

**ALASKA
HARBOR SEAL CO-MANAGEMENT ACTION PLAN**

2001

National Marine Fisheries Service
Alaska Region, Protected Resources Division

and

Alaska Native Harbor Seal Commission

January 2001

HARBOR SEAL CO-MANAGEMENT ACTION PLAN

Information and activities needed to help promote
the conservation of Alaska harbor seal populations
and the co-management of subsistence uses
of harbor seals in Alaska

Alaska Native Harbor Seal Commission
and
National Marine Fisheries Service

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INTRODUCTION

In April, 1999, an Agreement was signed between the Alaska Native Harbor Seal Commission (ANHSC) and the National Marine Fisheries Service (NMFS). The primary goals of that Agreement are the following:

1. To promote the sustained health of harbor seals in order to protect the culture and way of life of Alaska Natives who rely on the harvest of harbor seals for subsistence uses;
2. To promote scientific research and the collection of data, including the traditional knowledge of Alaska Natives, in order to facilitate management decisions concerning harbor seals in Alaska;
3. To identify and resolve, as early as possible, through a consultative process, any management conflicts that may arise associated with Alaska harbor seals; and
4. To provide information to subsistence hunters and the public at large, as a means of increasing the understanding of the sustainable use, management and conservation of harbor seals.

The Agreement established a Harbor Seal Co-management Committee made up of ANHSC and NMFS representatives that is charged with preparing and updating an Annual Action Plan. A key to the success of this partnership is to incorporate the spirit and intent of co-management by building trust and by establishing close cooperation and communication between the two Parties and their constituents. Shared decision-making is through consensus, based on mutual respect and understanding of each Party's cultural perspective.

The Annual Action Plan will be the guiding document for joint and separate management actions by the ANHSC and NMFS related to the conservation and management of subsistence uses of harbor seals. In developing and revising the Annual Action Plan, the Committee shall consider technical and non-technical information as it deems appropriate. The Action Plan describes relevant information, specifies mutually agreed upon actions to be implemented by NMFS and the ANHSC, and sets forth recommendations for additional activities that promote harbor seal conservation. The Action Plan will be evaluated and updated on an annual basis. The Action Plan will be comprised of the following five sections: 1) population monitoring, 2) harvest management, 3) education, 4) research recommendations, and 5) other recommendations.

A Harbor Seal Co-management Workshop was held September 25-26, 2000 in Juneau, Alaska. The purpose of the workshop was to bring together scientists, hunters, elders, and other technical experts in the areas of population monitoring, harvest management, and education to share their perspectives on the current state of knowledge in their respective fields and to identify information gaps or needs directed at harbor seal conservation. A half day was dedicated to a discussion on each subject area. Individual points made during those discussions were consolidated by the Co-management Committee to form the basis of this first Action Plan.

The Harbor Seal Co-management Agreement specifies that the Action Plan will provide 1) a summary of recent progress and new information and 2) an outline of future goals and activities. The Co-management Committee has agreed to focus for this first Action Plan on a discussion of future goals and activities directed at harbor seal conservation.

The Action Plan presents, for each subject area, the issue of concern, input received from the workshop participants on each issue, the actions that will be taken or are proposed to satisfy the issue, with an indication of who will take the lead responsibilities for the action. The time frame for this Action Plan is the twelve months succeeding the workshop (October 2000 to September 2001).

POPULATION MONITORING

To achieve its conservation goals, it is fundamentally important that the Co-management Committee have access to accurate information on harbor seal populations throughout Alaska.

There are several sources for such information, including scientific information as well as local and traditional knowledge. Effective population monitoring involves evaluating the best available information on the following topics:

- Population abundance and trends by stock and, as possible, by sub-areas within those stocks;
- Habitat use and seasonal movements (including information on preferred haul-out sites, foraging areas, and prey composition);

- Sources of mortality to harbor seals (including the nature, extent, timing, and location of such mortality); and
- Population status by stock and, as possible, by sub-areas within those stocks (including aspects such as age structure, vital rates, and indices of physical condition).

