needs.

Certain actions that involve handling or disturbing seals require formal authorization from the National Marine Fisheries Service under the Marine Mammal Protection Act and the Endangered Species Act. In this regard, it is particularly important for enforcement officers and others responding to haul-outs to know who is authorized and trained to do what. To clarify these roles, it was suggested that a three-tier system be defined. It also was noted, however, that what was needed most was for people to work together and that a structured system may not be appropriate if inclusion at different levels becomes a source of competition that divides rather than unites those involved. With this caution, it was suggested that the following system be considered.

Level 1 responders would include people responsible for work now performed by volunteers and agency officials that does not involve disturbing or otherwise "taking" monk seals. This might include posting safety zones around resting seals, monitoring seals and collecting data from outside of seal safety zones, distributing brochures and talking with people at haul-out sites or elsewhere, and calling others for assistance as needed. Because these actions would be limited to those that did not involve disturbing or otherwise "taking" monk seals, no formal authorization would be required. However, it was felt that these individuals should receive training on how to establish seal safety zones and collect data without disturbing seals, information to provide the public, who to call for help with enforcement or distressed seals, etc. In particular, the training should specify precautions to ensure that their activities do not disturb seals. Those completing the training would be recognized as "certified" to respond to monk seal haul-out events, receive a card or other type of identification (e.g., a t-shirt), be instructed as to what data to collect and how, be provided with yellow tape and posts to mark seal safety zones, and be placed on a list of people who could be called to respond to haul-out events.

Level 2 responders would include people authorized to conduct certain activities that involve the taking of seals, but that do not require extensive training or expertise to perform. Such activities might involve disentangling some seals caught in ropes or debris (e.g., relatively minor entanglements that do not involve serious injury), extracting easily removed hooks, herding seals away from hazardous areas such as roadways or boat ramps, disturbing animals to assess the nature or extent of injuries, or assisting other people authorized to move or treat injured animals. Having a number of people on each island with authority, expertise, and local knowledge to respond to these needs quickly was considered important. Formal authorization from the National Marine Fisheries Service both under the Marine Mammal Protection Act and the Endangered Species Act would be required to perform these tasks. Guidance would be needed as to what activities they could and could not carry out. While most Level 2 responders might be state, county, or federal agency officials, they also might include Level 1 volunteers interested in being trained to perform tasks at this level. Level 2 responders might also be contacted as needed to carry out activities defined under Level 1.

Level 3 responders would involve people trained and experienced in providing medical care, moving animals, or conducting activities that require a high level of training. They also would require formal authorization from the National Marine Fisheries Service under the Marine Mammal Protection Act and the Endangered Species Act and clear guidance as to precisely what activities they could conduct.

With regard to such a system, it was noted that it was not clear how the Service might delegate and authorize people to carry out activities under Levels 2 and 3 that would involve the taking of seals. Concern also was expressed about liability issues if volunteers were involved in Level 2 or Level 3 activities. However, it was suggested that they might be asked to sign a liability waiver or be issued a permit that would not encumber liability obligations.

## V. Implementing Identified Management Options

Workshop participants next considered actions to implement the suggested recommendations. To help facilitate follow-up work, participants agreed to help pursue various tasks as discussed below.

**Support for a Monk Seal Coordinator on Kauai:** Securing new staff to coordinate and oversee response efforts was identified as the most important need. It was noted that the Hawaii Division of Aquatic Resources, with funding from the National Marine Fisheries Service, recently contracted Mr. Shawn Farry to serve as a monk seal response coordinator on Kauai through at least January 2003. Finding support to continue this position on Kauai was considered the highest priority, although it was noted that establishing such positions on other islands also was important. It was noted that island coordinators might also help address local conservation needs for dolphins, humpback whales, and other protected marine species as their workloads allow. For Kauai, however, it was noted that monk seals likely would require a coordinator's full-time attention for the foreseeable future. Possible sources of funding identified to support the position included additional short-term funding by government agencies, foundation grants, a grant to the Division of Aquatic Resources under section 6 of the Endangered Species Act, or the establishment of new island coordinator positions within the National Marine Fisheries Service as part of its current efforts to restructure its Hawaiian operations. Jeffrey Walters and staff of the Pacific Islands Area Office agreed to explore options to obtain funding for the most immediate need (i.e., maintaining an island coordinator on Kauai).

**Improving the Reporting System:** It was agreed that steps should be taken to acquire a single toll-free telephone number for reporting monk seal sightings. This will require coordination with other protected species hotlines. Thea Johanos, Samantha Whitcraft, and Margaret Dupree agreed to examine possibilities for establishing such a number and identify steps needed to advertise it to the public and involved agencies.

**Improve Organization of Response Efforts:** As a general matter, it was agreed that people responding to monk seal haul-out events should have clearly specified tasks and responsibilities and that some of those people should be legally authorized to carry out specific activities that would constitute a "taking" as defined under the Marine Mammal Protection Act and the Endangered Species Act (e.g., herding or disentangling seals). Samantha Whitcraft, Bud Antonelis, and Margaret Dupree, in consultation with other involved agencies and groups, agreed to define the roles and responsibilities for different response levels using the suggested three-tier system described above as a general guide. To formalize organizational needs on Kauai, it was suggested that a memorandum of understanding be drafted based on a protocol recently developed by federal, state, and county agencies and volunteer groups. Those identified to help develop such an agreement included staff of the Pacific Islands Area Office, Amy Esaki for Kauai County, Shawn Farry, and Michael Gosliner.

It also was agreed that training programs and manuals should be developed for people involved in each of the defined response levels. Those programs and materials would include information on monk seal biology, relevant legal requirements, objective measurable criteria, and contingency plans for responding to foreseeable management situations. Staff of the Pacific Islands

Area Office, Carl Berg, Samantha Whitcraft, and Bud Antonelis agreed to identify what should be included in the training programs and manuals and how to develop them. It also was agreed that staff at the Pacific Islands Area Office, local monk seal volunteers, scientists, and people currently serving as island coordinators would work on developing protocols for monitoring and assessing hauled-out monk seals. To address legal authorization for certain tasks, staff of the National Marine Fisheries Service's Pacific Islands Area Office and Office of Protected Resources agreed to resolve questions regarding the procedures and mechanisms necessary to delegate authority to involved people in order to ensure prompt on-site responses to certain foreseeable emergency situations.

