Committee on Resources

Subcommittee on Fisheries Conservation, Wildlife and Oceans

Statement

Comments on NMFS Steller Sea Lion Research

by

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Preface

The endangered western stock of Steller sea lions continues to decline but unlike most endangered species, the factors initiating their decline and hindering their recovery remain uncertain despite years of concerted study. This testimony is presented, upon request, to address the adequacy of the National Marine Fisheries Service's (NMFS) Steller sea lion research program and to comment on potential improvements and expansion. More thorough reviews of NMFS' sea lion research have been provided by independent reviewers, through a series Steller Sea Lion Recovery Plan workshops, and recently by the North Pacific Fisheries Management Council.

The perspective I provide herein is a product of nearly 20 years studying marine mammals and their interactions with commercial fishermen - often with fishermen on their vessels, often with NMFS in the field, often seeking understanding in a commonly thorny conflict arena. The opinions expressed herein are mine and do not necessarily reflect those of the institution I represent. [A Disclosure Form summarizing my professional experience and recent and proposed NMFS-supported projects is appended to this document.]

Background

The Steller Sea Lion Recovery Plan (SLRP) published by NMFS in 1992 outlined research priorities and a clear direction for NMFS' Steller sea lion research program. Beyond monitoring population trends, the SLRP prioritized the research needed to address the question: "Why are Steller sea lions declining and how can their recovery be encouraged?". Although NMFS has management authority for Steller sea lions throughout the U.S, they have shared responsibility for SLRP-related sea lion research in Alaska with the Alaska Department of Fish and Game (ADFG). Additional federal funding has supported Steller sea lion research at the Alaska Sea Life Center, the North Pacific Universities Marine Mammal Consortium, and numerous academic institutions.

A number of sources of mortality were identified in SLRP as known or potential contributors to the population's historic decline but no single causative factor ("smoking gun") has been found to account for continued declines. Consequently, by the mid-1990's, much of the research by NMFS and others focused on

seeking evidence to support a single, common hypothesis: that food limitation (in prey quality, quantity, or diversity) is reducing survival of juvenile Steller sea lions.

Adequacy of NMFS' science

Unlike El Nino-induced prey shortages, we are NOT seeing classic evidence of *acute* food shortage in the western stock of Steller sea lions (i.e. thousands of carcasses or starvelings washing ashore). NMFS and other investigators therefore have sought indicators of *chronic* nutritional stress and its potential impact on the population including physiological compromise detectable in blood parameters, growth and reproductive rates, and foraging effort. By comparing sea lion diet and condition over space (stable eastern stock *vs* declining western stock) and time (pre-decline *vs* post-decline), researchers have sought to elucidate key changes in Steller sea lion habitat and determine the role of food limitation in the continued decline. Despite this concerted effort, evidence supporting the food limitation hypothesis remains weak.

This has not been for lack of trying however. I believe NMFS and others have conscientiously addressed the questions they have asked. Our knowledge of Steller sea lion biology and ecology has grown tremendously in the past decade. But until recently, sea lion questions were asked in a broad ecosystem-process context, as directed by the SLRP. By seeking sources of continued decline, NMFS and others have asked a complex set of questions where even the simplest components are logistically difficult, expensive, and time-consuming to answer. Hampered by these research challenges, even some seemingly fundamental questions remain unanswered (e.g. What and where do sea lions eat in the winter?) and the "best available information" in those areas may be suboptimal or incomplete. Such data limitations become particularly obvious and confounding when they form the basis for management decisions of social and economic significance.

But NMFS is now being asked very different questions. Rather than questioning the mechanisms limiting sea lion survival, NMFS is being asked specific management-related questions: What direct and indirect impacts does a particular fishery have on sea lions and/or their prey ? Are humans competing with or disrupting sea lion foraging behavior? What IS critical in a sea lion's habitat? How do fish populations respond to sea lion predation and human harvest? These are very different from SLRP questions and may require a revised research approach.