A. Impact of cruise ships and charter vessels on harbor seals

Need: Various vessel activities may affect harbor seals that are either in the water or hauled out on ice or terrestrial sites. These effects may range from the vessel presence, or activity, disturbing the animals hauled out to indirect effects on harbor seals that may result from air and noise pollution. Specific areas of concern include the following: 1) large cruise ships, or other vessels, entering glacial fjords during the pupping season may cause mothers and pups to abandon the ice resulting in separation of mothers and pups, which may ultimately affect the survival of pups. Particular areas of focus for potential cruise ship effects on mother and pup pairs are Glacier Bay, Yakutat Bay, Tracy Arm, Kenai Fjords, and Columbia Glacier; 2) vessel traffic produces noise in the environment that may affect movements or behavior of harbor seals; and 3) cruise ships discharge waste water (gray water, sewage, hydrocarbons) into the marine environment that could affect harbor seal health. Very little information exists on the effect of vessel traffic on harbor seal health, behavior or survival. In addition, it is difficult to adequately determine the effect of vessel activity and to determine the significance of a measured effect.

Workshop input: Cruise ship impacts on glacial haulouts; impacts of charter boats on harbor seals; cruise ship dumping (gray water and sewage); cruise ship air pollution, noise pollution and hydrocarbon pollution.

Action: The National Park Service and the University of Alaska Southeast have been monitoring responses of harbor seals to vessels in Johns Hopkins Inlet for several years, but the effects of vessel traffic on seals is not being investigated at other sites where seals rest on glacial ice. Further discussion should be generated to determine the specific hypotheses to be tested and the most appropriate methods to be used to examine the effect of vessel traffic on harbor seals. Lead: NMFS and ANHSC.

B. Estimation of abundance and trends

Need: Assessment of the abundance (size) and trends of seal populations is fundamentally important to conserve and co-manage subsistence use of harbor seals in Alaska. In recent decades, aerial surveys have been conducted throughout the state for two purposes: 1) to estimate the total abundance of harbor seals in a particular area or region, and 2) to determine the population trend (e.g., increasing, stable, or decreasing) in different areas. Surveys of harbor seals miss a certain proportion of seals that are in the water when counts are being made. Therefore, the counts must be adjusted to account for the number of seals that were not seen. Factors such as environmental conditions, time of day, time relative to low tide, tide

height, and date are known to influence the number of seals hauled out. In addition, changes in seal behavior such as seasonal movements, interactions with prey, and the consequences of disturbance also need to be factored into efforts to estimate the abundance and trends of harbor seal populations. Another special need in relation to estimating the abundance and trends of harbor seals in Alaska pertains to harbor seals utilizing glacial ice haulouts. Glacial ice represents a significant haulout substrate for harbor seals in Alaska, and thus must be included in census survey efforts conducted for statewide abundance estimates. Additionally, modified or new trend routes may include glacial ice haulouts in the future. Difficulties arise in the application of conventional aerial survey techniques to glacial ice floe substrate. In glacial ice areas the uniformity and expansive size of the substrate is problematic for observers photographing large numbers of seals. Alternative methods for surveying ice substrate types are needed.

Workshop input: Haulout behavior; identify longterm study sites (especially in Southeast Alaska); improve glacial survey methods; correction factors specific to survey areas; determine whether trend study sites are representative of the greater area; timing of surveys.

Actions:

Aerial surveys to estimate range-wide population abundance. In 2001, aerial surveys will be conducted throughout the Gulf of Alaska. Lead: National Marine Mammal Laboratory.

Correction factor study. Use radio-tagging to produce a “mark/recapture” estimate of the proportion of seals not counted during aerial abundance surveys, which can be used as a correction factor applied to aerial survey counts. This work will be done specific to the location in which the aerial surveys are conducted. Lead: National Marine Mammal Laboratory.

Aerial surveys to estimate population trends. Estimate population trends for harbor seals in the areas of Ketchikan, Sitka, Prince William Sound (PWS), the Kodiak Archipelago and Bristol Bay. Lead: Alaska Department of Fish and Game.