**Clarify Procedures for Herding, Capturing, and Moving Seals:** As indicated above, people that herd, capture, or move seals must be authorized under the Marine Mammal Protection Act and the Endangered Species Act. Agreed procedures to carry out these activities also need to be developed. Bob Braun and Frances Gulland agreed to review and summarize information and experience on herding, capturing, and moving seals. Staff of the Honolulu Laboratory (Bud Antonelis) and the Pacific Islands Area Office (Margaret Dupree) agreed to form a group of consultative experts to develop recommendations and advice on how these activities should be undertaken. It was also noted that prior to proceeding with these activities, the public should be informed about why and how seals would be herded, captured, or moved. Staff with the National Oceanic and Atmospheric Administration's Office of Public Affairs (Delores Clark) agreed to take responsibility for this task.

**Establish a Formal Mechanism to Exchange Information:** To help ensure that people involved in monk seal protection work have up-to-date and consistent information on the status of monk seals and monk seal protection efforts in the main Hawaiian Islands, it was suggested that a monk seal consortium be established, similar to the right whale consortium. The consortium would include non-governmental researchers and volunteers. Its purpose would be to organize and convene an annual meeting of involved researchers, volunteers, and agency officials to report on recent efforts and findings. The consortium could also form an advisory group to provide advice on research and management needs. Hannah Bernard and Margaret Dupree agreed to investigate steps necessary to develop such a consortium.

**Follow-up and Oversight:** To ensure that the identified actions are carried out, an individual or group would need to be assigned oversight responsibility. Although two possible entities were identified for this task – the Marine Mammal Commission and the Hawaiian Monk Seal Recovery Team – the question of responsibility was not resolved.

## VI. Research Needs

Based on discussions, workshop participants were asked to identify research topics that might be useful or necessary to help understand and manage Hawaiian monk seals in the main Hawaiian Islands. The resulting list, summarized in Table 2, identified about 50 research topics in eight general subject areas.

The participants were then asked to identify priority research topics. As criteria for assessing priorities, it was noted that consideration should be given to whether the research would alter conservation or recovery strategies, and to personnel and funding costs. Although a few research priorities were suggested, there was not sufficient time to discuss or reach agreement on them. Priority topics included:

- assessing the effectiveness of boundaries for seal safety zones;

(continued on page 18)

**Table 2. Identified research needs concerning Hawaiian monk seals in the main Hawaiian Islands**

Population Dynamics

- Determine age/sex composition
- Monitor pup production
- Determine mortality rates
- Develop photo-ID catalogue
- Assess immigration rates

Life History Studies

- Determine marking techniques appropriate for use in the main Hawaiian Islands
- Mark seals to assess survival, migration, problem seals, etc.
- Assess inter-island movements
- Maintain photo-ID catalogue
- Assess reproductive rates and histories
- Determine reproductive senescence
- Determine age of sexual maturity
- Assess individual haul-out and site fidelity patterns
- Determine predation rates
- Assess weight and condition at weaning
- Monitor growth rates and patterns

Abundance and Distribution Studies

- Maintain public sighting records
- Develop standardized aerial survey methods with ground truth
- Determine correction factor for seals not on shore during counts in the MHI
- Conduct standardized seasonal aerial surveys to monitor trends in beach counts, distribution, etc.
- Use GIS to evaluate pupping sites, molting sites, and haul-out sites

Foraging Studies

- Identify prey composition and preferences and amounts consumed
- Compare diet with seals in NWHI
- Evaluate prey for biotoxins
- Identify foraging habitat by age/sex
- Assess foraging effort
- Assess prey availability
- Use GIS to evaluate seal foraging patterns

Genetics Studies

- Determine maternity and paternity patterns (i.e., who is breeding)
- Assess genetic variation
- Identify population units/stocks
- Use genetic markers to determine population size
- Determine evolutionary history of the species

Table 2 (Identified Research Needs continued)

Health and Disease Studies

- Collect complete samples when seals are handled for any reason to conduct thorough health evaluation
- Determine frequency and effect (including disease threats) of interactions with feral animals, pets, and livestock
- Establish serum/swab sample bank
- Identify parasites
- Determine baseline/status of diseases in MHI seal population
- Monitor recovery from diseases
- Assess the potential to prevent disease by immunization or other methods
- Assess contaminant loads
- Conduct vector follow-up if seals are bitten by dogs or other animals
- Treat injured seals and maintain database on injuries
- Develop protocols for treating seals in captivity
- Develop contingency plans for high-risk events (e.g., ciguatera)

Study Human-Seal Interactions

- Interactions with fisheries:
  - Identify where commercial gear is set and extent of interactions
  - Identify interactions with fish aggregating devices (FADs)
  - Assess interactions with recreational fishing, fishing tournaments
  - Assess aquaculture interactions
- Determine the frequency and effect of interactions with divers
- Evaluate possible deterrents to keep animals away from problem areas
- Identify problem sites where it would be appropriate to deter seals (e.g., sewage outfalls, popular beaches, roads, etc.)
- Evaluate tolerance of seals to humans on site-by-site basis
- Assess native Hawaiian cultural interests in seals
- Assess economic value of seals
- Determine effects of sound on seals
- Determine/monitor boat injury risks
- Determine the frequency and effects of people feeding seals

Studies of Management Effectiveness

- Assess effectiveness and optimal size of seal safety zones
- Evaluate community compliance with protection guidelines
- Conduct a survey of public attitudes toward seals and seal protection
- Determine effectiveness of targeted education and outreach efforts
- Establish mechanisms for timely sharing/distribution of information
- Develop/test methods and devices to deter seals
- Determine whether the MHI seal population is increasing
- Evaluate degree of research and recovery activity coordination

- tagging all seals;
- identifying monk seal prey species and feeding areas;
- determining overlap between seal foraging grounds and commercial and recreational fishing areas;
- identifying individual seal haul-out patterns and site fidelity; and
- comparing patterns of human activity and seal habitat use.

As a general matter, a geographic information system on main Hawaiian Islands monk seals was identified as an important tool to help address many of the research needs. It also was noted that the Hawaiian Monk Seal Recovery Team is updating the Hawaiian Monk Seal Recovery Plan, and it was recommended that research priorities for the main Hawaiian Islands be identified in that plan.

## APPENDIX 1

## TERMS OF REFERENCE

### Workshop on the Management of Hawaiian Monk Seals on Beaches in the Main Hawaiian Islands

**Background and Purpose**

Hawaiian monk seals occur principally in the Northwestern Hawaiian Islands and are one of the world's most endangered seals. Their current number, about 1,400 animals, has been stable since the mid-1990s, but is less than half their abundance in the 1950s. Monk seals are protected under both the Marine Mammal Protection Act and the Endangered Species Act. The former act prohibits, with specific exceptions, the taking of all marine mammals regardless of their status. The latter, with certain exceptions, prohibits the taking of species listed as threatened or endangered, including Hawaiian monk seals, and also provides protection for habitats that contain elements essential for their survival and recovery. Under both acts, taking is defined to include non-lethal forms of harassment as well as the killing or injuring of animals. Management actions to resolve conflicts between humans and an endangered marine mammal may be authorized under permits for either scientific research or enhancement of the population.

