

# CALIFORNIA SEA LION

*Zalophus californianus*

The **California sea lion** is a constant presence at Piedras Blancas. Even on foggy days they can be heard if not seen. Large numbers of these noisy pinnipeds gather on the outer islet, and on the wedge-shaped rock off the elephant seal viewing area. California sea lions are probably the most familiar pinniped in the world. Easily trained, they are featured in zoos, circuses, and oceanariums. They also have a habit of hauling out on docks, boats, and buoys. Although sea lions are present year-round at Piedras Blancas there are fluctuations in numbers.

**Color:** California sea lions have solid-color coats that range in color from tawny yellow to dark brown. When wet they look dark, almost black. Most adult males are dark brown to black with light tan areas on the face. Adult females and juveniles are a lighter color.

Sea lions shed their fur every year but the process is gradual and not visually apparent. Adult females and juveniles molt during the fall and winter. Adult males molt in the winter.

**Shape:** Juvenile and adult female sea lions have slender shapes. They have long dog-like noses and tiny external ear flaps. The front flippers are long in comparison to the harbor seal or elephant seal. Around age 5, the males develop a bony bump, called a sagittal crest, on top of their skulls. Adult male sea lions have a thickened shoulder, chest, and neck area.

**Weight:** Mature males are much larger than mature females, weighing up to 880 pounds while females weigh up to 240 pounds. Newborn pups weigh 13-20 pounds, male pups are larger.

**Length:** Mature males are up to 8 feet in length and mature females up to 6.5 feet long. Pups are about 30 inches long at birth.

**Feeding:** California sea lions eat a variety of fish, including anchovies, mackerel, and rockfish. They also prey on squid and octopus. They prefer to feed in areas of cool upwelling along the continental shelf and around seamounts. They may eat 5-10% of their body weight each day. Feeding can occur at any hour. They can be seen engaged in feeding frenzies, along with large numbers of sea birds.

Territorial males fast while maintaining their territories (1-45 days.) Nursing females spend the first week with their pup and then alternate feeding trips at sea (averaging 2-3 days) with nursing bouts when they are fasting (averaging 1-2 days.) Fasting is postulated as one reason why sea lions eat stones – to possibly ease hunger pangs.

Because females must forage for periods while nursing their pups, the breeding areas are in regions where there is usually high food availability. Warm El Nino waters can cause a reduction in food availability. Non-breeding animals may respond by migrating north. Females tied to the breeding sites face the greatest challenge. During a strong El Nino, pup production can decrease and pup mortality increase. El Nino events can cause a shift in diet. Pelagic red crabs, which are rarely consumed otherwise, become a more common food item during El Nino years.





**Breathing and diving:** The typical dive for a California sea lion is about 2 minutes, but they can dive up to 12 minutes. The average dive is between 80-300 feet but they can dive over 900 feet. They may spend several days at sea or as much as several weeks, diving almost continuously, resting briefly at the surface. Their nostrils close in the resting state and while diving.

**Movement/Behavior:** Sea lions use their front flippers to propel themselves through the water and their back flippers to steer. The word "pinniped" is Latin for "wing-footed" or "fin-footed" and the sea lion does appear to fly underwater using its front flippers like wings. They are fast swimmers and reach 25 mph for short bursts.

On land they can rotate the hind flippers forward, under the body. That ability, in addition to the long fore flippers, allows them to "walk" with agility on land, using all 4 appendages. At sea they are frequently seen leaping out of the water in a behavior referred to as "porpoising." Sometimes large groups of young sea lions are seen porpoising, a joyful sight. Presumably this speeds up swimming. The position in which they rest at the surface with one fore flipper and both rear flippers extended above water is referred to as "juggling" or the "jug-handle" position. Juggling helps regulate body temperature by conserving heat, which dissipates faster in water than in air.

Because sea lions are easily trainable, and can move well on land, they are seen in "seal shows" at zoos and aquariums. They can learn a simple sign language in captivity. Known for their playfulness, they sometimes approach divers underwater. When most people hear the word "seal" they probably think of the California sea lion.