Covariate analysis. The aim of this research is to account for the influence of environmental conditions on counts obtained during aerial surveys in order to calculate more robust estimates of population abundance and trends. Lead: National Marine Mammal Laboratory and Alaska Department of Fish and Game.

Haulout patterns and movement. Document the haulout, movement, diving, and spatial-use patterns of Alaska harbor seals. Lead: National Marine Mammal Laboratory and Alaska Department of Fish and Game.

Glacial survey methodology. Develop methodology for estimation of harbor seal population abundance at glacial haulout sites. Lead: National Marine Mammal Laboratory and Alaska Department of Fish and Game, with input from ANHSC.

Index site counts. Collect land-based counts of harbor seals on the southwest and middle beach haulout sites on Tugidak Island during the pupping and molting periods to continue long-term population trend monitoring for this index site. Lead: Alaska Department of Fish and Game.

Identify new index sites. Seek new sites that could complement the long-term work being done at Tugidak Island, especially in Southeast Alaska. Lead: National Marine Mammal Laboratory and Alaska Department of Fish and Game.

Evaluation and review of survey experimental design. Evaluate the experimental design used to monitor harbor seal numbers in the *Exxon Valdez* spill area and subsequently develop a revised experimental design for long term monitoring of harbor seal populations in that area, with applications for survey efforts statewide. Lead: Alaska Department of Fish and Game.

Review timing of population surveys. Evaluate the optimal times to conduct surveys. Harbor seals in Alaska most often have been counted in June - July when the number of pups visible on shore is at a maximum or in August - September when the number of adults on shore typically reaches a maximum. The latter peak, however, occurs when the ratio of adult males to females ashore is rapidly changing (Daniel et al. 1999). Thus, the timing of surveys determines what segment of the population is being counted. Additional insights relevant to the timing of surveys are expected to result from on-going field and simulation studies by the Alaska Department of Fish and Game (L. Jemison and coworkers) and the University of Alaska Fairbanks (M. Adkison and coworkers). Lead: National Marine Mammal Laboratory and Alaska Department of Fish and Game.

C. Use traditional knowledge in population monitoring.

Need: Native hunters and fishermen have frequent contact with harbor seals in their natural environment, and their observations and traditional knowledge need to be regularly employed in population monitoring. Population monitoring, by definition, involves a time series of counts, and the comparability of counts requires standardization of effort. Quantifying the frequent observations of harbor seals by Native hunters and fishermen would contribute substantially to population monitoring and could be used to develop analyses to compare to other data.

Workshop input: Traditional knowledge can inform managers of important factors, such as seasonal fish runs, that influence the availability of seals for counting. The Comanagement Committee recognizes that the application of traditional knowledge to population monitoring would benefit from more discussion between management biologists, hunters, fishermen, and researchers. Hunters expressed concern for the issue of confidentiality and the need for biologists to be communicate the intent of the information gathered from hunters.

Action: NMFS and the ANHSC will seek input on survey coverage from Native hunters and others with traditional knowledge. If possible, this should occur prior to commencing aerial surveys in August 2001. Lead: ANHSC

Action: Seek funding to support a researcher knowledgeable about, and sensitive to, cultural needs to work with Native people in documenting long term trends in harbor seal populations based on traditional knowledge. Lead: ANHSC.

D. Impacts of contaminants

Need: Harbor seal health may be affected by a number of different factors, including contaminants present in the water or at lower trophic levels which are consumed by harbor seals. Hunters have occasionally observed thin seals and those with discolored blubber. Specific pollutant concerns stem from waste and chemical discharges from cruise ships, particularly in Southeast Alaska, Yakutat, and Angoon.

Workshop input: Contaminant burden in seals; effects of contaminants on harbor seal health and on consumer health.

Action: Design proposals to analyze seal samples for contaminant loads. Utilize existing protocols/methods from ANHSC biosampling program to collect samples. Lead: ANHSC will write a proposal to EPA, the State of Alaska, Alaska Native Science Commission or other funding agencies for the study on the impacts of contaminants to harbor seals health and on consumer health.