Although historical evidence is lacking, it is likely that monk seals once occupied the main Hawaiian Islands but were extirpated from that portion of their range some time after the arrival of the Polynesians. Over the past decade, however, reports of Hawaiian monk seals on beaches in the main Hawaiian Islands have increased. Before 1988, reports of hauled-out monk seals in the main Hawaiian Islands (other than Niihau) were rare, and only a single birth had been recorded. In the following decade, reports of monk seal sightings increased, particularly on Kauai, and one to four births were recorded annually. In recent years, sightings and births have been recorded on all of the main Hawaiian Islands although most occurrences continue to be on Niihau and Kauai. In 2001, a record high of 11 births were documented at scattered locations around the main Hawaiian Islands, and an aerial survey produced a count of 52 monk seals. Considering the number of seals at sea and not seen during the survey, there may be 150 or more monk seals living throughout the main Hawaiian Islands. Because the main Hawaiian Islands offer perhaps the only remaining habitat for new monk seal colonies, their occupation of this area could play an important role in the species' recovery.

Monk seals haul out on beaches for at least three reasons: to rest, molt, and pup. Although resting seals may haul out for short periods, molting seals may haul out for a week or more and mother-pup pairs may occupy a beach for a month or longer. Many beaches in the main Hawaiian Islands are used by people for recreational purposes. Seals that haul out on moderately to heavily populated beaches may have a high probability of being disturbed, harassed, or injured by people, pets, or feral animals. Although the Marine Mammal Protection Act prohibits harassment of monk seals, people have nonetheless harassed seals on main Hawaiian Islands beaches, both unintentionally and deliberately. Monk seals also may injure people; on at least two occasions in the past two years, seals have bitten swimmers in the main Hawaiian Islands. Also, there are

documented incidents of dogs attacking or biting seals. Such interactions with other animals raise the possibility of the transmission of diseases or parasites from pets and feral animals through individual seals to the overall seal population.

With increasing reports of seals using beaches in the main Hawaiian Islands, particularly for long periods of time to molt or pup, interactions between seals and people have demanded more and more attention by resource managers. Repeated haul-outs by a few individual seals on heavily populated beaches have been a source of particular concern. In most cases, managers responding to haul-out events have cordoned off portions of beaches near seals and posted staff from the National Marine Fisheries Service and the State of Hawaii or volunteers to monitor the seals and keep people and animals from approaching too closely. People stationed with seals inform the public about monk seal behavior, their endangered status, and protection needs. In some cases, these measures have been insufficient to prevent adverse interactions between seals and people. In one case, a popular swimming beach was temporarily closed to the public to protect a mother-pup pair. Such measures can have significant economic impacts on local tourist-based economies and could create ill-feelings toward seals by the public and local businesses.

Given recent trends in the number of reports of monk seals on main Hawaiian Island beaches, the need to prevent harmful interactions between monk seals and beachgoers will likely increase in coming years. To date, clear guidance on how to respond to the range of situations that may occur has not been developed. In addition, a full range of potential management responses has not been fully explored. For example, in some cases the best interests of seals and human safety may be served by discouraging or preventing seals from using certain beaches, while protecting and encouraging their use of other shoreline areas.

As actions are taken in the future to respond to monk seal haul-out events, they will need to be evaluated in order to determine whether and how they might be modified to balance monk seal conservation and human use patterns more effectively. In this way, actions to conserve monk seals will be implemented through an adaptive management strategy that will evolve over time based on the accumulation of management experience and ongoing research to better understand the life history and ecology of monk seals as they reoccupy the main Hawaiian Islands. This workshop is a step in this process. Its goals are to (1) review information on monk seal haul-out patterns and interactions between both people and pets and monk seals on beaches, (2) discuss potential plans of action to address monk seals hauling out in the main Hawaiian Islands, and (3) provide information about additional research and management actions needed to evaluate interactions between monk seals and people on beaches in the main Hawaiian Islands.

**Objectives**

To meet these goals, sponsoring agencies will convene a group of resource managers, marine mammal biologists and veterinarians, individuals with experience in managing interactions between monk seals and people, and representatives of key stakeholder organizations or groups to consider the following objectives:

1. Review available information on the occurrence, haul-out patterns, and behavior of resting, pupping, and molting monk seals in the main Hawaiian Islands and the Northwestern Hawaiian Islands.

2. Review information on the response of monk seals to disturbance and its effects.
3. Review actions and experience to date with regard to managing interactions between monk seals and people on beaches.
4. Review the potential for introducing new diseases or parasites to wild monk seals through interactions between with pets or feral animals in the main Hawaiian Islands.
5. Review information on the disturbance, handling, and management of seal species other than monk seals that haul out in places that conflict with public use.
6. Identify the legal framework and permit requirements within which management options must be developed.
7. Identify and describe potential management approaches and set of protocols for responding to monk seal haul-out events in the main Hawaiian Islands based on a consideration of possible risks to both monk seals and people.
8. Identify research needed to develop and assess measures to manage interactions between monk seals and people on beaches in the main Hawaiian Islands.
9. Prepare a summary report of workshop discussions.

## APPENDIX 2

## AGENDA

**Workshop on the Management of Hawaiian Monk Seals on Beaches in the Main Hawaiian Islands**

**29-31 October 2002**
**Sheraton Kauai Resort**
**Koloa, Kauai, Hawaii**
**808-742-1661**

**Cosponsored by**
**Marine Mammal Commission**
**National Marine Fisheries Service**
**Hawaii Division of Aquatic Resources**

| **Tuesday, 29 October** | | **F Facilitator R= Rapporteur** |
|---|---|---|
| 9:30-9:45 | Welcome and Introductions | Lloyd Lowry |
| 9:45-10:30 | Distribution and abundance of Hawaiian monk seals in the main Hawaiian Islands | Jason Baker |
| | The role of the main Hawaiian Islands in the recovery of Hawaiian monk seals | Timothy Ragen |
| | Discussion | |
| 10:30-11:00 | Monk seal movement and haul-out patterns in the Northwestern Hawaiian Islands | George Antonelis |
| | Discussion | |
| 11:00-11:15 | BREAK | |
| 11:15-11:45 | Responses of monk seals to human disturbance and handling | William Gilmartin |
| | Discussion | |
| 11:45-12:15 | Handling risks and disease considerations of Hawaiian monk seals in the main Hawaiian Islands | Discussion |

