



NORTH PACIFIC UNIVERSITIES MARINE MAMMAL RESEARCH CONSORTIUM

Working Together to Better Understand Steller Sea Lion Habitat and Commercial Fisheries



Consortium Researchers are developing a Steller sea lion habitat model to evaluate the effectiveness of fishery management measures intended to help the recovery of the Steller sea lion. This model will synthesize the combined expert knowledge of ecologists, fisheries biologists, sea lion physiologists and oceanographers

What Researchers hope to learn:

We will be better equipped to identify critical habitat, and will provide a tool to assess the extent of overlap between fisheries and Steller sea lions.

Project Outline

The major product of this study will be computer software that can be used by the National Marine Fisheries Service (NMFS) to explore questions about sea lion habitat and fisheries management actions.

The latest Biological Opinion put forth by NMFS for Steller sea lions outlines a series of Reasonable and Prudent Alternatives (RPAs) that are thought to help in the recovery of Steller sea lions. They include trawl exclusion

ones around rookeries and haulouts, and dispersing the fisheries in time and space. The proposed actions are viewed by some as not going far enough to save Steller sea lions, and by others as excessive and ineffective.

One of the difficulties in justifying some of the proposed RPAs is that they are based on an inherent belief that a fishery more distributed in time and space, should make it easier for Steller sea lions to find food. This in turn should increase the survival and birth rates of Steller sea lions. However, such assumptions are based on theory and, for the most part, are not derived from data available for Steller sea lions.

There is a long time series of fishery observer data showing where, when and how different species of fish were caught in the Bering Sea and Gulf of Alaska. For sea lions, there are counts of pups and adults since 1956 at rookeries and haulouts lining the Gulf of Alaska, Aleutian Islands and Bering Sea. There is also information about diets, energetics and foraging behaviors of Steller sea lions. As for oceanographic data, a considerable amount of remote sensing data has been collected along with detailed bathymetric measurements.

All told, these data can be combined to predict critical habitat and the potential degree of overlap in foraging distributions (of fisheries and sea lions), the relative concentration of animals relative to fisheries, and the relative amounts of different species of fish being removed by each. In this manner, the available data can be analyzed to determine the geographic areas and degree of potential negative impacts of fisheries on sea lions so that meaningful data-based management measures can be derived and implemented.

Principal Investigators:

Edward Gregr, University of British Columbia
Andrew W Trites, University of British Columbia

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contact: consortium@zoology.ubc.ca (604)822-8181