E. Food Habits

Need: Harbor seals are known to eat a variety of fish and invertebrates. Diet varies seasonally, regionally and probably annually but these variations are poorly understood. A more complete understanding of prey items used by harbor seals is necessary.

Workshop input: Study harbor seal prey items.

Action: Alaska Department of Fish and Game is conducting food item analysis for harbor seals on a spatial and temporal scale. Currently, stomachs and scats are being collected and analyzed for prey composition. Stomachs are being collected from subsistence-harvested animals and scats are being collected from haulouts. In addition, blubber samples are being collected and analyzed by the ADFG and Dalhousie University as another means of determining the prey of harbor seals in Alaska. Lead: ADFG.

F. Stock Identification

Need: Effective management of any population requires initial determination of the basic unit which is to be managed. Several elements of information may be used in determining stock structure of a larger population. Currently NMFS recognizes three putative stocks in Alaska: Southeast Alaska stock; Gulf of Alaska stock; Bering Sea stock. New genetics data may be used to better define stock boundaries.

Workshop input: What are the stock boundaries for harbor seals.

Action: New genetics information will be available by year-end 2000. Further discussion will be needed to determine whether changes should be made to the current stock structure. Lead: NMFS and ANHSC.

G. Fisheries impacts

Need: Harbor seals may be killed incidental to both federal and state fisheries, contributing to the direct mortality of this species. Assessment of mortality levels from fisheries, as well as other sources, is a significant component of population monitoring.

Workshop input: Incidental take by fisheries should be assessed.

Action: Ongoing. The Marine Mammal Protection Act requires that NMFS determine the level of serious injury and morality of harbor seals incidental to commercial fishing operations. NMFS has an ongoing effort to place observers on vessels in the federal groundfish fisheries to monitor the incidental take of all marine mammals, including harbor seals. The data collected from this program are used to develop an estimate of the incidental take of harbor seals for these fisheries. In addition, the fisher self report system and the dedicated marine mammal observer program are also in effect. The fisher self report system requires that vessels report any marine mammals taken incidental to their fishing activity. The dedicated marine mammals observer program focuses on Category II fisheries (those fisheries having occasional incidental mortality and serious injury of marine mammals) on a rotating schedule. The first year of implementation (1999) observers were placed in the set and drift gillnet salmon fisheries in Cook Inlet. These areas and fisheries were observed again in 2000. In 2001 and 2002 observer coverage will be moved to the set gillnet fisheries in the Kodiak and Yakutat areas. Pending funding beyond 2002, fisheries in other areas of the state will be observed. Lead: NMFS.

HARVEST MANAGEMENT

To ensure that harbor seals are conserved for subsistence and other uses, the Annual Action Plan will include means for accurately monitoring the number of harbor seals harvested each year, the age and sex composition of those harvests, and the condition of animals taken in the harvest.

The Annual Action Plan also will include an assessment of local and/or regional take levels, composition of take, and harvest practices and their influence on population health. The Annual Action Plan shall also make provisions for a biosampling program.

Effective harvest management will also include measures to encourage the development of local and/or regional harvest management plans that incorporate local harvest practices and to ensure that harbor seals are used for subsistence in a sustainable and non-wasteful manner.

A. Harvest Monitoring

Need: Harbor seals are one of the most heavily harvested marine mammals in Alaska. In recent years, about 2,500 harbor seals have been harvested annually for subsistence (Wolfe et al. 1999). Sound management requires accurate estimates of the number of seals taken each year as well as their age, sex, condition, and location and the date of harvest. Harvest monitoring must balance the needs for accurate information and minimizing burdens on hunters. From 1992 – 2000, NMFS has contracted the Subsistence Division of ADFG to monitor the subsistence harvest of harbor seals in Alaska. Funding has been uncertain in some years, and alternatives to the Subsistence Division's retrospective interview methods have been suggested. A long-term Harvest monitoring plan, using consistent and rigorous methods needs to be developed, funded, and put into practice.

One area of concern that may need special attention involves hunters who migrate to Anchorage and use Cook Inlet waters to hunt. These hunters do not report to anyone and the number of animals that they take may not be accounted for.