| | | |
|---|---|---|
| Robert Braun | | |
| 12:15-1:45 | LUNCH | |
| 1:45-2:15 | Legal requirements under the Marine Mammal Protection Act, Endangered Species Act, & state law | Michael Gosliner |
| | Discussion | |
| 2:15-2:45 | Case Study: Whose beach is it anyway? Managing seals at Children's Pool, La Jolla, California | James Lecky |
| | Discussion | |
| 2:45-3:45 | Management experience to date with monk seals in the main Hawaiian Islands | |
| | • National Marine Fisheries Service<br>• Hawaii Department of Land and Natural Resources<br>• Kauai Monk Seal Watch Program | Margaret Dupree<br>Jeffrey Walters<br>Donald Heacock<br>Timothy Robinson |
| | Discussion | |
| 3:45-4:00 | BREAK | |
| 4:00-5:00 | Working Group Meetings:<br>Identification of possible management options | |
| 5:00-6:00 | Plenary Session:<br>Working Group reports on list of possible management options to consider on day 2 | John Reynolds – F<br>Jeffrey Walters – F<br>Athline Clark – F<br>Lloyd Lowry – F |
| 6:00 | ADJOURN DAY 1 | |

**Wednesday, 30 October**

| | | |
|---|---|---|
| 8:30-9:00 | Plenary Session:<br>Review and adoption of list of management options for consideration by Working Groups | Lloyd Lowry – F |
| 9:00-12:30 | Working Group Meetings: | Development of |

| | | |
|---|---|---|
| recommended criteria and protocols for identified management options | | 12:30-2:00 |
| LUNCH | | |
| 2:00-3:30 | Plenary Session:<br>Reports and discussion of Working Group findings | John Reynolds – F<br>Samantha Whitcraft – F<br>Athline Clark – F<br>Lloyd Lowry – F |
| 3:30-3:45 | BREAK | |
| 3:45-5:00 | Plenary Session:<br>Synthesis and agreement on protocols and criteria for recommended management options | Samantha Whitcraft – F<br>David Laist – R |
| 5:00 | ADJOURN DAY 2 | |

**Thursday, 31 October**

| | | |
|---|---|---|
| 8:30-9:00 | Plenary Session:<br>Summary of agreed protocols and criteria from Day 2 | Lloyd Lowry |
| 9:00-10:30 | Plenary Session:<br>Recommended administrative arrangements to implement protocols and criteria for recommended management options | Donna Wieting – F<br>John Reynolds – R |
| 10:30-10:45 | BREAK | |
| 10:45-12:30 | Plenary Session:<br>Identification of research needs to implement an adaptive management approach | Timothy Ragen – F<br>William Gilmartin – R |
| 12:30 | ADJOURN MEETING | |

## APPENDIX 3

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## APPENDIX 4

### Background Papers Prepared for the Workshop

Papers prepared in advance of the meeting are available on the Marine Mammal Commission web site (www.mmc.gov) or may be requested by writing to the Commission at 4340 East-West Highway, Rm. 905, Bethesda, MD 20814.

"Distribution and Abundance of Hawaiian Monk Seals in the Main Hawaiian Islands" by Jason D. Baker and Thea C. Johanos

"The Role of the Main Hawaiian Islands in the Recovery of the Hawaiian Monk Seal" by Timothy J. Ragen

"Monk Seal Movement and Haul-Out Patterns in the Northwestern Hawaiian Islands" by Albert L. Harting, Thea C. Johanos, and George A. Antonelis

"Responses of Monk Seals to Human Disturbance and Handling" by William G. Gilmartin

"Handling Risks and Disease Considerations of Hawaiian Monk Seals in the Main Hawaiian Islands" by Robert C. Braun

"Legal Requirements under the Marine Mammal Protection Act, the Endangered Species Act and State Law" by Michael L. Gosliner

"Whose Beach Is It Anyway?: Managing Seals at Children's Pool, La Jolla, California" by James H. Lecky

"Management Approach and Experience to Date with Monk Seals in the Main Hawaiian Islands" by Margaret A. Dupree

"Management of Monk Seals in the Main Hawaiian Islands by the Hawai'i Department of Land and Natural Resources: Current Practices and Hopes for the Future" by Jeffery S. Walters and Donald Heacock

"Volunteer Perspectives on Management Approach and Response Efforts with Hawaiian Monk Seals on Kauai: Kauai Monk Seal Watch Program" by Tim Robinson

"Possible Management Options for Responding to Hawaiian Monk Seal Haul-Out Events in the Main Hawaiian Islands" by David W. Laist

"Adaptive Management of Monk Seals in the Main Hawaiian Islands"

by Charles Karnella, George A. Antonelis, and Albert L. Harting

## APPENDIX 5

### Report of Working Group A

### Public Education and Outreach

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**Introduction**

Working Group A was asked to review existing public education and outreach programs and assess their effectiveness in minimizing the risk of adverse interactions between monk seals and people in the main Hawaiian Islands. They were also asked to consider ways to develop outreach and educational materials that could enhance the public's positive feelings about monk seals in the main Hawaiian Islands.

The Working Group identified three actions essential for delivering well conceived and consistent messages to all segments of the public that may encounter monk seals: (1) assess cost-effectiveness and effectiveness of existing public education and outreach programs; (2) create opportunities for better coordination; and (3) provide a formal mechanism to bring stakeholders together to discuss issues and share information.

**Assess cost-effectiveness and effectiveness of existing public education and outreach programs**

Education and outreach materials are essential for increasing the public's awareness about the status of the Hawaiian monk seal and related protection requirements. However, organizations that develop these materials have limited financial resources and may not have benefitted from input of professionals with experience in marketing and public education. Consequently, these products may not adequately meet current education and outreach needs. Often they are aimed at informing a general audience and may be too text-heavy or fail to present a consistent message.

The Working Group **recommends** that steps be taken to identify a consultant to review and evaluate the effectiveness of existing education and outreach materials and efforts for all interest

groups. The Working Group further **recommends** that a group of ocean education and interpretive experts be included in this review.

**Create better opportunities for coordination**

Because information needs change, education and outreach must be a continuing and evolving process. Packaging and disseminating information and translating it into appropriate languages are an important part of resource protection. Developing effective messages for the right target audience is key to ensuring that Hawaii's ocean users are educated users who will act in ways that will help conserve the resources.