Integrate research and management

In many cases, data needed for sound management actions are lacking because appropriate questions have not yet been asked. This argues for broader integration of NMFS' Steller sea lion management and research efforts. Research focused on specific management-related, hypothesis-driven questions can be designed to generate results with direct management application as well as broader ecosystem insights. Although belated, NMFS' recent steps to develop hypothesis-driven proposals for assessing the impact of commercial fishing pressure on sea lion prey distribution are a commendable move in this direction .

The efficient coordination of NMFS' research and management efforts may be limited by NMFS' infrastructure and the vastly different timelines upon which research and management programs appear to operate. [There is often a multi-year lag in procuring research funding whereas management issues are often on shorter, more urgent schedules.] But the desirability of such coordination is exemplified by NMFS' establishment of protective buffer zones (trawl closure areas) around Steller sea lion rookeries in the early 1990's. A critical opportunity to study the effects of this management measure was lost when no experimental design nor follow-up research was incorporated into the buffer zone implementation.

Consequently there has been no way to directly assess the efficacy of this measure or predict the efficacy of recently implemented trawl closures around haulouts. Such studies could have also been designed to shed light on sea lion habitat requirements and other trophic interactions.

I recommend that NMFS' sea lion researchers work directly with managers to 1) design management actions as experiments and 2) develop a measure of success for all significant sea lion- protective measures implemented: identify goals and benchmarks so the efficacy of the action can be monitored.

In addition, I believe stakeholder involvement in the design of such testable management actions may increase their utility and reduce the need for retrospective negotiations or critiques of assumptions and science involved. "Take Reduction Teams" (TRTs), authorized under the MMPA to develop plans for reducing incidental fishing mortality of strategic stocks, may provide a model for addressing specific sea lion-fishery interactions. Like TRTs, this team could be comprised of biologists and stakeholder representatives, have a limited focus and tight timeline, and develop with NMFS a fishery-specific research plan with clear goals and benchmarks for success. Unlike TRTS, this proposed team would address competitive or indirect interactions between sea lions and fisheries, rather than incidental take.

Communication

The fact this hearing is being held demonstrates that Steller sea lion problems go beyond science and that NMFS should make a concerted effort to improve communications with the public. Misunderstanding and confusion about NMFS' goals has spawned grassroot-level mistrust and resistance to management actions and led to counterproductive expenditures of time and money. I believe we all see Steller sea lions in crisis and share common goals for their recovery- albeit for different reasons (biological, social or economic). The following NOAA communication efforts are suggested as steps to enhance public awareness, understanding and coooperation.

·NOAA's newly appointed Fishery Ombudsman will likely encourage upper level coordination of marine mammal and fisheries issues

·Outreach at local level: NMFS can facilitate public access to research results through direct mailings of NOAA Tech Memos to affected AK coastal community libraries, and funding should be sought to support NOAA development of a semi-annual newsletter highlighting sea lion research plans and results by NMFS and other researchers.

·Alternate Peer Review: consider requesting the Alaska Scientific Review Group (ASRG) to formally review the design and goals of proposed NMFS' sea lion studies. Currently NMFS presents the ASRG with annual updates on funded sea lion research plans and specific sea lion study results upon request but does not request study plan review.

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Research by NMFS and others has made great strides toward understanding Steller sea lion biology and ecology but cause(s) of continued declines remain unclear.

The bulk of Steller sea lion research effort this decade has focused on assessing the existance and mechanisms of potential food limitation. The questions and animals are difficult to study and many questions fundamental to management needs remain unanswered.

Research based *solely* on this single hypothesis may no longer be justified.

Recommendations: NMFS researchers should work more closely with the agency's fish and sea lion managers to 1) design management-related, hypothesis-driven sea lion research, 2) design management actions as experiments and 3) develop a measure of success for all significant sea lion-protective measures implemented, identifying goals and benchmarks so the efficacy of the action can be monitored.

Communication plays an indirect but critical role in affecting Steller sea lion research and management goals. NMFS can and should encourage increased awareness and understanding of their research and management goals at the grass roots level and higher.

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