Workshop input: Identify the best way to monitor harvests, monitor harbor seals for subsistence takes including age, sex, condition, location, time, stuck and lost; involve tribes/communities in monitoring; make harbor seal monitoring consistent with other marine mammals; clearly identify purpose of monitoring and what the information will be used for; consider the U.S. Fish and Wildlife Service's harvest monitoring programs as potential models. Hunters did not support mandatory marking and tagging.

Action: The ANHSC, in consultation with the NMFS and the Subsistence Division of ADFG will develop, in the form of a funding proposal, a long-term plan to monitor the subsistence harvest of harbor seals in Alaska. Special attention will be paid to making the proposed plan as consistent as possible with monitoring programs for other marine mammal species. The proposal also will spell out the purposes of the monitoring program and the availability and uses of the data. ANHSC has agreed to pursue funding. Lead: ANHSC.

B. Biosampling

Need: Biological samples from seals are a major contributor to environmental studies for the North Pacific and the Arctic oceans. Alaska Native subsistence hunters are in an excellent position to assist in scientific studies by providing biological samples from subsistence-taken

animals. Assessing parameters that affect marine mammal abundance and health requires access to and examination of animals or tissues. Marine mammals are inherently difficult to study and the collection and examination of tissues is restricted by legal limitations imposed by federal protective measures and permitting procedures. A potentially invaluable source of fresh specimens exists in Alaska, where coastal Alaska Natives still legally use marine mammals for subsistence or handicraft purposes. These biosamples provide baseline data critical to assessing environmental change.

The ANHSC harbor seal biosampling program continues to support collaboration between subsistence hunters of harbor seals, scientists and resource management agencies in assessing factors that have affected the recovery of the harbor seal population and identify ways to reduce those impacts. In addition, continued coordination occurs with the Youth Area Watch program so that the next generation of hunters can participate in the scientific research and traditional knowledge exchange.

Workshop input: train more Anchorage/Cook Inlet hunters as biosamplers; incorporate Biosampling into harvest monitoring; make harbor seal biosampling consistent with other marine mammals.

Action: Train hunters in biosampling, which makes them responsible for reporting and delivering the samples. Incorporation of biosampling in harvesting makes the reporting automatic. Keep data forms compatible with reporting forms for other species. Lead: ANHSC.

Action: Discuss priorities for sample acquisition. Lead: ANHSC and NMFS.

C. Harvest management

Need: Tribes and communities that don't already have marine mammal ordinances will need technical assistance in developing ordinances governing the take of marine mammals in their areas.

Workshop input: Identify and develop existing tribal ordinances regarding harbor seal conservation and hunter practices; develop or identify culturally appropriate methods for research including details on confidentiality and ethics; share existing tribal ordinances for conservation and subsistence harvest of seals with all tribes that harvests seals; sensitive hunting areas known to local communities need to be respected.

Action: Identify existing or develop new tribal ordinances for hunting practices. Examples include specifications on hunting areas, where to report harvest data, conservation methods such as ways to lessen struck and lost, placement of harvest monitors in each area and ways to address enforcement issues. These ordinances would be published and posted so that hunters from other areas will be notified that there are existing laws in place for the conservation and management of all subsistence harvests. Lead: ANSHC.

EDUCATION

NMFS and the ANHSC have agreed to mutually develop ways to educate and promote understanding about harbor seal issues among users, resource managers, and other groups. This effort will include:

- providing education on ways to improve hunting and harvest methods, resource utilization and harvest reporting;
- developing a training and internship program to directly involve local people in harvest monitoring, sample collecting, and research;
- involving hunters and subsistence users in planning, prioritizing, and conducting research, and in making regulations and management decisions;
- improving public understanding of Native cultural uses (i.e. subsistence food and clothing uses) of harbor seals and MMPA provisions regarding subsistence harvest and conservation of harbor seals; and
- serving as a contact for exchange of information about harbor seals.