Education and outreach programs should target both visitors and residents of Hawaii and must be tailored for the different audiences. Additionally, efforts should be aimed at informing educators who reach large groups of people. The participants noted that the categories "visitors" and "residents" are overly broad and perhaps of limited value. Visitors from foreign countries likely will need information in their native language (the working group stressed the need for materials printed in Japanese) and that considers differing cultural perspectives. There also is a big difference in perspective and level of enfranchisement of long-time residents whose ancestors are Hawaiian and more recent immigrants to the state.

The primary need for monk seals observed in the main Hawaiian Islands is to prevent their harassment. Monk seals regularly haul out on shore to rest, sleep, molt, and pup. Some seals stay ashore for hours to rest and can occupy an area for days or weeks when pupping or molting. During these haul-out events, officials often receive reports from the public that a seal appears to be distressed or stranded. Assuming that they are helping the seal, some people attempt to herd the animal back into the water. Most often than not, the animal is not in distress; rather it is engaged in normal resting or sleeping behavior and needs only to be left alone. Education is needed to increase public awareness and understanding of normal seal behavior, the prohibitions against harassment, and the consequences to individual animals that may be harassed. Brochures, pamphlets, travel guides, videos, fact sheets and other interpretive materials in multiple languages are useful in providing information to visitors and residents who are unfamiliar with normal monk seal behavior and the species' endangered status.

The work of volunteers can supplement agency efforts to reach larger and more diverse segments of the community. Volunteer efforts that involve collaborations with other community groups and organizations lead to success in achieving common goals and mutual benefits. For example, the Kauai Monk Seal Watch Program helps provide education and public outreach to promote understanding and appreciation of Hawaiian monk seals. Its work is funded by donations and includes programs targeting local schools and visitors on Kauai. It promotes education in local schools at the fourth-grade level through presentations on the Hawaiian monk seal. Visitor outreach efforts focus on teaching appropriate behavior around seals to minimize harassment of monk seals on beaches. These efforts need to be better coordinated with agency officials and should be identified as important elements in the revisions to the monk seal recovery plan. Items

that should be addressed are agency coordination and support, use of docent program, level of training, establishing a consistent identity for volunteers (i.e., t-shirts and identification cards), supplemental funding to continue and enhance volunteer efforts, endorsement of volunteer effort by agencies to enhance "buy in," and recognition from community, businesses, etc. Additionally, the Kauai Monk Seal Watch Program needs assistance from agency officials to review and assist in developing new outreach and interpretive materials. Agency assistance could be provided by a website that reviews documents, facts, and developments on monk seals that volunteers could incorporate into their outreach efforts. It should be noted that generally similar programs (e.g., Hawaii Wildlife Fund on Maui) exist elsewhere in the main Hawaiian Islands.

The working group **recommends** that responsible agencies take steps to create a formal mechanism to bring together stakeholders to discuss issues and share information on a regular basis. Such meetings could facilitate the development of education and awareness materials, signage, and procedures that could be standardized among the various groups.

Monk seal pupping on beaches frequented by humans requires additional and adaptive management strategies beyond that normally associated with haul-outs. Establishing a secure safety zone for the mother and pup is important because it helps to ensure that the mother does not abandon her pup due to human disturbance and the public is protected from potential aggression by the mother protecting her pup.

In some cases, the National Marine Fisheries Service response to protect seals from human interaction and unleashed dogs has been to secure – or to recommend that local authorities secure – a zone around the mother-pup pair until weaning. The closure of a popular beach can elicit public frustration over the lack of access for recreation or subsistence purposes and foster resentment among local residents and business. It is important that protection efforts be done in ways that ensure (a) as little disruption of local economic or human activities as possible; (b) clear explanations of the rationale for various protective measures; and (c) opportunities for local ventures (ranging from volunteer groups to hotels) to learn about, appreciate, and value the occasional presence of monk seals as a resource rather than as an obstruction. In this regard, the working group recommended that a public information campaign be created to specifically target local residents. Efforts could include featuring local people to help share important messages about protecting Hawaii's marine environment, creating opportunities for local residents to monitor seals and thereby build a sense of local stewardship, installation of permanent signs in areas of known pupping incidents, and expanding existing education efforts by the State Division of Conservation and Resources Enforcement.

In addition, a representative should be identified to coordinate and facilitate the roles of involved groups to prevent miscommunications among the different stakeholders (volunteers; local businesses; federal, state, and county agencies; and the interested public). Ideally that coordinator should be an individual with leadership and organizational skills who communicates well with the various interest groups and who has good credibility with all. There is currently a remarkable lack of communication and trust among some involved entities, and it is important that this problem be

addressed so that a strong collective effort can be made to protect endangered monk seals while also allowing human activities to be maintained to the extent possible.

**Conclusion**

Expanding the scope of education and outreach by assessing and evaluating existing efforts, improving coordination, and providing a formal mechanism to bring stakeholders together on a regular basis to improve communication would greatly enhance public awareness for the Hawaiian monk seal in the main Hawaiian Islands.

Education should be recognized as a front-line conservation tool for mitigating and preventing harassment of monk seals for all islands. Efforts should also be made to identify agencies (e.g., the Department of Land and Natural Resources and the Hawaiian Islands Humpback Whale National Marine Sanctuary) that can help to support and enhance education and outreach efforts.

Additionally, information on who to call to report monk seal incidents should be made more widely available to the public.

## APPENDIX 6

## Report of Working Group B

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### Improve and Maintain a Reporting System

Working Group B first considered ways to improve the existing system for reporting the presence of monk seals in the main Hawaiian Islands. Currently, pamphlets, posters, signs, articles, public service announcements, and telephone books advertise several different numbers to call to report monk seal sightings, strandings, or enforcement issues. All monk seal sightings reported to National Marine Fisheries Service's Honolulu Laboratory are entered into a database that includes sighting records from 1983 to present throughout the main Hawaiian Islands. Additionally, biologists on Kauai (State of Hawaii Department of Land and Natural Resources), Kaho'olawe (Kaho'olawe Island Reserve Commission), and Kalaupapa, Molokai (National Park Service) maintain monk seal records from their areas and share that information with the Honolulu Laboratory.

The existing system evolved without dedicated resources or staffing, and there is uneven data collection and response to monk seal haul-out events. People may not know that they should report a monk seal sighting or may become frustrated when they call various numbers in an attempt to find the right agency. The existence of multiple numbers also is confusing because members of the public are often unsure how to interpret what they see. For example, they often cannot tell if the seal in trouble or simply resting. In addition, some numbers are answered only during normal business hours; others necessitate a toll call to Honolulu or may be answered by a mainland operator with no pertinent experience. Depending on where the report is placed, information may be recorded inconsistently or not forwarded to the central database. Every effort is made to respond to stranding events, but inter-island logistics create delays. In many cases, there is no island investigator available to respond to reports.

