

MARINE MAMMAL COMMISSION
4340 EAST-WEST HIGHWAY, ROOM 905
BETHESDA, MD 20814

25 January 2006

William T. Hogarth, Ph.D., Director
National Marine Fisheries Service
1315 East-West Highway, Room 14564
Silver Spring, MD 20910

Dear Dr. Hogarth:

The Marine Mammal Commission held its annual meeting in Anchorage, Alaska, on 12–14 October 2005, focusing strongly on major issues affecting marine mammals in the Gulf of Alaska and the Bering, Chukchi, and Beaufort Seas. The climatic and oceanic conditions in these waters have been changing dramatically over the past three decades, and they are expected to continue to change in response to natural and anthropogenic influences. Primary influences have been changes in atmospheric circulation, which have resulted in regime shifts (physical and biological), a strong warming trend, and associated changes in the marine ecosystems. Increased use of Alaska waters for tourism, shipping, and coastal development, along with ongoing commercial fishing, will further affect the ecosystems. In this letter, the Marine Mammal Commission provides comments and recommendations regarding potential effects of fisheries on marine mammals, both indirectly through competition for prey and alterations of the ecosystem, as well as directly through bycatch or injury of marine mammals incidental to fishery operations.

Indirect fishing effects

Humans have exploited Alaska marine ecosystems for centuries. The Gulf of Alaska and Bering Sea currently support some of the largest fisheries in the world both in terms of biomass landed and market value. The National Academy of Sciences/National Research Council in its review of the Bering Sea ecosystem concluded that the historical removal of biomass by commercial whaling might be responsible for some of the current trophic perturbations in the Bering Sea¹. The report also concluded that commercial fishing has caused some changes in the ecosystem and that fisheries compete to some degree with top predators such as marine mammals. At the same time, the North Pacific Fishery Management Council and National Marine Fisheries Service have managed fisheries in Alaska to promote ecosystem stability and to provide some protection for marine mammals and other predators. The Marine Mammal Commission commends these agencies for their progress and encourages them to continue their efforts in this regard. The combination of excellent leadership and scientific expertise will expedite the development of effective ecosystem-based approaches to fisheries management. The development of such management approaches will require an understanding of not only the immediate, short-term effects of annual fish catches but

¹ Committee on the Bering Sea Ecosystem, National Research Council. 1996. The Bering Sea Ecosystem. National Academy Press, Washington, D.C.

also the long-term effects of continued removals on total available biomass, size and age structure of fished populations, and stock-recruitment processes.

In this regard, the Marine Mammal Commission recommends that the Service, in consultation with the Council, (1) develop and implement a robust and statistically powerful research program aimed explicitly at addressing the fundamental question of how much (and when and where) fish biomass can be removed without causing significant adverse effects on marine ecosystems, and (2) develop and implement corresponding fishery management strategies to prevent such effects. Heretofore, catch levels have been based largely on estimated maximum sustainable yield (MSY) levels, as reduced by social, economic, or ecological considerations. We understand that proposed changes to National Standard 1 of the Magnuson–Stevens Fishery Conservation and Management Act would establish F_{MSY} (the mortality rate that is predicted to result in MSY) as a limit rather than a target, which we support (see enclosed letter of 21 October 2005). In and of itself, however, this change may not be sufficient to ensure adequate ecosystem protection. A recent review commissioned by the North Pacific Fishery Management Council² found that, although the MSY paradigm may be useful and suitably protective for many stocks, it is not so for all stocks (e.g., long-lived stocks with low reproductive capacity). Perhaps more importantly, the review found that the evidence to assess the ecological effects of fishing based on the MSY paradigm is simply not available, and it is not clear that the current strategy is consistent with management efforts to sustain healthy marine ecosystems. Furthermore, ecosystem effects are significantly confounded when fishes from multiple stocks are removed from the same ecosystem, as is the case for groundfish fisheries in the Gulf of Alaska and Bering Sea.

The impact of fishing at or near levels aimed at the MSY of the target species may be exacerbated if fishing effort is concentrated in space and time. Such concentration has been an important concern with regard to Steller sea lions because the majority of the catch of some commercial species has been taken from within Steller sea lion critical habitat. This has resulted in depletion of target stocks, which may compromise the success of fishing by fishermen as well as foraging by marine mammals.

Prey biomass and availability also may be affected by environmental conditions. Physical properties of the Bering Sea and Gulf of Alaska ecosystems have varied considerably in recent decades. Current fishery management strategies may not provide the necessary flexibility or safeguards to protect those ecosystems from excessive fishing when environmental conditions are unfavorable for the stocks. For example, in recent years the biomass of walleye pollock in the Gulf of Alaska has been at its lowest level since the fishery began in the 1960s and 1970s, yet catch rates have been high during the same period. Even if the reduction in biomass primarily was caused by unfavorable environmental conditions, fishing strategies that maintain a high catch (or catch rate) under such conditions may increase the risk of overfishing some stocks. The variability apparent in

² Goodman, D., M. Mangel, G. Parkes, T. Quinn, V. Restrepo, T. Smith, K. Stokes, and G. Thompson. 2002. Scientific Review of the Harvest Strategy Currently Used in the BSAI and GOA Groundfish Fishery Management Plans. Prepared for North Pacific Fishery Management Council, November 21, 2002.

Alaska marine ecosystems may require a more responsive approach to fisheries management than would be needed for less variable ecosystems.