Educational efforts should include orientation workshops and other programs for the exchange of cross-cultural information and perspectives. The perspectives may include Alaska Native ways of life, traditional ways of knowing, local concerns, and issues regarding harbor seals and their use by Alaska Natives (i.e., medicinal, handicraft and spiritual uses) as well as agency policies, legal and administrative constraints, and scientific approaches.

Under the Co-management Agreement, it was also recognized that an important role of education is to promote the use of appropriate research ethics. The ANHSC and NMFS have agreed to encourage all scientists who plan to conduct research that will occur in Alaska Native villages to advise Native People who are to be affected by the study of the purpose, goals, and time-frame of the research, the data gathering techniques, and possible impacts of the research, and to obtain the informed consent of the appropriate governing body. The Co-management Committee shall assist researchers in identifying appropriate governing bodies.

A. Improvement of hunting and harvest methods

Need: Seasoned hunters have much to teach inexperienced hunters about appropriate techniques for effective hunting. Improvement in hunting techniques would occur if new hunters were to consult with older hunters about conservation measures and hunting ordinances. Younger hunters could also be taught about how traditional knowledge can be shared and used beyond local communities.

Workshop input: Teach younger hunters appropriate hunting techniques; consult with hunters about conservation measures and hunting ordinances.

Action: Form a hunter committee of seasoned hunters who will develop hunter conservation

measures and promote the traditional knowledge of hunting practices to be taught to new hunters. Lead: ANHSC.

Action: Consult with tribes and hunters about local conservation measures, hunting ordinances and efficient hunting practices. Document this information in a written format. Lead: ANHSC.

B. Improve understanding

Need: Many individuals and groups with varying backgrounds and expertise interact on harbor seals. Understanding of the issues and specific knowledge may vary with the individual background of those involved. The conservation of harbor seals will ultimately benefit if all views and backgrounds are recognized and validated. A greater understanding can be achieved among those involved if information is freely exchanged and if information is communicated in such a way that the receiver understands.

Workshop input: Offer cross-cultural learning opportunities for scientists/managers; teaching about traditional knowledge and how it can be shared and used beyond the community. Educate the general public about the relationship that Natives have with the seals.

Action: Strive to present information in a format that is understandable by other people who may not share a given expertise. Encourage those involved with harbor seal work to be receptive/open to information that may come from a different perspective. Lead: NMFS and ANHSC.

C. Develop training and internship programs

Need: The Alaska Native Harbor Seal Commission (ANHSC) was organized in 1995 to increase the role of Alaskan Native resource policy in affecting harbor seals and their uses. One of the organization's major goals is to encourage Native peoples to become more involved in research programs through the activities of subsistence hunters and students familiar with, or interested in, harbor seal ecology. Integrating subsistence hunters and users into research accomplishes several objectives. It promotes (1) a greater understanding of the results of scientific studies, (2) greater stewardship of resources, (3) the opportunity for the incorporation of local and traditional knowledge in the interpretation of results, (4) the establishment of a trained, local work force able to cost-effectively continue studies, and (5) opportunity for local residents and students to receive college credit as they train as professional technicians and biologists.

Workshop input: Reward students and hunters with certificates and honors when they participate in harbor seal research. Utilize the biosampling program as an educational tool. Build research capacity in villages. Teach non-native students about cultural uses of marine mammals. Educate international groups about the ANHSC. Integrate traditional knowledge wherever possible.

Action: Create awareness of the Research Ethics published by the Alaska Federation of Natives. Lead: ANHSC.

Action: Seek additional funds to continue and to expand the harbor seal biosampling program, including the Youth Area Watch component that teaches youth the hunting protocols from hunters as well as scientific data collection. Lead: ANHSC.

Action: Visit more schools and conduct biosampling training especially in Southeast Alaska and in Sprit Camps. Lead: ANHSC.

Action: Contact international marine mammal groups for educational opportunities and international exchange. Lead: ANHSC.