An effective reporting system is important for gathering data on monk seal haul-out patterns, evaluating whether further action is necessary, and initiating management action when warranted. Because available information about seals in the main Hawaiian Islands is limited, Working Group B concluded that reporting all sightings (both on land and at sea) should be encouraged to help characterize habitat utilization, frequency of occurrence, population composition, and other life history parameters. Working Group B also concluded that all public reports of monk seal haul-outs should be relayed to an island coordinator. In this regard, it concluded that island coordinators should be established for each island (or group of adjacent islands in some cases). Because of the greater frequency with which seals haul out on popular beaches on Kauai, that island has the greatest need for a coordinator, and the program should be introduced there. The program could then be expanded to other islands, with possible modifications depending on the number of monk seal haul-out events and related management needs. Island coordinators should be permanently located on the island (or one of the islands) for which they are responsible to facilitate rapid, timely responses. One permanent statewide toll-free number should be established, and calls should be automatically routed to the cell phone of the local island coordinator. A backup system should insure that callers can reach a coordinator (or designee) 24 hours a day.

In cases where sighting reports are made directly to local officials or others (e.g., lifeguards, Department of Land and Natural Resources biologists and enforcement officers, hotels, local police and fire departments, monk seal watch volunteers, marine sanctuary offices, etc.), the reports should be relayed directly to the island coordinator or through the toll-free number. Standard information should be requested for all sightings. When a sighting is reported, the caller should be asked for contact information (in case the call is cut off), and then asked about the situation: the seal's health and condition; when and where it was observed; the presence of people in relation to the seal; identifying information (size, sex, tags, scars); whether the area has been marked off with yellow tape or is otherwise being monitored; the accessability of the location; and whether there is documentation such as photographs or videos. If time allows, the coordinator should provide information on normal seal behavior, natural history, and the history of the seal (if identified) in order to make the experience positive for the person making the report. Callers should always be thanked, and directed to other sources of information, such as a web page.

Reports should be recorded by the island coordinator (or alternate) on a simple form and the need for follow-up action determined. Any follow-up actions should be documented; all reports should be logged and entered into the database in a timely manner and data submitted quarterly to the National Marine Fisheries Service's Honolulu Laboratory and all partners. It is recommended that an annual report be prepared summarizing information on reported sightings and responses.

**Deploy Site Investigators**

When a sighting report is received, the island coordinator (or designee) would assess the situation and the need for action. The report may simply be logged without further action if the sighting has already been reported and addressed, the seal is no longer present, there is inadequate information, higher priority problems exist elsewhere, or conditions preclude responding (e.g., nightfall, weather,

etc.). When possible, a site investigator should be dispatched to verify and assess the information. A site investigator should always respond when a seal is reported to be in trouble or vulnerable (e.g., giving birth, injured, entangled, being harassed, or dead). In cases of a possible stranding or law enforcement issue, the island coordinator should notify the appropriate agency in advance if at all possible. Otherwise, the coordinator should assess priorities and respond as possible.

A high priority should be assigned to responding to haul-out events based upon community needs (e.g., nuisance situations where people are upset about the presence of the seal or events with public relations implications) and data needs (e.g., sightings of an unknown or immature seal, a new haul-out site, or unusual seal behaviors). Response priorities also should consider the practicality of responding due to tide, nightfall, weather, etc.; authorization or permit restrictions; accessibility; urgency; and availability of personnel and equipment. Because of differing situations and priorities, Working Group B did not recommend setting a minimum response time for a site investigator to arrive on scene.

Once on site, the investigator should assess the situation, collect seal information on standard data sheets used by the Honolulu Laboratory, record GPS (Global Positioning System) location data, take digital photographs, and collect additional information relevant to seal management (number of people at the site, presence of dogs, disturbance, etc.). The site investigator would then determine what follow-up action is necessary (due to a seal in trouble or community need) or that no further action is warranted. Haul-out events often present opportunities for community outreach and education and should be taken advantage of when possible. People sent to investigate a haul-out event should be trained and have experience responding to such events. In situations that may involve "taking" a seal, site investigators should consult immediately with the island coordinator.

All island coordinators (and their alternates) should be qualified, trained, and hold necessary permits. They should have authority to initiate or assist with responses to entanglements and other situations up to, but not including, medical intervention (e.g., they should be able to move seals out of harm's way, disentangle animals, or disturb seals as needed to collect necessary information). If possible, the Pacific Islands Area Office and the Honolulu Laboratory should be consulted before any action involving the "taking" of a marine mammal (as defined under the Marine Mammal Protection Act and the Endangered Species Act). If prior notification is not possible, the incident should be documented and reported to the Service as soon as possible.

Additional site investigators should be trained to evaluate the seal and collect data on routine haul-out events when "taking" a seal is not necessary. Extensive involvement by other agencies and volunteers will be essential in order to respond quickly and effectively to haul-out events. Clear roles and training levels should be defined, with authorization clearly indicated by ID cards, t-shirts, or other means. Island coordinators preferably would have previous experience in handling monk seals and collecting data (e.g., from working with monk seals in the Northwestern Hawaiian Islands), but a core team of other trained people should be developed over time, using training opportunities that arise during local stranding events and management actions.

Funding, personnel, and equipment are needed to implement this reporting system. Needs include administrative support from above (a lead state or federal administrator and support staff), island coordinators, a telephone system to receive and relay sighting reports (toll-free number, cell phones, forwarding, etc.), response gear (binoculars, digital cameras, GPS units, signs, emergency equipment), computers and accessories, a web page, and education and outreach materials. Implementation and adoption of the new reporting system could be phased in gradually. Once in place, organizations and agencies would be informed of the new statewide toll-free number so they can use it and pass it on when they receive monk seal reports. The public would need to be advised of the new reporting system through an advertising campaign and possibly a kick-off community event such as "Monk Seal Day." Although current phone numbers would need to be maintained for a while, all new brochures, signs, web pages, and newspaper notices would be designed with a consistent message and display the new statewide toll-free number.