**Sounds:** California sea lions are noisy, doing a lot of barking while on land.

**Reproduction:** Sexual maturity occurs at 4-5 years, but males aren't big enough to hold a territory for several more years. Breeding occurs at the Channel Islands off Santa Barbara and at islands off Baja California and in the Gulf of California. Sea lions usually prefer sandy beaches for breeding. They may move inland or up slopes at night and when it's cool, but during warm weather they stay close to the water's edge.

From May through July, the males maintain breeding territories using visual displays and frequent barking. When fighting occurs, they lunge at each other's chests and bite the opponent's flippers or hindquarters. Most males do not hold a territory for longer than 2 weeks, but some have lasted to 45 days. They are either displaced by another male or forced to leave because their fat supplies have been exhausted. The broad neck and chest of the adult male contains fat supplies to sustain him through a limited fasting period. Even though a male may lose his territory when he is forced to sea to feed, he may regain it when he returns.

Females mate about 27 days after giving birth. Development of the fetus is about 11 months, including a 3-month delayed implantation. Not all females give birth every year.

**Pups:** Most pups are born in May and June. Females give birth to a single pup a few days after coming ashore. Bonding occurs through sound and smell, necessary so the mother and pup can find each other after she returns from foraging. After giving birth, the female stays with her pup for up to 8 days, then she leaves to find food. Most foraging trips are 2-3 days long but can vary according to the availability of prey. After the initial foraging trip, stays on land average 1-2 days with trips to sea in between. Pups begin to eat fish, along with milk, at 2 months of age. Most pups are weaned by 10-12 months, although some continue to suckle longer and some less. Pups can swim at birth, in a very uncoordinated fashion.

Young sea lions are playful, gathering in large groups when their mothers are away. They learn to swim in protected shallow water, engage in mock fights, chase each other, and even body surf. Sometimes older pups accompany their mothers on feeding trips.

**Longevity:** Sea lions may live 20-30 years. Females live slightly longer than males. Pup mortality is about 15-20% during the first 6 months but it increases to about 40% for the next 6 months.

**Social Dynamics:** California sea lions are extremely gregarious. They come together in large groups, especially on the Channel Islands where thousands haul out. At sea they may travel in groups of a dozen or more. They can be seen resting at sea in groups referred to as "rafts."

Some interesting behavior takes place at the breeding colonies. Males do not interfere with female movements. Extending her neck and swaying it side to side as she walks; a female indicates the desire for free passage. Females have to have access to the water, both to cool off and to leave on foraging trips. Furthermore, when it's time to mate a female may leave the territory of the male where she has given birth and mate with another male. If a male is overly aggressive a female may abandon him. The only sustained relationship seems to be between mother and pup, until the time of weaning.

**Distribution:** Breeding age females remain in the areas around the breeding rookeries (Baja California, Channel Islands) all year. After the breeding season most adult and subadult males migrate north along the coast, some as far as British Columbia.

**Predators:** Sharks and orcas (killer whales) prey on sea lions.

**Status:** Hunting of California sea lions probably occurred for thousands of years before the arrival of Europeans in the 1600's, without much effect on the population. However, during the commercial hunts of the 1800s and the early 1900s numbers were reduced. Sea lions were hunted for their hides, blubber, meat, and whiskers. The bacula (penile bone) was sold as an aphrodisiac. The U.S. Marine Mammal Protection Act of 1972 protects marine mammals today. The U.S California sea lion population is thought to be over 167,000 and growing at about 5% a year.

Currently, causes of death to sea lions include starvation, infection, disease, entanglement in nets, pollution, and shooting. Domoic acid, produced by toxic algae bloom, causes seizure and death in California sea lions. Domoic acid moves up the food chain and can cause poisoning to humans too. El Nino weather conditions can affect sea lions by reducing prey availability. Animals that are able to migrate north to find food are not affected, but the adult females are not able to forage too far from the breeding sites. The lack of prey results in spontaneous abortions and in undernourished pups. Pup production can take several years to recover after an intense El Nino.