D. Disseminate information

Need: Effective communication is an essential part of education. Recognizing that a diverse group of people are interested in harbor seal conservation and subsistence use, there is a need to make special efforts to ensure that various types of information are made widely available in appropriate and relevant formats. Examples of different groups that are interested in harbor seals, and who should be encouraged to share information with others include hunters, scientists, youth, and other individuals throughout village communities. The Co-management Committee is committed to enhancing the exchange and dissemination of information about harbor seals wherever possible.

Workshop input: Develop and disseminate protocols for research and traditional ecological knowledge; communicate results in plain English; identify and develop effective communication channels (e.g., newsletters, web pages, presentations, posters, workshops); outreach to the public about harbor seals; address ways to compensate elders as a way to validate what they know.

Action: The possibility of establishing a Harbor Seal Co-management Web Site will be evaluated in 2000/2001. Such a site might be an effective way of making information widely available from scientific research results, information about the status of harbor seals, updates about the biosampling program, schedule of upcoming events, etc. Lead: NMFS and ANHSC.

RESEARCH RECOMMENDATIONS

For conservation and management efforts to succeed, it is vitally important that accurate, reliable, and timely information about harbor seals be available for consideration. Having access to such information is central to whether or not the Parties will succeed or fail in meeting this Agreement's objectives. Therefore, under this Agreement, the term "research" is used in reference to all relevant forms of information gathering, and includes both conducting scientific studies as well as making local and traditional knowledge available for consideration

The Annual Action Plan will identify relevant information gaps that need to be filled to help

achieve the Agreement's goals. These information gaps will consequently describe research needs that the Co-management Committee recommends be addressed as a matter of priority. The purpose of outlining research recommendations in the Annual Action Plan is to help raise the profile of particular information gaps, and thereby to assist researchers in securing and allocating the funds necessary to undertake such work.

Harbor seal mortality.

Need: Although several sources of harbor seal mortality are currently assessed (eg. harvest mortality, direct take in commercial fisheries), other sources of direct harbor seal mortality have not received much study, including the effect of predation by killer whales or sharks. Studies are needed to assess this potential direct impact to harbor seal population.

Workshop input: Possible predation by killer whales should be investigated.

Action: Discussions will be initiated to determine the appropriate approach to addressing the effect of killer whale predation on harbor seals. Lead: ANHSC.

OTHER RECOMMENDATIONS

Under the Annual Action Plan's sections on population monitoring, harvest management, and education, it is expected that the Parties to this Agreement will identify a variety of future activities that they can commit to implementing uni- or bi-laterally (i.e., by NMFS and/or the ANHSC). However, given the wide range of environmental features and human activities that may impact harbor seal conservation, it is likely that the Co-management Committee may identify additional actions that could be helpful to harbor seals, but that are outside the scope of this Agreement.

Therefore, a list of "other recommendations" will be included in the Annual Action Plan. The purpose of these recommendations will be to highlight various conservation and management needs, and to encourage the appropriate persons or entities to take action as recommended in order to assist in the long-term conservation of harbor seals and to promote the sustainability of the harbor seal subsistence harvest by Alaska Natives.

The following three actions were identified from the discussions during the Harbor Seal Co-management Workshop. These are actions that are significant but are outside the scope of the current Action Plan. They may also involve input from entities other than the ANHSC or NMFS.

Action: Convene a workshop involving knowledgeable hunters, fishermen, management biologists, and researchers to explore further applications of traditional knowledge to population monitoring. As part of that effort, consideration will be given to devising survey methods using hunters and fishermen.

Action: Through interactive educational workshops, hunters and students should be trained in basic harbor seal biology, current research activities, and a variety of collection protocols regarding biological sampling, population estimation, and behavioral observations. A “short course” should be offered in villages for college credit through the University of Alaska Southeast or the University of Alaska Fairbanks. In return, researchers teaching the course will gain valuable information regarding local harbor seal population, location and behavior. Through internships, youth interested in biology as a profession, such as high school seniors and college students, can gain practical and valuable experience in field research.

Action: Disseminate previously published work on Traditional Knowledge, such as: RurAL CAP and IPCoMM’s “Ways of Knowing” workshop results, other models developed by Huntington Consultants, and the Forest Service.

9-25-00 Harbor Seal Co-Management Workshop

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