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The Second Southern Sea Otter Recovery Plan

Carl Benz

The original recovery plan for the southern sea otter (*Enhydra lutris nereis*) was developed and approved by the U.S. Fish and Wildlife Service (FWS) in 1982. This plan identified the need to minimize the risk of tanker accidents, but recognizing the inevitable possibility of an oil spill, it also recognized the need to minimize oil spill effects. The primary recovery method outlined was increasing the sea otter range to decrease the probability that a oil spill would impact a large percentage of the sea otters' habitat. At that time population growth was minimal and translocation was considered necessary to expedite range expansion and population growth.

The original recovery plan did not quantify criteria for delisting. The stated objective was to restore the southern sea otter to a non-threatened status and to maintain this population at its optimum sustainable level. Optimum sustainable population (OSP) level for the southern sea otter was considered to be a population size and distribution greater than the listing threshold under the Endangered Species Act (ESA). In the original recovery plan, the FWS recommended that delisting be considered when the population is stable or increasing at sustainable rates in a large enough area of their original habitat that only a small proportion of the population would be decimated by any single natural or man-caused catastrophe.

In 1989, the FWS established a Southern Sea Otter Recovery Team (SSORT) and requested that they review the 1982 plan, determine if it still satisfactorily addressed the recovery needs for the southern sea otter, and decide whether the plan should be updated or revised. The SSORT recommended revision. In 1993, the FWS established a team of Technical Consultants (representatives from State agencies, environmental organizations, commercial and recreational fishing interests, and the oil industry) to provide information and comments to the SSORT.

The Recovery Team's approach

Because the likelihood of sea otters persisting in California is currently determined primarily by whether or not a major oil spill occurs within the otter's range, two approaches have been identified that would lead to delisting the southern sea otter under the ESA: (1) increasing the range of otters in California to reduce the risk of a single oil spill event reducing the otter population below a level that is viable, and (2) decreasing the risk to otters that a major oil spill event will occur within their range. In developing criteria to delist under the ESA, the SSORT used an approach that incorporates elements of population viability analyses, which, when applied to this population of sea otters, required information on the probability of an oil spill occurring within the range of the southern sea otter, the likelihood of a spill of a particular size occurring, and the expected level of mortality associated with an oil spill event of a particular size. The FWS responded to the SSORT's request to contract experts to provide this information (U.S. Fish and Wildlife Service 1996, Appendix B and C; see Bonnell et al., this issue). The SSORT acknowledges that the data provided are equivocal. The FWS in determining a course of action to recover the southern sea otter, therefore, used as its standard a "preponderance of evidence" rather than the standards normally applied in publishing scientific literature.

Assumptions

The southern sea otter population was listed as threatened in 1977 because (1) its population size was small and distribution limited, and (2) the remaining habitat and population was potentially jeopardized by oil spills, pollution, and competition with humans (42 Federal Register 2965). A major spill of oil from a tanker in the waters in the vicinity of the range of the southern sea otter is still considered the most serious potential threat to the species. Approximately six spills greater than 1,000 barrels that are likely to

impact the southern sea otter have been estimated to occur over the next 30 years (see Bonnell et al., this issue). The expected number of otters that will die as a result of contact with oil following a spill is likely to be no less than 50 percent. Rehabilitation of oiled sea otters is expensive, may be detrimental to some individuals, and is of questionable benefit to the population (Estes 1991).

The 1982 recovery plan identified the need to establish by translocation one or more colonies to enhance range expansion. Three major events have occurred subsequent to the translocation efforts to establish a colony of southern sea otter at San Nicolas Island which alter the need and rationale for that translocation plan. First, state restrictions and closures on gill and trammel nets throughout the range of the southern sea otter has resulted in a subsequent resurgence in population growth (see Wendell, this issue). Second, the Alaskan Exxon Valdez oil spill of 1989 confirmed many of the worst fears about the consequences of such events. The spill was uncontrollable and quickly spread over an area greatly exceeding the present range of the sea otter in central California plus that of the translocated colony at San Nicolas Island, and efforts to save and rehabilitate oiled sea otters were of little or no value to the population (see Williams and Williams, this issue). Third, the translocation to San Nicolas Island has been less successful than originally hoped in establishing a viable population (see Benz, Attempts to Reintroduce, this issue). Therefore, the current strategy for recovering the southern sea otter population is to increase the number of sea otters in California, such that following a major oil spill in the waters off central California, the remaining otters will constitute a surviving population. The FWS recommends against additional translocation to accomplish the objective of increasing the range and number of southern sea otters.

Overview of revised recovery plan

The current draft revised southern sea otter recovery plan retains the same primary management actions, but it does not recommend translocation. Sea otter population growth and range expansion will be passive, i.e., not augmented by translocation. Delisting criteria have also been identified: the southern sea otter population should be delisted under the ESA when, based on standard survey counts, the average population level over a three year period exceeds 2,650 animals (U.S. Fish and Wildlife Service 1996).

The minimum population size that can be considered viable is one that is large enough to accommodate adaptive changes and allows the population to be resilient to changes in the environment. A genetically effective population of 500 (Franklin 1980) is considered adequate such that the loss of genetic variation due to small population size is balanced by the gains of mutation. However, the number of individuals in a population required to achieve a genetically effective population size of 500 may be several times greater than 500 individual animals (Frankel and Soulé 1981). Until better information is available, the estimate that 27 percent of the census population reproduces, as proposed by Ralls et al. (1983), will be used. Therefore, an actual minimum viable population of approximately 1,850 sea otters are required to maintain a genetically effective population of 500. The SSORT proposed that this number be used as the threshold population level for endangered status.

The population level at which delisting of the sea otter should occur was based on the modeling efforts referenced earlier (see Bonnell et al., this issue). As many as 800 southern sea otters could contact oil following a 250,000 barrel oil spill event in central California. Because data are not available to precisely predict the level of otter mortality which will occur, the FWS took a conservative approach and assumed that all otters contacted by oil within 21 days of a spill will die. Therefore, to meet the standard that in the event of a major oil spill, the population should not be reduced below the level of 1,850, the southern sea otter population should not be delisted under the ESA until the average population level over a three year period exceeds 2,650. Based on the expected rate of population growth (approximately 5 percent per year), delisting under ESA could occur by 1999.

The following are the primary tasks identified in the draft revised recovery plan: (1) monitor existing and translocated populations; (2) develop and implement a plan to reduce the probability of an oil spill occurring in the sea otter range and a plan to minimize the effects of an oil spill on the otter population, in

the event that one occurs; (3) develop and implement plans to reduce or eliminate the incidental take of sea otters and other sources of take in California; and (4) evaluate assumptions used to estimate the population level at which southern sea otters could be considered recovered under the ESA.

What's next

The FWS announced the availability of a draft revised recovery plan for the southern sea otter on June 26, 1996. The public was invited to provide comments on the draft revised plan. In addition, two public hearings were held in Monterey, California on July 18, 1996. The public comment period was opened for 90 days, closing on September 24, 1996.

Public and agency comments will be reviewed by the FWS. The SSORT and Technical Consultants will be asked to review and address technical questions and comments. The SSORT will ultimately be responsible for providing the FWS with their recommendations for a final document. Scheduling of meetings with the SSORT and Technical Consultants, and completion of the final Southern Sea Otter (Revised) Recovery Plan, depend upon FWS budget and priorities established for fiscal year 1997.

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Carl Benz is the Assistant Field Supervisor - Endangered Species Listing and Recovery, with the U.S. Fish and Wildlife Service in Ventura, CA.

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