MARINE MAMMAL COMMISSION

4 February 2011

James W. Balsiger, Ph.D.
Administrator, Alaska Region
National Marine Fisheries Service
P.O. Box 21668
Juneau, AK 99802

Attn: Ellen Sebastian

Dear Dr. Balsiger:

The Marine Mammal Commission, in consultation with its Committee of Scientific Advisors on Marine Mammals, has reviewed the National Marine Fisheries Service's proposed interim final rule pertaining to Fisheries of the Exclusive Economic Zone off Alaska; Steller Sea Lion Protection Measures for the Bering Sea and Aleutian Islands Groundfish Fisheries off Alaska (75 Fed. Reg. 77535). The Commission provides the following recommendations and rationale.

RECOMMENDATIONS

The Marine Mammal Commission recommends that the National Marine Fisheries Service—

- implement its interim final rule and then begin the process of reexamining and modifying the specified protective measures with the goal of facilitating recovery rather than just preventing further decline, and
- expand its section 7 consultations on the Alaska groundfish fisheries by analyzing the theory underlying its fishing strategy and its full ecological effects.

RATIONALE

The Marine Mammal Commission concurs with the National Marine Fisheries Service that strong measures are needed to protect the western stock of Steller sea lions. The Commission further agrees that the need for protection appears to be greatest in the western Aleutian Islands (i.e., area 543). The eight-year-long, 45 percent decline in sea lion abundance in that area is alarming.

A number of human-related and natural causes has contributed to the overall decline, and their relative significance is still being debated. That being said, the Commission also concurs with the conclusions stated in the Service's 2010 biological opinion and its revised Steller Sea Lion Recovery Plan that fisheries are likely a major driving factor in the decline. For that reason, careful management of fisheries is essential for protecting and facilitating recovery of the western stock.

The interim final rule, the 2010 biological opinion, and the revised Steller Sea Lion Recovery Plan all reflect extensive scientific investigation of this stock's decline. The resulting body of information is considerable and impressive in many respects. However, both management and research efforts related to the Steller sea lion fall short in several critical respects. For that reason,

the Commission believes that the Service should revise its strategy for investigating this decline, managing the involved fisheries, and developing the necessary protective measures. In the remainder of this letter, the Commission highlights two overriding concerns related to the existing scientific and management strategy. Specifically, the purpose of this letter is to stress the need to (1) facilitate recovery of the western stock rather than simply seeking to maintain it at its current level, and (2) consider and address the full ecological effects of fishing in the analysis of the Alaska groundfish fisheries and the development of recovery measures.

Endangered Species Act Standards

The purpose of a section 7 consultation is to determine if a proposed federal action is likely to jeopardize the continued existence of an endangered or threatened species or destroy or adversely modify the critical habitat of any such species. Those standards are cited throughout the proposed interim final rule and the subject biological opinion. However, the Endangered Species Act requires a higher standard for the National Marine Fisheries Service and the Fish and Wildlife Service, which are the two agencies with primary responsibility for wildlife management, including marine mammals.

Section 7 (a)(1) of the Endangered Species Act directs the Secretary to "review other programs administered by him and utilize such programs in furtherance of the [Act's] purposes…." Among other things, the purposes of the Act include "…to provide a means whereby the ecosystems upon which endangered species and threatened species depend may be conserved, [and] to provide a program for the conservation of such endangered species and threatened species…." The Act defines the terms "conserve," "conserving," and "conservation" to mean "…to use and the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this act are no longer necessary." The revised Steller Sea Lion Recovery Plan sets forth the criteria for determining when that point has been reached, as follows:

1. The population for the U.S. region of this [distinct population segment] has increased (statistically significant) for 30 years (at an average annual growth rate of 3%), based on counts of non-pups (i.e., juveniles and adults). Based on an estimated population size of about 42,500 animals in 2000, this would represent approximately 103,000 animals in 2030.

2. The trends in non-pups in at least 5 of the 7 sub-regions are stable or increasing, consistent with the trend observed under criterion # 1. The population trend in any two adjacent sub-regions cannot be declining significantly. The population trend in any sub-region cannot have declined by more than 50%. The 7 sub-regions are:
   a. Eastern Gulf of Alaska (US)
   b. Central Gulf of Alaska (US)
   c. Western Gulf of Alaska (US)
   d. Eastern Aleutian Islands (including the eastern Bering Sea) (US)

e. Central Aleutian Islands (US)
f. Western Aleutian Islands (US)
g. Russia/Asia

3. The ESA listing factor criteria are met.

Note that these criteria do not require a return to the full pristine population level for this stock. Indeed, such a recovery may not be feasible given the natural and human-related changes in these ecosystems. Still, they set a higher bar than simply maintaining the population. In this context, the Service must assume responsibility for facilitating recovery of the western stock to the point that it meets those recovery criteria. Therefore, the Marine Mammal Commission recommends that the National Marine Fisheries Service implement its interim final rule and begin the process of reexamining and modifying the specified protective measures with the goal of facilitating recovery rather than just preventing further decline.