Some people view California sea lions as pests, competitors for marine resources. Occasionally fishermen shoot them. Sea lions have also made themselves at home on man-made resting areas, like docks. When they started hauling out on Pier 39 in San Francisco, they were viewed as a nuisance, but now it has become a popular tourist attraction.

**Off Piedras Blancas:** We are most likely to see young animals of either sex or adult males. Most mature males are in the Channel Islands area during the breeding season (May through July).

During the month of August adult male sea lions that have been beaten up during territorial disputes may be seen hauling out to rest at Piedras Blancas. Occasionally pregnant females are observed and a couple of live pups have been seen, but most of the pups are premature. The number of California sea lions seen at Piedras Blancas varies. Biologist Brian Hatfield, counted a record number of over 550 California sea lions on the rounded portion of the outer islet. That was on July 13, 1992.



## HARBOR SEAL

*Phoca vitulina*



**Harbor seals** are commonly seen on the rocks and in the water off Piedras Blancas. They are frequently seen hauled out on the rocks at the north end of the parking lot at the elephant seal viewing area (VP3).

Harbor seals are quiet and shy compared to their noisy relative, the California sea lion. They are easily disrupted by human activity so be aware of the impact your presence is having on them. If they are looking at you it probably means you are disturbing them. If they enter the water you have definitely disturbed them.

**Color:** Harbor seals have spotted coats that blend in well with the rocks and sandy beaches on which they haul out. There are two basic color variations. Some have dark coats with light spots and some have light coats with dark spots. Their fur turns brown just before molting. They do not go through a "catastrophic molt" as the elephant seals do, rather, each individual takes 6-8 weeks to molt. During the summer and early fall look for harbor seals in the process of shedding the old, brownish coat in favor of a bright spotted coat. Usually the yearlings molt first, followed by the subadults, then the adult females, and lastly adult males.

Harbor seal pups have a white (lanugo) coat usually shed prior to birth. Most pups are born with their adult coloration, although occasionally pups are born with the white lanugo coat that is quickly shed and replaced with adult fur. The lanugo can sometimes be seen in the afterbirth. The adult coat provides better insulation in cold water. In San Francisco Bay some harbor seals are reddish in color, possibly due to mineral sediments in the water.

**Shape:** Harbor seals are round and torpedo-shaped with large eyes, a short cat-like snout, short flippers with claws, and no external ear flaps. They are in the family Phocidae, the true seals or earless seals.

**Weight:** Mature harbor seals weigh between 250-350 pounds. Pups weigh between 15-25 pounds at birth and about 50 pounds when weaned.

**Length:** Males average 6 feet in length, females are slightly smaller. Pups are about 24 inches long at birth.

**Feeding:** Harbor seals are opportunistic feeders, eating a variety of fish and other prey including squid, octopus and crustaceans. In this area they relish the spotted cusk eel, a nocturnal fish. They tend to feed more at night and swallow most food items whole. They may eat an average of 5-10% of their weight every day .

**Breathing and diving:** They can dive up to 600 feet or more and hold their breath for 20 minutes or longer. Most dives are about 5-8 minutes and are in shallow water. Harbor seals have closable nostrils that keep out the water while diving.

**Sounds:** Harbor seals are the least vocal of the pinnipeds, but on land they sometimes make grunting and growling sounds - thought to possibly warn neighboring seals to keep at least a flipper's distance away. Pups make a sheep-like "baa-ing" call to attract their mother's attention. It sounds like "maa-maa." The mother may respond with a call.



**Movement/behavior:** Harbor seals have a torpedo shaped body, perfect for moving efficiently through the water. When swimming they use a side-to-side movement of their rear flippers to propel themselves, steering with the front flippers. On land they inch along on their stomachs using their front flippers to pull themselves forward.

Harbor seals spend about half the time resting on land, but they also sleep in the water, resting just below the surface, rising occasionally to take a breath. They can also rest with just their heads above

water, noses pointed up, in a position called "bottling." On rocks, they sometimes assume a crescent-shaped, or "banana," position with head and rear flippers raised. They are usually shy of people on land and will dive into the water if disturbed, but they can be very inquisitive of people in the water. Many divers have stories about harbor seals approaching them underwater.

