Protecting Marine Mammals and Managing Ecosystems

ONE OF THE MOST CRITICAL ISSUES FACED BY FISHERY MANAGERS RESPONSIBLE FOR MANAGING THE VAST AND PRODUCTIVE GROUNDFISH FISHERIES OFF ALASKA CONCERNS HOW FISHING ACTIVITIES MIGHT BE IMPACTING STELLER SEA LION POPULATIONS, WHICH ARE PROTECTED UNDER THE ENDANGERED SPECIES ACT.

The North Pacific Fishery Management Council implemented a series of protective measures throughout the 1990s to give further protection to Steller sea lions, but the whole issue came to a head in 2000 when the Council and National Marine Fisheries Service contemplated closing areas to protect sea lion prey fields from fisheries. Although millions of research dollars went towards trying to determine the exact cause of the sea lion decline, relatively little information was available to assess the economic damages to fishermen of these extensive closures of their fishing grounds.

The Board attempted to address that situation by funding research to develop more exact quantitative methods to estimate the cost of closing groundfish fisheries in Steller sea lion critical habitat in the Bering Sea and Gulf of Alaska.

Costs of Closing Fisheries in Steller Sea Lion Habitat

Project 529

SCIENTISTS EXPLORED WAYS TO EXPLICITLY LINK THE spatial variability of fisheries biomass and profitability over time to environmental variables to estimate the opportunity costs to the fishing industry of closures at scales relevant to management in Project 529.

By looking at environmental conditions, including bathymetry and oceanographic observations at two different spatial and temporal scales, and at fish biomass data, researchers sought to predict how catches might change if specific areas were closed to fishing. They related these data to economics of the fishing fleet to determine the impacts of the closures. The results suggested that the 2001 Steller sea lion closures cost the groundfish trawl fisheries five to 40% of potential net earnings, with most of the impact felt by the pollock and Pacific cod catcher boats.

Improved methods for estimating opportunity costs of fisheries closures could be helpful if managers propose future closures to protect marine mammals. If further research demonstrates the robustness and stability of the estimated relationships over time, these methods may prove useful in projecting spatial fishery effects of climate variability and change.

Linda Robinson

Gulf of Alaska: Graves Rock. Sea Lions and Fairweather Range: Summer 1999.

Randy Stauffer

Steller sea lions on a research capture.

FEATURE PROJECT

HUMANS :: Protecting Marine Mammals and Managing Ecosystems

Northern Fur Seal Management

Project 639

WE NEED TO ASSESS WHAT WE HAVE LEARNED FROM FASHIONING protective measures for sea lions to see how to do a better job with other marine mammals where there may be a conflict with fisheries. Northern fur seal populations around the Pribilofs have declined 80% since their peak in the 1950s and 45% since 1974.

Commercial fisheries operate in fur seal habitat and target some of the same fish species that fur seals eat. Project 639 assessed the legal, policy, and scientific factors affecting Northern fur seal management, based on lessons learned from the experience with Steller sea lions.

The study concluded that scientific research, while beneficial and necessary, may be fraught with uncertainty in terms of shedding a direct light on an issue as complex as fur seal and fishery prey field interactions, making it difficult to identify the appropriate level of precautionary management. The study concluded that using independent stakeholder-driven bodies, such as the Pribilof Islands Cooperative, offers an excellent opportunity to negotiate a politically acceptable resolution in face of considerable scientific uncertainty.

Mike Sigler

Northern fur seals at St.George Island.

Northern fur seal populations around the Pribilofs have declined considerably since the middle of the last century.

Alison Banks