

SOUTHERN SEA OTTER (*Enhydra lutris nereis*): California Stock

STOCK DEFINITION AND GEOGRAPHIC RANGE

Southern sea otters breed and give birth in California year round, however the seasonality is not highly synchronous and the birth peak may extend over several months (Siniff and Ralls 1991, Riedman et al. 1994). The population ranges along the mainland coast from Pt. Ano Nuevo, Santa Cruz County south to Purisima Point, Santa Barbara County; an experimental population currently exists at San Nicolas Island, Ventura County. The initial translocation of sea otters to San Nicolas Island occurred in August 1987.

The population of southern sea otters historically ranged from northern California or Oregon to approximately Punta Abreojos, Baja California (Wilson et al. 1991). Harvest of sea otters during the 1700's and 1800's reduced the species throughout its range. In 1914, the total California population was estimated to be about 50 animals (California Department of Fish and Game 1976). The estimated carrying capacity in California ranges between 13,500 and 30,000 sea otters (Marzin and DeMaster, In prep.).

POPULATION SIZE

Data on population size and distribution of the southern sea otter have been gathered for more than 50 years. In 1982, a standardized survey technique was adopted to eliminate variation from future counts (Estes and Jameson 1988). This method involves shore-based censuses of approximately 80 percent of the population, supplemented with aerial surveys of the remaining 20 percent. These surveys are conducted twice each year (in spring and fall). The San Nicolas Island experimental population is surveyed approximately every two months.

Minimum Population Estimate

Based on the 1994 spring survey (actual count), the minimum southern sea otter population size of the mainland population is 2,359 individuals. Based on the most recent survey of the San Nicolas Island experimental population, the minimum sea otter population size is 17 individuals. Counts of sea otters at San Nicolas Island during 1994 and 1995 have ranged between 10 and 17 individuals.

Current Population Trend

Based on annual spring count totals since 1983, the southern sea otter population is continuing to increase. The mean growth rate from 1983 through 1994 is 5.7 percent (R. Jameson, National Biological Service, pers. comm., Estes et al., In press) (The 1994 count represented a 5.4 percent increase over 1993). Recent counts of the San Nicolas Island experimental population indicate a slight increase in the population; available information is inadequate to determine trends at this time.

CURRENT AND MAXIMUM NET PRODUCTIVITY RATES

The maximum growth rate (r_{\max}) for sea otter populations is about 20 percent (Estes 1990). Except for California and Washington, all increasing sea otter populations for which data are available have grown at about this rate. Since the early 1900's, the California sea otter population increased at about 4 to 5 percent a year until the mid-1970's. Available information suggests that between 1976 and 1982 population growth ceased and possibly declined by as much as 20 percent. Counts from 1983 to 1994 have increased at about 5 to 6 percent per year (Estes et al., In press). In California, the r_{\max} appears to be 6 percent.

ANNUAL HUMAN-CAUSED MORTALITY

Incidental drowning of sea otters in gill and trammel entangling nets has been a significant source of mortality (Wendell et al. 1985). Mortality assessments for southern sea otters in California's commercial fisheries have been based on direct observations. Monitoring of commercial fisheries was initiated in 1982. Extrapolations from the number of

otters observed drowned and the proportion of the set-net fishery sampled indicated that from June 1982 to June 1984, an average of 80 sea otters drowned in gill and trammel nets each year (Wendell et al. 1985). The first of several State restrictions of gill and trammel net fishing to protect sea otters was enacted in 1985. The most recent restriction, California Senate Bill No. 2563, was enacted in 1990 and became effective on January 1, 1991. This bill prohibits the use of gill and trammel nets in waters shallower than 30 fathoms between Waddell Creek in Santa Cruz County and Point Sal in Santa Barbara County. Gill and trammel net fishing are prohibited within 30 fathoms around San Nicolas Island, Ventura County.

Since 1988, 26 otters have been observed or otherwise known to have drowned in legally set commercial fishing nets: 5 in 1988, 11 in 1989, 9 in 1990, and 0 in 1991 and 1992, 1 in 1993, and 0 in 1994. The net responsible for the 1993 mortality is of unknown origin. It may have been legally or illegally set, or a piece of netting set adrift in which the otter became entangled. In 1992, a dead sea otter was recovered by a California Department of Fish and Game warden in a crab pot located in 30 to 60 feet of water off Point Santa Cruz, Santa Cruz County. The level of take of southern sea otters in lobster and crab fisheries in California is unknown. Although the level of take is unknown, it has been postulated by some to have made a significant contribution to the lack of population growth in the colony of sea otters translocated to San Nicolas Island.

Other sources of human-caused mortality include shooting, boat strikes, capture and relocation efforts, oil spills and possibly elevated levels of polychlorinated biphenyls (PCBs) and other toxic contaminants.

FISHERIES INFORMATION

Fishing with set gillnets has been restricted throughout most of the range of the southern sea otter with one exception. Set gillnets are used by approximately 6 vessels (T. Price, National Marine Fisheries Service, pers. comm.) to catch halibut and flounder, along the coastline from Point Sal to Point Arguello, Santa Barbara County. Because this area is remote and difficult to access, this fishery is not monitored and no data exists on the level of take of southern sea otters.

Lobster and crab fishing occur within the range of the southern sea otter. Available information suggests that sea otters are accidentally caught and drowned in lobster and crab traps.

As part of the southern sea otter recovery effort, the Fish and Wildlife Service has attempted to establish a sea otter colony at San Nicolas Island. Public Law 99-625, which provided the legislative authority for the translocation of sea otters from the mainland to San Nicolas Island, specified that the area surrounding the translocation zone be designated a "management zone" from which sea otters are to be excluded by non-lethal means to prohibit range expansion and protect fishery resources south of Point Conception.

STATUS OF STOCK

The southern sea otter was designated as a threatened species in 1977 (42 FR 2965-2968) pursuant to the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 *et seq.*). Because of its threatened status, the southern sea otter also is designated as depleted under the Marine Mammal Protection Act of 1972, as amended (16 U.S.C. 1361 *et seq.*). Furthermore, the southern sea otter population is below its Optimum Sustainable Population level.

If the restrictions on the use of gill and trammel nets in areas inhabited by southern sea otters were lifted, the southern sea otter population would be designated as a "strategic stock" as defined by the Marine Mammal Protection Act, requiring constitution of a Take Reduction Team to advise on measures that could and should be taken to ensure that the incidental take of sea otters, by itself and in combination with other possible sources of non-natural mortality, does not exceed the calculated potential biological removal level.

POTENTIAL BIOLOGICAL REMOVAL

The Potential Biological Removal (PBR) for the California stock is 7 animals. PBR is the product of three elements: the minimum population estimate (N_{min}); half the maximum net productivity rate ($0.5 R_{max}$); and a recovery factor (F_r). For the California sea otter stock, $N_{min}=2,376$; $R_{max}=6$ percent; and $F_r=0.1$.

Calculating a PBR for the southern sea otter serves no practical purpose. Incidental take of the southern sea otter is not governed under section 118 of the Marine Mammal Protection Act.

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