

THE SEA OTTER IN CALIFORNIA'S WILDLIFE

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Abstract: The southern sea otter, Enhydra lutris nereis, once inhabited the western shores of North America from Morro Hermoso Point, in central Baja California, north to the vicinity of Grays Harbor, Washington. Over-exploitation by fur hunters in the 1700's and 1800's brought the species to near extinction in the early 1900's. Fortunately a remnant population persisted along the remote central California coast near Point Sur.

The sea otter in California has exhibited a slow population increase since receiving full protection by Federal and State law enactments. They were reported as rare in 1906; estimated at 300 individuals in 1938; and the first aerial census in 1957 reported 638 animals inhabiting the coastline between Carmel Bay and Point Conception.

Subsequent to the sea otter decline an abalone, Haliotis spp., fishery developed in those areas formerly occupied by the sea otter. Because sea otters forage upon abalones a resource conflict has developed between abalone fishermen and the sea otter. This conflict has continued to expand relevant to the sea otter population and distributional expansion.

The objective of the California Department of Fish and Game is to maintain both the sea otter and abalone resources and to this end a management program was prepared and submitted to the Legislature for review in January 1968.

The sea otter (Enhydra lutris) is a member of the weasel family, Mustelidae, and most closely related to the river otter. Historically, its distribution extended in a continuous band around the northern rim of the Pacific Ocean. This range included the islands of northern Japan; the Siberian coast; the Commander, Aleutian and Pribilof Islands; and the North American coast from the Alaskan Peninsula to central Baja California.

Taxonomists recognize two subspecies, the northern sea otter, E. l. lutris, and the southern sea otter, E. l. nereis. The southern sea otter may be distinguished by its less depressed skull which has a more inflated and rounded brain case than the northern sub-species (Barabash-Nikiforov, Reshetkin, and Shidlovskaya, 1947). In addition, the northern sea otter attains a slightly greater size than its southern counterpart which grows to a length of four or five feet including the tail. Males may weigh up to 80 pounds and females 45 pounds.

Southern sea otters once inhabited the western shores of North America from Morro Hermoso Point, in central Baja California, north to the vicinity of Grays Harbor, Washington. General accounts of the sea otter fishery that existed during the 1700's and 1800's indicate that southern sea otters were most populous in Baja California (Ogden, 1941). They apparently were not numerous along the southern California mainland coast, but large concentrations existed around the Santa Barbara Channel Islands and to a lesser extent at Santa Catalina and San Clemente Islands. Good concentrations were present along the central and northern California coastline as far north as Trinidad. Sea otters also were found around the Farallon Islands, and reportedly abounded in San Francisco Bay.

The Spanish first harvested the sea otter along the California coast in the late 1780's. By the turn of the 19th century, American and Russian hunters had entered the fishery despite Spanish protests. In 1812 the Russians established Fort Ross in Sonoma County as a base, and later established outposts at Bodega Bay and the Farallon Islands. So valuable was the fur of the sea otter that severe over-exploitation by fur hunters brought the species to the brink of extinction by the early 1900's. Finally, in 1911, a Fur Seal Treaty was signed by the United States, Russia, Japan, and Great Britain affording the sea otter complete protection. This has been supplemented by Federal and State laws; those of California dating from 1913.

How many sea otters persisted along the California coast after hunting ceased is not known, but they were reported as rare as early as 1906. In 1916, 31 were seen south of Santa Catalina Island. However, the bulk of the surviving otters apparently found shelter along the remote coast near Point Sur. The general public thought the southern sea otter was extinct; nevertheless, ranchers and lighthouse-keepers in the area, local wardens, and other Fish and Game personnel were aware of their continued existence. Because of the precarious nature of the small population, their presence was not publicized. In the summer of 1937, State Highway 1 was opened permitting access to the coastal area occupied by the sea otters, and it was inevitable the public would "discover" them.

In 1938, a herd of nearly 100 sea otters appeared off Bixby Creek, located nearly 20 miles south of Monterey (Fisher, 1939). One estimate of the sea otter population inhabiting the California coast at that time was 300. The first aerial census was made in 1957, and 638 animals were reported inhabiting the coastline between Carmel Bay and Point Conception. Subsequently, the Department of Fish and Game established a regular aerial censusing program. Counts from these flights have ranged from 137 in February 1965, to 591 in June 1966. The low counts were generally attributed to unfavorable weather conditions. The latest census, conducted October 16, 1967, reported 562 sea otters between Monterey and Cambria.