The Ecological Effects of Fishing

For several decades, the National Marine Fisheries Service has sought to manage the effects of the Alaska groundfish fisheries on the western stock of Steller sea lions. To their credit, the Service and the participants in those fisheries have reduced direct or operational take to a level that is no longer considered significant. For the past 15 years, the debate regarding the impact of fisheries on Steller sea lions has focused on indirect or ecological effects. Competition for fish is the ecological effect of greatest concern.

The 2010 biological opinion focuses on competition because the fisheries and sea lions depend on the same resources. Evidence from the late 1990s indicated that, in any given season, fisheries often removed large portions (e.g., more than half) of the available biomass of certain prey types (e.g., Atka mackerel) from areas within Steller sea lion critical habitat. This phenomenon became known as localized depletion of fish biomass and was the basis for some of the initial regulatory changes to reduce fishery effects by spreading fishing effort over space and time. However, the term "localized depletion" describes only part of the ecological effect of fishing and, in some cases, only a small fraction of the total effect.

The larger change in fish biomass—generally discounted in the Service's analyses of fishery effects—has been the reduction in prey stock biomass resulting from fishing of age-structured target stocks year after year. The theory underlying the current fishing strategy (i.e., that based on the maximum sustainable yield) calls for intentional reductions in the biomass of target stocks by about 60 percent. In some cases, the Alaska groundfish stocks have been reduced by levels approaching 80 percent. In fact, biomass reductions of 80 percent are required to trigger substantial curtailment of fishing effort. Such substantial reductions must affect the foraging success of sea lions—it is simply not feasible that the prey biomass available to sea lions can be reduced by 60 percent or more without some impact. For the past decade, the Commission has written to the Service recommending that it evaluate the effect of such biomass reductions on sea lions. The explanations

for the measures proposed in the interim final rule and the biological opinion acknowledge this concern to a degree but, once again, do not address it head on.

To evaluate competition between the fisheries and the sea lions, the Service must be able to describe the fishing-induced changes that occur in what is often referred to as the "prey field." The prey field for a particular area (e.g., the Bering Sea or the Gulf of Alaska) is best characterized on the basis of the species present, their age (or size) composition, their spatial distribution, and changes that occur naturally over time (i.e., seasonal movements, spawning). The last consideration is important because the prey field is dynamic, changing over time in relatively predictable patterns. For example, pollock distribute themselves along the shelf break in the Bering Sea and then form winter spawning aggregations in the southeastern Bering Sea. Similarly, Atka mackerel move on and offshore for spawning and feeding, with spawning concentrated in the relatively shallow waters off the central and western Aleutian Islands. Pacific cod also aggregate seasonally for spawning in the southeastern Bering Sea. All of these movements are known to fishermen and scientists.

These stocks also are age-structured. That means that a cohort is reduced by fishing each year after the individuals in the cohort have grown to a size large enough to be taken in the fishery. Catch targets and limits are set so that, over time, annual fishery-related reductions of 10 to 15 percent lead to much more substantial reductions in a cohort's biomass relative to unfished conditions (e.g., a 60 percent reduction). That being the case, an analysis of effects that only considers the biomass removed by a fishery in a single year (e.g., 10 to 15 percent) must underestimate substantially the overall biomass reduction (60 percent) and its effects on other components of the ecosystem. In its biological opinions on these fisheries, the Service has yet to carefully analyze the overall biomass reduction and its full ecological effects.

The Service's biological opinions also tend to treat prey stocks as though they are more or less fixed in time and space. Many of the restrictions imposed on the fisheries limit the activity in certain areas during certain seasons and may be appropriate for addressing concerns related to localized depletion of fish stocks. However, those restrictions do not take into account the movements of prey and the dynamic nature of the prey field. Simply drawing a line around a rookery and limiting or even prohibiting fishing within the prescribed area do not necessarily ensure that the prey biomass within that area is unaffected by fishing. If a stock is fished outside a protected area but then moves into a protected area, its biomass within the protected area still must reflect the fishery-induced reduction. This same problem applies to protected areas generally. A refuge can provide protection for a stock only insofar as the stock remains within the protected area.

All of this means that the biomass of an age-structured, migratory fish stock within a protected area can experience a fishery-induced decline of 60 percent or more even if no fishing occurs within the protected area. In such cases, no-fishing measures in a protected area may have conservation value only insofar as they prevent seasonal reductions in prey in that area. They do not address the full long-term ecological effects of fishing. Until such time that the Service deals forthrightly with this matter, its biological opinions will remain incomplete and inadequate for their intended purpose. The ecosystems in question have been fished heavily since at least the 1970s, and a full analysis of fishery effects is overdue. To that end, the Marine Mammal Commission again

recommends that the National Marine Fisheries Service expand its section 7 consultations on the Alaska groundfish fisheries by analyzing the theory underlying its fishing strategy and its full ecological effects. Doing so will provide a stronger basis for adaptive fisheries management and is necessary if the Service is to assert that its fishing management strategy is ecologically sound and ecosystem based. More generally, doing so is necessary to comply with the Endangered Species Act and the policies of the present Administration that call for the use of the best available science to guide management of our ocean resources. The results will provide a stronger foundation for sustainable use of marine resources, which should be to everyone's benefit.

Please contact me if you have questions regarding these recommendations and rationale. The Commission would be pleased to discuss these matters in person if that would be helpful.

Sincerely,

Timothy J. Ragen, Ph.D.
Executive Director