

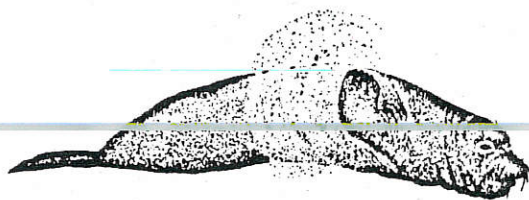
The Northern Elephant Seal



Graceful and fast in the water, the adult male elephant seal is an improbable looking beast on land. Using its short, stubby foreflippers it hauls its two or three ton body across beach and dune in an ungainly, inchworm fashion. Humping along, blubber rippling under the skin, it is made further ludicrous by a foot-long, pendulous snout. Often, the first time observer greets this spectacle with disbelief, astonishment or giggles.

A battle between two of these monsters is far from a laughing matter, however. Rearing up to a height of eight or ten feet, emitting sounds reminiscent of a revving motorcycle, they slam their bodies together, slashing at each others' chests, necks and noses with six inch long canine teeth. A fight may be a brief encounter, with the loser retreating after only one or two vicious swipes from his opponent, or it may develop into a bloody battle lasting 15 minutes or more.

The purpose of these battles is to establish the position of individual males in the dominance hierarchy or pecking order. Dominant males win the right to stay the closest to the females, who have hauled out in order to give birth, suckle their pups, and mate. Only a third the size of the males (and minus the long nose), the females gather together in harems. Typically there is one dominant male in the center of each harem and several subordinate bulls around the edges. About six days after arriving, a female gives birth to a single pup which will nurse for about three weeks.



From the minute the black coated pup is born its life is fraught with peril. If it strays more than a few feet from its mother it is in danger of being attacked by other females, starving to death or being crushed by rampaging bulls. At three weeks of age, when it has quadrupled its birth weight

and begun to replace its black fur with a silver coat, its mother weans it abruptly. After mating, she returns to the sea, leaving the pup to learn how to swim and hunt for food on its own.

The weaned pups, with their huge, dark eyes and roly poly bodies are as cute as the adult males are ugly. They will still be on land long after most of the adults have left, living off of their fat and strengthening their muscles in mock fights and in swimming forays in rain pools and shallow off-shore waters. Then they too will set off to sea.

After spending solitary months at sea, traveling vast distances and diving to great depths in search of food, the seals that haven't been eaten by sharks or killer whales will return in the spring or summer for a few weeks to molt, then disappear into the ocean again until the next breeding season.

Visitors to rookeries such as the one at Año Nuevo State Reserve often ask many questions. What follows are answers to some of the more frequently asked questions.

Is it dead?

On land, a sleeping elephant seal may look like a dead animal since it may not take a breath for a quarter of an hour or longer. When hauled out on land, it is fasting for weeks and so must conserve all the energy it can. One of the ways it can conserve both energy and water is by not breathing when fast asleep. This trick, called sleep apnea, also comes in handy while at sea by allowing the animal to nap without drowning. In adult males, the sleeping/non-breathing period may be as long as 25 minutes.

How do you tell males from females?

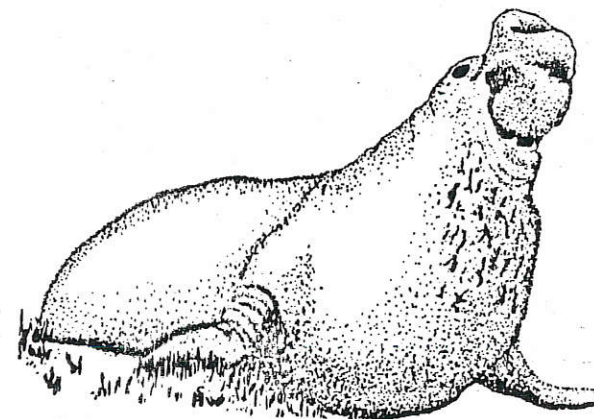
Adult male elephant seals are about three times as large as the females, have extensive scarring on their chests and prominent, pendulous snouts. Immature males look much like the females. Both sexes have umbilical scars (belly buttons), but males also have a penile opening below the belly button.

Why do male elephant seals have such big noses?

The large nose is a male secondary sex characteristic, like a beard on a man. It serves merely as a signal that this is a sexually mature male. The nose continues to grow as the animal grows and so may also serve as a size indicator to other seals when the animal is in the water or in the middle of a group of seals.

Why are they so fat and such a funny shape?

Blubber is a good insulator and also helps create a sleeker, smoother body which reduces the surface area from which heat can be lost and provides less drag in the water. By being fat and streamlined, this warm blooded mammal is able to withstand the cold of the water it hunts in. The



blubber also comes in handy as an energy source during the prolonged fasts the seals undergo during the breeding and molting haul-out periods.

Do male elephant seals maintain territories?

No. Elephant seals do not stake out and defend a specific stretch of beach. They have what is called a dominance hierarchy which is similar to a pecking order in chickens. A male gains status - dominance and access to females - by being a better fighter than other males. Female elephant seals clump together for protection and tolerate the presence of one large male (called the alpha bull by researchers) in their midst because he will keep most of the other bulls from bothering them. In return, the alpha male is rewarded for his aggressive protection by being closest to each female as she comes into estrus (heat). An alpha bull will not try to prevent a female from leaving his dominance and will move with the group if

Once hunted for their oil rich blubber, Northern elephant seals were pushed to the brink of extinction before the turn of the century. Protected since the 1920's, they have made a remarkable comeback, now numbering about 100,000 and inhabiting all of their former range.

These animals spend most of the year at sea and little is known about their behavior there. Fortunately for the interested human observer, they haul out on land at various times of the year and do not seem to be bothered by discreet, distant viewing of their activities.

