

DRAFT

Summary of the first meeting of the SSL sub-committee on Adaptive Management  
July 14, 2006.

Participants: Earl Krygier, Steven Hennen, Bill Wilson, John Gauvin  
Doug Demaster was unable to attend.

The meeting began with a brief discussion of the intended focus of the sub-committee. To help focus the discussion, participants were asked to provide feedback on a straw man for an adaptive management experiment that was sent around to the sub-committee prior to the meeting. The straw man was designed around using the resumption of a pollock fishery out in the Aleutian Islands (specifically Adak) to learn something about how fishing affects local abundance of prey and possibly the response of sea lions to changes in the prey field. The concept in the straw man was as follows. A fishing effect or several effects of sufficient magnitude to have the potential for a “measureable effect” on the pollock “prey field” would be conducted in portions of the area around Adak. Adjacent control areas(s) would be established where no (pollock) fishing would occur. The experimental design would be based on the assumption that the control area(s) are not be affected by the fishing but serve as independent, relevant indices of what occurs without fishing. The response variables of interest for the pollock prey field as measured by acoustic surveys (a la Steve Barbeaux) or CPUE or both. The other response variables of interest are sea lion movements as measured by telemetry or other means and possibly species composition of scats.

Effects of Fishing on the Prey Field: Sub-committee members first commented on how effects on the prey field might be considered and then on how the effects on sea lions might be measured. Some thought the fishing effects and controls could be confounded by environmental variation. To address this, suite of fishing effects and controls might be used. If a consistent pattern in the results emerged for the areas where fishing occurred versus the controls, the results might start to be meaningful. Random assignment of controls and treatments could also be used to further the credibility in this approach to an experiment, even if statistically valid results were not obtained. The issue of spatial scale was discussed and the need to have a plausible design for delineating the control and treatment areas was discussed. The need for input from fishermen with an understanding of the movements of fish schools between and within areas was discussed to address the spatial and temporal scale issues. The issue of an “effect” was also discussed in the context of how persistent such effects would temporally. If there is an effect on the prey field, the relevant question would be how long does it endure (in the context of its potential effects on SSL prey) and so the design for the experiment would have to incorporate relevant measures of duration thought to be important to SSL foraging.

Effects of fishing on relevant measures of foraging behavior of SSL: The sub-committee discussed how short term effects on SSL might be measured in the context of the prey field experiment described above. The short term response of sea lions to the fishing in the experiment would be based on changes in where SSL forage, how frequently they

forage, how long their foraging trips take, etc. Longer term “population” level responses such as the number of SSL counted at different locations are not thought to be useful for incorporation into this type of experiment. SSL numbers at unique locations might be subject to considerable variation independent of the experimental effects. Further, the experimental effect is designed around a short term response in order to provide information on how SSL foraging may be affected by fishing. The idea of using changes in the prey composition in SSL scat was generally thought to be problematic for isolating short term responses to a fishing effect.

The use of telemetry was thought to be potentially problematic because of the lower success of placing devices on breeding females and the fact that it is more expensive and intrusive to place devices on individual animals of interest. Alternatively, video might be used to measure behavioral response to the fishing (and non-fishing) as part of the experiment. The cameras on rookery locations of interest would be used to gather unique physical characteristics and markings of animals of interest which then would be distinguished from other animals. This technique has apparently been used successfully in the past. The subcommittee discussed the potential difficulties and costs of using cameras in remote locations in the Aleutian Islands. As an alternative to cameras, the use of capture traps (in lieu of traditional capture methods) to capture adult females was discussed. This might make placing telemetry devices more feasible which could then make telemetry available to either supplement or replace cameras if cameras were infeasible.

The final discussion focused on how to control for fishing effects on SSL behavioral variables from other fisheries. Some thought that restrictions on all other fisheries would have to be made for the control and treatment areas. Depending on the spatial and temporal scale of the experiment, either voluntary or regulatory approaches for preventing effects for other fisheries should be investigated. With the other Aleutian Islands fisheries such as Atka mackerel and cod, the advent of fishing cooperative management holds some potential for minimizing the impacts to other fisheries in adjacent areas. To start to get at this issue and the spatial and temporal scale issues for measuring fishing effects on the prey field, input from informed stakeholders is needed. The committee thought that input for fishermen knowledgeable of the Aleutian Islands fisheries should be incorporated into the subcommittee process to gauge the potential for the experiment from the outset. For the sea lion response variables, input from scientists who have specific knowledge of short term response variables should also be obtained. Once some input on temporal and spatial scale is obtained from fishermen and scientists, the subcommittee will have a much better idea of the feasibility of such an adaptive management experiment.