## APPENDIX 7

### Report of Working Group C

### Post Monitors/Post Seals Safety Zones/Install Physical Barriers

**Working Group Members**

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**Post Monitors**

The working group began by discussing what is involved in monitoring and what is involved in assessment. It became clear that currently procedures differ among the various islands, and that, to some extent, the process might need to differ. Kauai has one of the best developed systems, in part because seals frequently use popular public beaches. The initial report of a hauled-out monk seal may go to an enforcement entity or directly to the monk seal watch network. Experienced monk seal watch volunteers do a preliminary telephone follow-up to determine whether an individual should respond (e.g., is the seal likely still hauled out, etc.). If deemed necessary, the response begins with the initial observation, followed by notification of enforcement officials, and then establishment of a monk seal watch effort if one appears to be needed. The well-developed volunteer effort on Kauai provides an capability for monitoring that may not yet be available at other sites.

What constitutes an adequate response differs from island to island. On Oahu, monitoring/response procedures are not well developed although this is needed. The Navy, for example, would like to have a more formal protocol for responding to monk seals in waters where they may be at risk due to military operations or otherwise require extra monitoring and protection. On Molokai, no formal monitoring program has been established, but the biologists who keep track of monk seals have extensive monitoring experience. Because the beaches are not heavily used for human activities, extensive monitoring is not required at present. On Maui, monk seals that haul out on the beach are monitored by local monk seal watch. This program will require further development as the number of seals at this site increases. On Hawaii, few sightings of monk seals

occur, and they are often in remote areas. The development of a response/monitoring program on this island is likely to be needed as the number of sightings increases.

**Initial Assessment:** The working group then discussed the initial assessment to be made when a monk seal is observed hauled out and remains on the beach. The purpose of an initial assessment should be to assess (1) the seal (e.g., its age, condition), (2) the situation (e.g., is the seal in an area where human interactions are likely?), and (3) the need for monitoring or intervention. The initial assessment should address simple but important questions, such as:

- Is the seal is apparent good health?
- Is it in an area populated by humans?
- Is it near a point that humans use for access to the beach?
- Is there a potential for interaction? and
- Is the seal safe?

Answers to these questions should lead to the next actions, which may include a decision to post a seal safety zone, monitor the seal while it is ashore, or call on additional expertise or authority. If the seal appears healthy and in an unpopulated area, the only action that may be needed is to report it to the appropriate authorities. If the seal appears injured or otherwise distressed, other experts will need to be contacted, and the seal should be monitored until further evaluation can occur. If the seal appears healthy, but is in a populated area with a high potential for interactions with people, a monitoring plan will be needed, which should be coordinated with the appropriate authorities (federal, state, and local). In some cases, monitoring may not be possible due to logistical reasons even though the situation might warrant it.

**The Role of Monitoring:** If monitoring is deemed necessary, it should aim to accomplish a number of specific objectives, such as:

- Continuously assess the status of the seal (or seals);
- Continuously assess the situation;
- Erect markers to separate the seal from the public, if necessary. Monitors should be cautioned not to try to enforce the exclusion zone if people are belligerent and instead to contact enforcement officials;
- Provide the public with information about the natural history, ecology, and status of the seals, and about the reasons they should not interact with them;
- Serve as the eyes and ears for responsible agencies; and
- Serve as a center for communication. Monitors need to have effective means of communicating with appropriate management and enforcement agencies.

**Training needs for monitoring personnel**: To meet the above objectives, the working group concluded that monitors should receive at least some training, including the following:

- Information on the life history and behavior of monk seals, their status, their susceptibility to disturbance, and the importance of the main Hawaiian Islands to their recovery;
- General information about the laws pertinent to seal management and the constraints imposed by those laws on interactions with the seals;
- Conflict resolution, particularly as it regards varying opinions about beach use in the presence of seals; and
- Safety guidelines that may apply in monitoring situations.

To train monitors, manuals containing the above information and any additional information deemed important to these functions should be provided. Monitors also should be educated through periodic workshops to ensure they have the benefit of up-to-date, accurate information. New monitors should spend some time with experienced volunteers. Some form of educational handouts should be available to give the public. Monitors should be easily identified from the general public (e.g., a special t-shirt or jacket).

**Post Seal Safety Zones**

Perimeters around a haul-out site may serve several functions, and it is important to distinguish among these. Some may simply demarcate an area deemed necessary to protect a seal from human presence and disturbance, assuming people are respectful of the seal and the need not to harass it. Others may actually serve a legal function for enforcement purposes. Working group members thought the latter should be erected under the direction of enforcement or suitable legal authorities.

When barriers or perimeters are established, they should be as simple as possible to achieve their desired purpose. They are not appropriate in every situation and will depend on the seal's condition, behavior, and status and the haul-out setting. However, as the appropriate size of the barrier needed is not always obvious, it should be erected in a precautionary manner.

Whenever appropriate, signs should be erected to provide information for anyone who may encounter a monk seal hauled out on a beach. Signs convey important information and should be considered an educational tool as well as a way to establish guidelines for appropriate human behavior around seals.

**Install Physical Barriers**

Permanent physical barriers may be erected to keep seals out of high-use areas. The consensus was that such permanent barriers are not practical or useful, as they often result in an unintended restriction of other activities. Nevertheless, they may be useful in some situations, such as in areas where roads are adjacent to beaches, and fences are needed to keep the seals from straying onto the roads. In the future, however, permanent physical barriers may play a more important role as the number of seals increases in the main Hawaiian Islands. It would behoove responsible authorities to anticipate the need for such barriers in the future so that they can prevent unsafe situations from arising.

**General Comments**

A formal network is needed to coordinate the activities of all those involved in responding to and monitoring monk seal haul-out events. That network should describe the lines of communication, the transfer of information, protocols for interacting within the network, and the means for addressing public needs with respect to response/monitoring efforts. The network should also serve as a means of collecting important information about monk seals in the main Hawaiian Islands, and the resulting databases will require careful development to address future information needs.

In general, descriptions and lines of authority need to be clarified – perhaps through another workshop. Guidelines, regulations, responsibilities, and authorities should be, but are not now well-described. This is important in order to ensure that everyone involved in responding to a haul-out acts within the scope of their authority.

Clearly, greater cooperation and communication will be required.

## APPENDIX 8

### Report of Working Group D

### Haze Seals/Translocate Seals/Medical Intervention

**Working Group Members**

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To determine whether and when steps should be taken to intervene in a monk seal haul-out event, the working group first identified and considered the following questions:

1. What are the criteria for taking action?
2. What methods should be used?
3. What are the qualifications, training, authorization required for participants?
4. How should success be measured?
5. Does a pup at weaning stage always get moved if on a public beach?
6. Should seals be hazed out of particular areas?
   If so, what are the criteria for decision-making?
   If we proceed, which methods should be used?
7. Who decides and who acts?

