

# SEALS AND SEA LIONS OF SAN MIGUEL ISLAND, CALIFORNIA

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Abstract: San Miguel Island is inhabited by a unique assemblage of six species of seals. Five of the species breed on the Island. Brief species accounts are included. The most recent addition to the pinniped fauna of the Island is a small colony of northern fur seals which was found in 1968 and probably became established during the last 10 years. That colony has been studied during the breeding seasons of 1969 and 1970. The colony contains from 300 to 400 animals and judging from production and mortality figures it does not appear to be growing and may not be doing well in this new habitat.

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## INTRODUCTION

San Miguel Island is the western-most North Channel Island; is located 26 miles off Point Conception. The Island is about eight miles long and has elevations to 831 feet. The undulating topography of the Island consists of Eocene volcanics and more recent marine and aeolian sediments. The highest concentration of seals are found in the Point Bennett Area located on the west end of the Island.

Six species of seals occur on San Miguel Island; five of those breed there. At any time of year one will find between one and ten thousand animals using the Island. Between middle December and late August (70% of the year) pupping or breeding activities of one or more species occur. No two species begin or end breeding at the same time, but essentially four species are summer breeders and one breeds in the winter season.

## SPECIES ACCOUNTS

### Harbor seal (Phoca vitulina)

About 500 harbor seals are found on the isolated beaches of San Miguel Island. They pup in early April and breed about a month later. The pups are precocial and are able to swim away in the females company within hours of birth.

The harbor seal is the most widely distributed seal under consideration here, and is found from the edges of the flow ice in Bering Sea to San Ignacio Lagoon in southern Baja California, Mexico.

### Northern elephant seal (Mirounga angustirostris)

The San Miguel Island elephant seal population numbers about 5,000. This is the second largest breeding population on the Pacific Coast (the largest being on Isla de Guadalupe, Mexico). Pups are born during December and January, and breeding takes place in January and February.

Elephant seals have been intensively studied at Ano Nuevo Island in San Mateo County by a group at University of California at Santa Cruz. An important part of their work has been an ambitious tagging program. They have placed colored plastic Jumbo Roto-tags on the rear flippers of elephant seals from breeding colonies in Mexico and California. Persons having opportunity to be along the coast are advised to watch for such tagged animals and report any sightings to the University of California, Santa Cruz.

The species breeds from Isla Cedros, Baja California to Ano Nuevo Island in central California. During the non-breeding season males have been seen north as far as Vancouver Island, British Columbia.

### Stellar sea lion (Eumetopias jubata)

San Miguel Island is the southern most breeding location for Stellar sea lions. Small breeding aggregations inhabit two wave-washed beach terraces and one offshore rock in the Point Bennett Area. The total Island population probably does not number more than 100 animals.

### California sea lion (Zalophus californianus)

This species population numbers between ten and 15 thousand animals on San Miguel Island and is most abundant seal on the Island. California sea lions can be found on the Island at any time of year. Pupping activity begins in May and extends through June. Breeding occurs from 20 June to 20 July. The biology of this species has been nicely treated in a book by Peterson & Bartholomew (1968, The natural history and behavior of the California Sea Lion, Special Publication No. 1, American Society of Mammalogists).

This common coastal species has been much in the news in the past few years. In 1969 about a thousand females came ashore and gave birth to pups on oil covered beaches on San Miguel Island. In the fall of 1970 more than the normal number of male sea lions began coming ashore on the beaches of central California. Leptospirosis has been diagnosed in many of these animals. Premature births have been observed on all of the Pacific Coast breeding grounds of this species since 1967 and some preliminary data suggest that the 1970 incidence rate is about 10% and is increasing annually.

The breeding range of this species ranges from the islands off central Baja California north to the Channel Islands.

### Guadalupe fur seal (Arctocephalus townsendi)

The Guadalupe fur seal has only visitant status on San Miguel Island. We have recorded only males of varying ages during the non-breeding season. It is probable that the Guadalupe fur seal once breed on San Miguel Island and if the Isla de Guadalupe population continues to grow we may once again find the species breeding on San Miguel.

### Northern fur seal (Callorhinus ursinus)

A breeding colony of northern fur seals was found on San Miguel Island in 1968 (Peterson, LeBoeuf, & DeLong 1968, Nature 219(5157): 899-901). In 1969 studies of this unique colony were begun. The study was sponsored by the Marine Mammal Biological Laboratory, Bureau of Commercial Fisheries, U.S. Fish and Wildlife Service (now the National Marine Fisheries Service, National Oceanographic and Atmospheric Administration). In compliance with agreements of the Scientific Committee of the International Fur Seal Commission the study has been conducted as an entirely observational study. It is felt that until we are certain that this small colony is well established and growing that disturbance of the animals must be avoided.

Study procedures were essentially the same in 1969 and 70. I lived on the Island and observed animals daily from June through September. Objectives of the study have been to establish base-line population information, such as population size, age structure and reproduction. We have also included a comparative study of breeding behavior with that of fur seals on the Pribilof Islands, their interspecific interactions with the other species, and an investigation of thermoregulatory behavior.

#### POPULATION

There were about 16 males present in 1969 and 11 in 1970. Up to 175 females have been recorded on land daily during each season, and estimates of the female population range to 350 animals. The most reliable indices of age suggest that a high percentage of the female population are between seven and 14 years old. The unbalanced sex ratio probably suggests that there are few if any males present in the San Miguel Colony which were born elsewhere. Whereas we have obtained the tag numbers of ten females in the population who were born and tagged on the Pribilof and Commander Islands in Bering Sea.

Production has been poor. There were 36, 28, and 32 pups produced in 1968, 69, & 70 respectively. In 1969, 85 copulations were observed and those resulted in the birth of only 32 pups in 1970. In 1970 pup mortality on land reached 41%. Clearly fecundity and survival appear low.

#### BEHAVIORAL STUDIES

Marked animals are needed for behavioral studies. A pelage abnormality known as "mange" provided marked animals. The patterns created by loss of guard hairs are frequently extensive and sufficiently different so that individuals can be recognized and followed for months at a time.

On the Bering Sea breeding grounds the fur seals are territorial. Males return to the Island in May to establish territories, and when the females begin arriving in June the breeding rookeries are partitioned into small well defined territories. On San Miguel the fur seals are breeding on a sandy beach. There is not a tendency for males to return early or to establish territories. Rather the females form aggregations and these aggregations are patrolled by one or more bull. Territorial patterns develop in these female aggregations but have no stability over time, i.e. the aggregation of females and the male may move about over the sandy beach.

The interspecific interactions with California sea lions are impressive. In 1969 we recorded 298 interactions and their outcomes. Essentially the fur seals will usually displace the much larger California sea lions. Only at the time corresponding with onset of estrus in female sea lions do the male sea lions become extremely aggressive and at this time the sea lion male is likely to push through an aggregation of fur seals causing disruption to the neatly segregated fur seal aggregation.