

Major Scientific Questions with regard to Steller Sea Lions and Interactions with Groundfish Fisheries

based on SSC minutes

What is the extent of competitive interactions with groundfish fisheries and sea lions? There is a lack of scientific evidence to provide a clear link between the groundfish fisheries and the Steller sea lion population. The ESA apparently shifts the burden of proof so that an effect is not ruled out unless available scientific information refutes that the effect is present. This encourages a jeopardy finding because there are many ways that fisheries could affect SSL's and we cannot at this time prove that fisheries do not constrain Steller sea lion recovery. The focus of the Biological Opinion is on potential interactions rather than proven interactions.

Groundfish fisheries may overlap with Steller sea lions but the extent of any competitive interaction is unresolved. Therefore, limitations on fisheries may increase local short-term availability of prey for Steller sea lions but may not result in recovery of the Steller sea lion population. The SSC noted "There is no guarantee that implementation of the RPAs will result in recovery of the Steller sea lion population because we do not know the cause of the decline or what presently prevents recovery." The RPAs address changes in the fisheries, not because fisheries have been shown certainly to be the culprit, but because this Section 7 consultation is about fisheries. Thus, the SSC continues to call for analyses of the relative importance of commercial fisheries among all the factors that may be contributing to the lack of recovery.

Under the null hypothesis of food competition, evaluation of the potential for fishery/sea lion interaction should initially attempt to determine the probability of simultaneous pursuit of prey by sea lions and the fishery. This evaluation should focus at the population level and can be illustrated by the joint probability of Steller sea lions and fisheries occupying the same space, in pursuit of prey of the same size. The SSC provided an example of this approach in their September 2000 minutes. In this example, plugging in some reasonable estimates, the probability of simultaneous competition for the same prey would be less than 2%. Is this level of potential adverse interaction likely to represent a realistic impediment to Steller sea lion population recovery?

How does the increase in biomass of pollock, cod, and mackerel in the 1990s relate to food limitation for sea lions? Populations of walleye pollock, Pacific cod, and Atka mackerel are currently at much higher biomass levels than in the 1960's when Steller sea lions were more abundant. So now there is much more prey per sea lion available. Even allowing for potentially higher exploitation rates in critical habitat, there remains a large amount of groundfish available for Steller sea lions. The document should discuss this information in relation to the hypotheses in the document that food limitation is the most likely explanation of Steller sea lion declines and that the groundfish fishery contributes to this limitation.

Is the monitoring program as designed under the RPA sufficient to test the hypothesis that fisheries are jeopardizing the recovery of Steller sea lions? The SSC has commented strongly in the past on the need for a monitoring program (Experimental Design, Adaptive Management) to assess the efficacy of management actions taken regarding Steller sea lions. We are pleased that the BiOp contains such a monitoring program as an integral part of the RPAs and view it as a welcome starting place. Given that this program has had only limited peer review and no Council involvement, the SSC suggests that this program be thoroughly reviewed and possibly modified by the Council family and other review bodies (e.g., National Academy of Sciences, the new Steller Sea Lion Recovery Team, ADF&G) before it is put in place. An open process with thorough review and consideration of alternative designs will give this monitoring program a better chance for success.

Because of the lags inherent in the dynamics of slow growing species such as sea lions, it may take a long treatment period to detect differences among treatments. In addition, because there are numerous environmental or ecological factors that likely influence foraging success, fecundity, morbidity, and

mortality, it may be difficult to differentiate between changes induced by the treatments, and those that result from changes in uncontrolled factors. This is particularly true because the mechanisms and dynamic timing of these effects are largely unknown or unobservable. Thus the choice of covariates to be monitored is critical. Because the monitoring program should be fairly long term (six years or more), it is particularly important to be sure the best possible design is used to ensure acceptance of the results by affected parties.

What are the economic impacts of implementing RPA elements? The analysis addresses potential interactions of groundfish fisheries and Steller sea lions because the major Federal action subject to NEPA is the groundfish fishery. This does not necessarily imply that the fishery is a major cause of the decline and/or that it is responsible for the lack of recovery of Steller sea lions. No one would object to the adoption of reasonable measures to arrest the decline of Steller sea lions if there was some assurance that those measures would lead to some improvement. However, the premise upon which the proposed alternatives are based is so tenuous that adoption of the alternatives seems imprudent. If there is a connection between current fisheries and Steller sea lion declines and no action is taken, the Council would be derelict in its responsibility to conserve resources under its domain. If other factors are responsible and the Council imposes draconian measures, then the Council actions would needlessly deprive individuals and even communities of their livelihoods.