In view of the many uncertainties regarding the effects of fishing on ecosystems, development of improved fishery management strategies likely will require suitably scaled fishery experiments to test hypotheses about fishery effects. Such experiments will be a considerable challenge to design in view of natural environmental variability and variability inherent in recruitment, life history, distribution, and movement patterns of targeted and non-targeted species. Some experiments of this sort have been conducted by the Fishery Interaction Team of the Alaska Fisheries Science Center, with inconclusive results among the different species, fisheries, regions, and years tested. We support such experimentation but emphasize that, to be useful, it must address not only the effects of annual removals of fish on stock biomass but also the effects of concentrating fishing effort in space and time as well as the overall long-term effects of fishing on the ecosystem. The results of fishery experiments should be used to guide development of fishing management strategies that explicitly include consideration of ecosystem components, such as escapement allowances for natural predators including marine mammals.

Direct fishery interactions

Direct bycatch or injury of marine mammals also is an important concern. In Alaska, direct fishery interactions are monitored by two observer programs, the Alaska groundfish observer program and the Alaska marine mammal observer program. The groundfish observer program is well funded, primarily by the fishing industry, and provides good coverage of those federally managed fisheries. The primary purpose of groundfish observers is to monitor catch of target fish and bycatch of non-target fishes, but they also record interactions with protected species including marine mammals. Observer data for Alaska groundfish fisheries indicate a marked reduction in marine mammal take levels compared to earlier decades when the fisheries were developing. The Marine Mammal Commission commends the Service and the Council, as well as members of the fishing industry, for the development and support of this program.

The Alaska marine mammal observer program places observers in state-managed nearshore fisheries. The primary purposes of those observers are to monitor the fisheries and record interactions with marine mammals. Unfortunately, funding for this program is inconsistent and insufficient for those purposes. As a result, the program can only provide observers for one fishery at a time with varying, but usually inadequate, coverage. At current funding levels, the nearshore fisheries that are likely to interact with marine mammals are observed at intervals of ten years or more, which is inconsistent with the Service's own stock assessment guidelines. In fact, some fisheries have never been observed since the 1994 amendments to the Marine Mammal Protect Act mandated that the Service ensure that incidental takes in fisheries do not exceed the potential biological removal level for marine mammal stocks. As a result, the available data on marine mammal incidental take levels are not sufficient to manage state fisheries effectively and avoid potentially excessive interactions. Further, due to variable funding, the program has been unable to follow through on strategic plans to optimize observer coverage. For these reasons, the Marine Mammal Commission recommends that the Service increase and maintain funding for observers at

levels sufficient for reasonable assessment of marine mammal take levels in Alaska's state-managed fisheries, as well as consider changes to the program that may be necessary to ensure adequate coverage for nearshore fisheries involving small boats. The Commission believes that funding for this purpose should be provided at least partly by the fishing industry because the industry should bear some of the responsibility to provide evidence that its activities do not adversely affect marine mammals and other non-target species. We understand that the nearshore fishing industry in Alaska consists of a variety of fisheries, which vary in both their likelihood of taking marine mammals and their ability to fund or support observer programs. Therefore, the Commission suggests that the Service work with the Alaska Board of Fisheries, the Commercial Fisheries Division of the Alaska Department of Fish and Game, and appropriate representatives of nearshore fisheries to develop a fair and sustainable funding program to support an effective observer program for nearshore fisheries.

When interactions with marine mammals are observed, assessing their magnitude (i.e., the number of animals involved) and determining the stock to which the affected animals belong can be difficult. Fishery interactions that do not result in immediate mortalities must be evaluated to determine whether the interactions resulted in "serious" injuries (i.e., those likely to lead to mortality). The Service developed guidelines for assessing serious injuries at a 1997 workshop. Those guidelines are difficult to apply in cases when, as is often the case, the data recorded by observers lack the necessary detail regarding interactions. As a result, the guidelines often are applied inconsistently among regions and species. The Commission understands that the Service intends to hold another workshop in 2006 to address matters pertaining to serious injury and encourages the Service to do so. Clearly, better information regarding the fate of animals involved in fishery interactions would facilitate the development of more objective, useful guidelines (e.g., information regarding survival rates of hooked, entangled, and/or struck marine mammals). In the absence of such information, serious injury guidelines should be precautionary, both to protect marine mammal stocks and to provide incentives to improve the available information. The Commission would welcome an opportunity to assist the Service in developing revised, practical guidelines that ensure appropriate protection for marine mammal stocks in face of uncertainty about serious injury and mortality estimates.

In some cases, marine mammals observed in fishery interactions or found injured or dead with evidence of human interactions cannot be conclusively ascribed to a particular stock. As mentioned in the Commission's recent letter (dated 26 September 2005) regarding the draft 2005 stock assessment reports, the process of attributing such "unidentified" mortalities among stocks is not consistent among regions. The proposed changes to the stock assessment guidelines suggest that unidentified mortalities be partitioned among stocks based on the relative abundances of the stocks. In the Commission's letter regarding the guidelines (dated 8 March 2005), we point out that prorating mortalities in that fashion could disadvantage smaller, more vulnerable stocks. The Alaska Region's current approach to this problem is to assign unidentified mortalities to all potential stocks of origin. Although this approach results in double-counting some mortalities, it ensures adequate protection for all stocks and serves as an incentive for the collection of better information regarding mortalities, stock structure, and the seasonal distribution of stocks. For these reasons, the Marine Mammal Commission commends the Alaska Region for adopting this policy and recommends that

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the Service use this approach nationally when attributing mortalities among stocks, particularly when one or more of the potential stocks of origin may be especially vulnerable to the effects of fishery-caused mortality.

We hope that these recommendations and comments are helpful to you. I will contact your office to arrange a time in the near future that Commission Chairman John Reynolds and I can meet with you and your staff to discuss these recommendations.

Sincerely,

A handwritten signature in black ink that reads "David Cottingham". The signature is written in a cursive style with a long horizontal flourish extending to the right.

David Cottingham
Executive Director

Enclosure