Do female elephant seals fight?

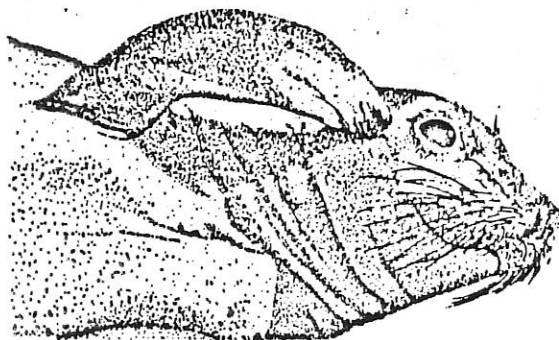
Females threaten each other, strange pups, bulls and humans - anything that gets too close - with hisses and a honking noise. They will slash and bite at an amorous bull when they are not in estrus or at any pup not their own, but they do not engage in the same type of intense battles as the males.

How does an elephant seal mother know which pup is hers?

Immediately after birth, the mother vocalizes to her pup while nuzzling it. The pup responds with cries of its own and the mother soon knows her pup's voice. If mother and pup are separated before this bond is made then the mother will not recognize her pup and may reject it.

Why do elephant seals flip sand onto themselves?

No one knows for sure, but there are many theories about this activity. It is thought, by some, to be related to thermoregulation (maintaining proper body temperature). The same blubber that keeps an elephant seal warm in the water may cause it to overheat when out on the beach. Since sand is lighter in color than the seal's skin, it is thought that covering the back with sand may keep the animal cool by reflecting the sun. The sand itself may feel cool if it is damp. It may also keep pesky sand flies off of the skin. The movement also seems to be related to how agitated the seal is. Sand flipping is often engaged in by a whole group of seals while a fight is going on or



when humans get too close. It may even have served as a form of camouflage when mountain lions and bears were more prevalent. A sleeping seal, covered with sand, is barely distinguishable from the surrounding dunes. Seals hauled out on other than sandy beaches have been seen flipping seaweed or shingles onto their backs.

How can elephant seals dive so deep and hold their breath for such a long time?

Few humans can hold their breath for even three minutes, but elephant seals sustain deep dives of 20-40 minute duration. Elephant seals do not hold their breath, but rather exhale before diving, collapsing their lungs so the danger of the bends, a problem for human divers, is non-existent. They carry all the oxygen they need in their blood which is two times the volume of land mammals of similar size and is composed of 65% oxygen-carrying red blood cells. (Humans carry 38-45% red blood cells). Also, the heart rate drops 90% during a dive. Proper blood pressure is maintained by restricting the blood flow to the extremities and non-vital organs.

What does molting mean?

In addition to repairing itself when injured, the fur and top layer of skin is molted or shed annually, all at once. Unlike other mammals which shed single hairs all year round, the elephant seal molt involves not only the hair, but also the top layer of skin. This comes off in large patches, and during the molt the animal is a sorry sight indeed.

Want to know more about elephant seals? The 46 page book *Mirounga* provides a comprehensive guide to both the Northern elephant seal and its Antarctic cousin the Southern elephant seal. Written by Sheri Howe and amply illustrated with both color and black and white photos by nature photographer Frank Balthis, it is available for \$4.95 at local bookstores or by ordering from Nature's Image, P.O. Box 255, Davenport, CA 95017.

Vital Statistics of the Northern Elephant Seal, *Mirounga Angustirostris*

DISTRIBUTION:

Breeding sites: Northern elephant seals breed on islands off the western coast of North America from Isla Cedros, Mexico to the Farallone Islands, California. Mainland colonies have been established in California at Point Año Nuevo, Point Reyes, and Point Sur. Present population is about 100,000 seals.

Feeding range: There is a generally northward dispersal from the breeding grounds. There have been reports of elephant seals being sighted as far north as British Columbia. They feed primarily on bottom fish and squid found in offshore waters along the Continental Shelf and are known to dive as deep as 2000 feet.

SIZE

Newborn: 50-60 inches, 79-100 pounds

Adult female: 9-12 feet, 1200-1800 pounds*

Adult male: 15-18 feet, 3600-5400 pounds*

*Weight fluctuates radically during the year. An adult may lose a third of its weight during the breeding season fast.

HAUL OUT PERIODS:

Birth/breeding season: December - March
Breeding age males arrive at the rookery before the females and leave after all the females have departed. Some males arrive as early as late November. The females begin arriving in mid-December. Each female remains on land about a month. The peak number of seals on land occurs at the end of January. Breeding age males haul out for 40-90 days. Juvenile and yearling seals are not seen at this time.

Molting: April - August

Juveniles: April - May

Adult females: May - June

Adult males: July - August, Sub-adult males haul out in early summer, while the oldest males arrive later.

Fall rest: September - November

Juveniles and yearlings haul out for a couple of weeks to rest.

LONGEVITY/MORTALITY:

About 15 years (20 years maximum). Only about 50-60% of the females and 10-20% of the males live beyond eight years. Pup mortality averages about 12-15%, but can be much higher in crowded rookeries or during years of severe winter storms. Killer whales and white sharks prey on elephant seals.

SEXUAL MATURITY/GESTATION:

Males reach sexual maturity sometime between the fourth and sixth year, while females mature between age two and four. Estrus occurs about 19 days after giving birth. There is a 10-12 week delay in the implantation of the embryo and the pup is born about 345 days after mating.

WARNING: The Elephant Seal Closure Act requires all persons to maintain a distance of at least 20 feet from any elephant seal. In addition the Marine Mammal Protection Act forbids disturbing these animals in any way.