**Reproduction:** Male harbor seals are sexually mature by 4-5 years of age and females by 3-4 years of age. Along California's central coast, most pups are born on land, or occasionally in water near land. In the Piedras Blancas area, most births occur during March and April. Females nurse their pups for 4-6 weeks then wean them to mate. During pupping season, males are usually found separate from mothers and pups. Males don't interfere with nursing mothers. In the Piedras Blancas area, the peak of harbor seal mating is in May.

Courtship and mating take place in the water. Both males and females may mate with more than one partner. Males attract females by slapping the surface of the water with a fore or hind-flipper. On land males make vocalizations, growls or coughs, and thrust the head forward to warn off other males. They don't form harems or fight over territory. Most sexually mature females bear a pup every year. Gestation is 10-11 months, including a 1-3 month delayed implantation. Impregnated females molt during the period of delayed implantation. Females can give birth to one pup every year.

**Pups:** Bonding between the mother and pup usually occurs during the first hour after birth and includes visual, auditory, and odor clues. Harbor seal pups can swim immediately after birth, but when they are young they often ride on their mother's back. Within two days they can make short dives. Pups nurse for around 4 weeks on milk that is about 40% fat. Mothers leave their pups on land while they forage. Unfortunately, people sometimes react to a solitary pup on the beach by getting too close or even taking the pup believing it to be abandoned. It is important to stress that people should leave pups alone or the mother might not return. Harbor seals have been known to abandon pups, and favorite haul-out sites, if disturbed too often by people. Toward the end of the nursing period pups start catching their own food.

**Longevity:** In the wild, harbor seals may live 20-30 years.

**Distribution:** Harbor seals do not migrate great distances, but they move about in response to prey distribution. They are widely distributed throughout the Northern Hemisphere in bays, estuaries and along rocky shores. They haul out on beaches, mud flats, sand bars, gravel bars, rocks, icebergs and sea ice. In the North Atlantic they are known as the "common seal."

**Predators:** Sharks, killer whales, and humans prey on harbor seals. In some regions eagles, bears, and coyotes prey upon pups. Harbor seals are very wary of domestic dogs because members of dog family are natural predators.

**Status:** Worldwide their population is estimated to be around 500,000. In the Eastern Pacific the population is about 330,000 with about 35,000 along the California coast. They are protected under the Marine Mammal Protection Act in the United States but subsistence hunting is allowed in Alaska, Greenland, Northern Canada, and the USSR. They are subject to diseases, parasite infestation, and the accumulation of pollutants and contaminants.

## STELLER SEA LION

*Eumetopias jubatus*



Every year a few subadult male **Steller sea lions** haul out in the Piedras Blancas area. Also known as the northern sea lion, they are larger, more robust, with a broader snout than the California sea lion. Males are tan to blond with a large mane on the neck and chest. They are the largest eared seal and occur in coastal waters from Russia to the central coast of California. Historically they breed at the Channel Island off Santa Barbara, but have not been seen there since the early 1980s. Their numbers have declined significantly in Alaska and Southern California but the populations in Southeast Alaska, British Columbia and Oregon are stable. They haul out to rest throughout the year, preferring isolated offshore rocks and islands. Adult males produce a low frequency roaring sound.

## THE NORTHERN FUR SEAL

*Callorhinus ursinus*

**Northern fur seals** are a rare sighting. They are a pelagic species; they don't usually come ashore to rest like the California sea lion. Brian Hatfield has observed young of the year hauled out very rarely. However, northern fur seals are sometimes seen further offshore, in the water. They are dark brown or black with a small head and a short, blunt nose. Their hind flippers are very long. Their front and hind flippers touch when they are in the jug-handle position. A small percentage of northern fur seals breed at San Miguel Island, off Santa Barbara or at the Farallon Islands, off San Francisco. Most breed further north in sub-polar areas of Alaska and Russia. All but the mature males migrate south across the North Pacific Ocean during the winter.



This report was compiled by Carole Adams and reviewed by Michele Roest and Brian Hatfield, 2003.

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