Unlike the California population, the northern sea otter is now distributed throughout much of its former range. Reports from Alaska indicate the population in that area now exceeds 30,000 animals and a limited harvesting program has been in effect in recent years. It is not understood why the California population has not increased at a faster rate, and in effect has remained rather static in recent years.

The habitat of the California sea otter is in the nearshore kelp (Macrocystis angustifolia and Nereocystis luetkeana) beds. Sea otters sleep, rest, and generally travel on their backs. Quite often they wrap strands of seaweed (Macrocystis) around their bodies while resting or sleeping in order not to drift from the rafting area.

The food of the sea otter consists of crabs (Cancer spp., Pugettia producta), various mollusks, echinoderms, and small amounts of bony fish. They are reported to be the only mammal other than primates, which habitually use a tool to obtain certain types of food (Hall and Schaller, 1964). When feeding on Cancer spp., P. producta crabs, sea mussels, Mytilus californicus, or clams Tresus nuttalli, they place a flat-sided stone on their chest, and holding the food item between their forepaws, repeatedly bang it against the stone until the shell fractures and the soft insides can be removed. In recovering abalones Haliotis spp., hard shelled marine gastropods that clamp tightly to rocky surfaces, they wield softball-sized rocks between their forepaws and repeatedly bang against the abalone shell until it fractures and the animal loosens its hold. Prior to recovering an abalone, a sea otter may be seen making numerous dives with a rock, at the same location, then finally emerging with the abalone. This tool-using behavior makes the sea otter one of California's more interesting mammals. Unfortunately, this behavior has resulted in a resource-use conflict with fishermen.

Abalones support an important sport and commercial fishery in California. The impact sea otters have made on this resource is difficult to measure. While investigators are in accord regarding the types of food in the sea otter's diet, disagreement exists concerning the percentages of food items

ingested. Some investigators consider sea urchins (strongylocentrotus franciscanus and S. purpuratus) the dominant food item, while others find abalones are more common in the otter's diet.

Since the recovery of the sea otter population, the range of distribution has not significantly increased, but there has been a shift within the range resulting in an increased number of animals at the range extremities. At the southern end of the range, sea otters are in direct competition with commercial abalone fishermen and this has created a resource-use conflict.

To further our knowledge about the sea otter, the California Department of Fish and Game launched a massive survey of the otter inhabited coastline from Monterey to Point Estero in October 1967. Twenty-seven divers, six vessels and their crews occupied 91 diving stations along this 120 miles of coastline. Stations ranged from the intertidal zone to depths of 100 feet. The transect method, widely used by diving biologists, was employed to quantitate station size. Each station encompassed 1,500 square feet of bottom. Findings indicated that sea urchins and abalones were generally cropped back to protected situations such as crevices or beneath rocks, and rarely were available to sea otters. Other known forage items also appear heavily harvested. Stations immediately south of the sea otters range had large numbers of sea urchins and abalones in exposed situations. Results of this survey indicate sea otters are intensively utilizing the range and may be close to the range carrying capacity. Additional survey work is needed; particularly on replenishment rates of such organisms as sea urchins and abalones. These organisms do not emerge from crevices or beneath rocks until they reach adult size. Some individuals may never leave crevice situations and therefore are most important for maintaining the population.

The relationship between sea otters and abalone fishermen is similar to that between deer (Odocoileus spp.) and the terrestrial farmer. Crop lands provide excellent forage conditions when compared to the general deer range. Similarly, the standing crop of abalones and sea urchins is considerably south of the sea otters present range. In the nine mile coastal area immediately south of the sea otters present range, fishermen harvest nearly one million pounds of abalone annually. It is only natural for sea otters to migrate into this lush feeding area, and abalone fishermen do not consider the abalone as forage for the sea otter.

The objective of the California Department of Fish and Game is to maintain both the sea otter and abalone resources. To this end, the Department organized a citizens advisory committee in 1967 to assist in compiling information about these resources, and to represent the interests of the scientific community, the abalone industry, sportsmen, and conservationists.

A report with recommendations was prepared by the Department and submitted to the 1968 Legislature. A two phase program was recommended. The initial phase will last three years and includes limited trapping, tagging, and transplanting sea otters from the conflict area at the southern edge of their present range and relocating them in the northern part of their range. The second phase will be a continuing program and will be based largely on the findings of the initial phase. Ecological studies are also recommended to increase our knowledge of the sea otter's requirements.

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