In general, the group felt that hazing, moving, or medically treating seals are options of last resort, regardless of the seal's age, sex, or reproductive status. Prior to moving any seals, steps must be taken to identify appropriate relocation sites. In all cases of human intervention, good records should be maintained on the actions taken and the results. An action plan for Kauai could be a model for the other main Hawaiian Islands since there is such high use by seals and high interaction rates. The group also noted that, in some cases, barriers like those used at Kealia, Maui, for sea turtles could be used to keep seals out of high-risk areas or out of high human-use sites (e.g. keiki beaches).

**Haze Seals to Discourage Their Use of Certain Beaches**

The working group did not like the term "haze" because of its meaning to purposely inflict discomfort, which is not the purpose or intent of this management option. Rather, what is intended is to get seals to move to a safer location with the least possible discomfort or disruption. Although a suitable alternative term for this concept was not identified, the group felt that another term should be used.[4]

Assuming that less intrusive actions and responses (e.g., posting signs, posting monitors, installing barriers, etc.) have been tried and have not adequately addressed the situation, the working group believed that herding animals could be appropriate when:

- a seal is out of habitat, particularly in high human use areas (e.g., boat ramps, harbors, parking lots, roads);
- the seal's safety is a concern. For example, it must be moved due to immediate danger (i.e., Navy bombing site, oil spill, construction) or in cases where a weaned pup is on heavily used, high-risk beach or area where hazardous recreational or commercial fishing activities occur nearby (especially with high-risk gear such as gillnets and shoreline pole and line fishing.); or
- human safety is a concern due to aberrant or aggressive seal behavior and other measures, such as education and barriers, have been ineffective.

With regard to the methods to be used, the working group recommended that a graduated approach be used, starting with minimal actions and escalating based on the response of the seal and the circumstances, such that there is least disturbance and least chance of injury to the seal. For example, it was suggested that herding start with hand waving, then brushing with palm fronds, and if neither of those methods worked, then touching with a stick and using boards to direct the animal. In herding seals, problem areas should be isolated and seals herded to a low-risk area. It was also noted that careful documentation of the methods used and responses was important because some trial and error may be necessary. After any action to herd an animal, a debriefing should be held to document and assess the effectiveness of the action and the methods used.

Other factors that should be addressed when considering whether to herd an animal are the following: age, sex, and reproductive status; health and condition; and historical and potential future use of the habitat by both people and seals. With respect to economic considerations, more could be done to optimize economic opportunities when seals are present and management actions are taken in high-visibility areas, such as at resorts and state or county beaches.

[4] Editors Note: In view of this point, the term "herd" is used in place of the term haze in the body of this report except in section titles. It has been retained in the titles because that was the term identified in agenda for this concept.

**Capture and Move Seals to Another Location**

As a general matter, it was noted that translocating seals to new locations has been most successful and effective with weaned pups compared to other age classes of seals. With regard to criteria for capturing and moving seals, the working group believed that, if repeated efforts to herd seals had proven unsuccessful, then the same criteria noted above for herding seals should be used to decide whether to translocate a seal to a new area. At a minimum, any action plan to either herd or translocate a seal should include the following:

- an education effort to inform public of all decisions, actions, and needs;
- contact with all stakeholders, including landowners;
- consideration of the animal's age and sex (this may not be an important factor for most herding decisions, but needs to be taken into account in translocation decisions);
- actions to mark or identify the seal (e.g., with dye, a tag, radiotags, or satellite tag) so it can be tracked;
- a health assessment of the seal;
- selection of the methods to be used (the methods should be those that are least disruptive and have the least chance of injury to achieve the desired result); and
- guidance on how many times to herd seals before deciding to translocate them.

It also was noted that relocation sites must be identified in advance. In this regard, the working group recommended that seals not be moved to the Northwestern Hawaiian Islands because of the potential to spread disease and affect the area's metapopulation structure. Instead, the group believed the relocation sites should be within the main Hawaiian Islands in areas that present low risks to seals, preferably at remote sites. In some cases, such as when seals exhibit an aberrant behavior, it was noted that they may need to taken into captivity.

Once it is decided a seal should be translocated, the working group recommended that the following steps be taken:

- the National Marine Fisheries Service should conduct an internal consultation;
- consideration should be given to convening an expert group if needed;
- the public should be informed of the action and why it is necessary;
- the history of past translocations should be reviewed (these should be available on the Service's website – the techniques and standards for translocations already exist);
- an implementation plan should be developed, including a timeline with 15- minute intervals; and
- after each translocation, a debriefing should be held to document and assess the procedures and their effectiveness.

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**Planning Needs/Infrastructure**

The working group felt that separate sets of standards, qualifications, training programs, and authorization should be established for people involved in herding seals and translocating seals. It

also recommended that individuals involved in the marine mammal and sea turtle stranding network receive training in herding seals. The group also identified the following specific needs:

- qualified individuals with local knowledge and presence to be authorized participants;
- an ability to respond and communicate efficiently with all involved parties;
- appropriate authorizations from federal, state, and local agencies for all identified participants (perhaps identification cards or named on a list with a letter);
- agreement on the levels of involvement, coordination, and communication for all agencies and volunteers;
- resolution of liability issues for responders and the general public;
- identification of landowners and beach access permission where needed; and
- establishment of consultation protocols before and after management actions are taken (protocols to depend on the action and/or situation).

To assess the success of herding or translocation actions, the working group noted that it was essential to identify the involved seal for tracking purposes using scar cards/photos, dye, or tags. It also noted that standard data collection and reporting protocols should be developed for all participants and that debriefing plans be followed after each herding or translocation event.

**Medical Intervention (Rescue and Medical Treatment)**

It was noted that the level of intervention needed to resolve entanglements or situations in which seals are found with fish hooks embedded in lips, limbs, etc., may vary depending on the severity of the entanglement or hooking, the level of experience and expertise of responder(s), the surroundings/habitat, and the availability of equipment and personnel. The National Marine Fisheries Service has existing procedures in place to address medical interventions for monk seals, and efforts are being made to increase the number and training of qualified personnel (i.e., veterinarians), including the training of new veterinarians, state and local officials, and volunteers. The level of training will depend on factors such as expertise, experience, and anticipated level of participation.

For seals requiring rehabilitation (abandoned pup or sick animal), available and appropriate facilities need to be identified in advance as part of a complete rehabilitation plan. Standards for medical interventions should also be developed as part of this plan. Disentangled seals also may require rehabilitation and/or translocation to appropriate habitat.