What Are Seals, Sea Lions, and Walruses?

These animals are pinnipeds.

Scientists group seals, sea lions, fur seals, and walruses together in the scientific order called *Pinnipedia.* All pinnipeds have four *flippers*—one pair in front (foreflippers) and one pair in back (hind flippers), a thick layer of *blubber*, and sensitive whiskers called *vibrissae*.

Pinnipeds are divided into three families—the walruses, the true seals, and the eared seals. The eared seals, which include both sea lions and fur seals, have visible, external ear flaps.

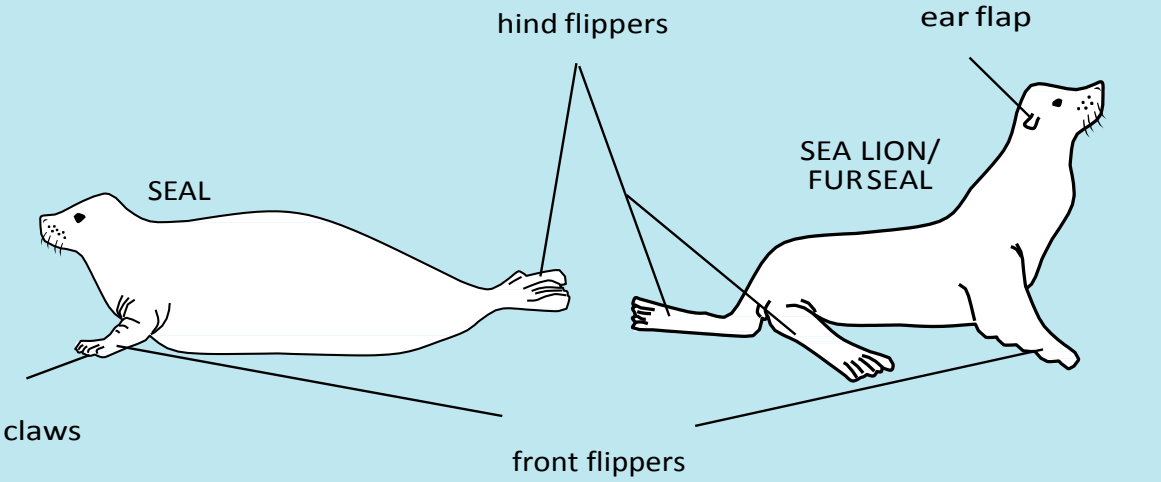
Pinnipeds are mammals.

Pinnipeds share five characteristics with other mammals. They are warm blooded (maintain a high and constant body temperature independent of the surroundings), give live birth, nurse their young, breathe air, and have hair.

Pinnipeds live on land and in the sea.

Because these animals live in the marine environment and they find their food at sea, pinnipeds are *marine mammals*. Other marine mammals include whales and sea otters. Although pinnipeds spend most of their lives in the water, they come ashore to rest, give birth, and *molt*. Once each year, usually in the spring, they gather on beaches or sea ice to give birth and breed. After the pupping season, adults often come ashore again to molt: they shed the outer skin layers with old fur and hair. They also *haul out* on shore to rest and bask in the sun throughout the year.

What's the difference between a seal and sea lion/fur seal?



Seals and sea lions/fur seals differ in a number of ways, but here are four that are easy to spot. Sea lions/fur seals show external ear flaps; seals show only ear holes. Sea lions/fur seals have long, hairless, front flippers with short nails; seals have short, fur-covered front flippers with long claws. Sea lions/fur seals can rotate their hind flippers forward to walk on land; seals hold their hind flippers straight and move on land in a forward rolling motion of their bellies. Sea lion/fur seal whiskers are smooth; most seal whiskers are beaded or crimped.

Where Do Pinnipeds Live?

You'll find pinnipeds around the world.

Seals, sea lions, and walruses live along the shorelines of the world's continents, from Antarctica to Greenland. Each species is adapted to live in its particular *habitat*. The smallest fur seal, the Galápagos fur seal, lives in hot weather close to the equator. Some large pinnipeds, like the southern elephant seal, swim in the chilly waters of the south pole region.

Walruses play it cool.

Walruses swim in cold Arctic waters and prefer to haul out on snow-covered moving pack ice or ice floes rather than mainland beaches. *Herds* of walruses also come ashore on small rocky islands when ice isn't present. Because walruses eat mostly animals that live on the ocean bottom, they're generally found where the water is less than 100 m (325 ft.) deep. They prefer a habitat with a gravelly bottom.

California sea lions hit the beaches.

California sea lions inhabit the rocky and sandy beaches of coastal islands and mainland shores of the eastern North Pacific Ocean. During the spring breeding season, they gather on land in large groups called *colonies*. In autumn and winter, adults range off the west coast of North America from the islands off Baja California, Mexico to the northern tip of Vancouver Island in Canada.

Harbor seals lie low.

Harbor seals inhabit shallow areas of estuaries, rivers, and places where sandbars, beaches, or rocks are uncovered at low tide. They prefer flat spots because unlike a sea lion, a seal can't rotate its hind flippers forward. On land, a seal moves by undulating its body in a caterpillarlike motion. In the water, it often rests floating vertically.

Pups and calves grow fast.

A baby seal or sea lion is called a *pup*. A baby walrus is called a *calf*. Pups and calves are born on land or sometimes in the water. They grow rapidly on their mother's fat-rich milk. Soon they enter the sea to develop their survival skills. They learn to swim, dive, catch *prey*, and haul out.

The first year of life at sea is often the most difficult. Finding enough food, surviving storms at sea, escaping *predators*, and withstanding disease are all challenges these young animals face.

Most pinnipeds, like this California sea lion, have good eyesight under water.

Why Do Scientists Study Pinnipeds?

There's a lot to learn from pinnipeds.

Scientists study pinnipeds to learn about their natural history, reproduction, and behavior. The information helps when scientists try to save species that are *endangered*.

Most studies observe pinnipeds when they're on land while pupping, breeding, or molting. What are they doing the rest of the year? And where are they doing it? Little is known about pinniped behavior at sea including diving, migrating, habitat use, feeding strategies, and social interactions.

New technology helps scientists study seals at sea.

Scientists at Hubbs-SeaWorld Research Institute (H-SWRI) are using compact satellite-linked radio transmitters to track seal movements. With this new technology, scientists can virtually dive and swim with seals, learning more about pinniped behavior.

Time-depth recorders reveal hidden secrets.

H-SWRI scientists use a small computer called a time-depth recorder (TDR). The TDR is temporarily glued to the hair on the back of a seal or sea lion. It falls off when the animal comes ashore later in the year to molt. The TDR records time and depth measurements and stores the data until it is transmitted to a satellite. The satellite calculates the seal's position and then sends all the data to the H-SWRI laboratory for analysis.

Elephant seals dive deeply.

Scientists have used TDRs to document the year-round diving patterns and foraging migrations of northern elephant seals in the Southern California Channel Islands. Elephant seals gather on the Channel Islands in the winter to breed and again in the spring and summer to molt. Scientists weren't sure what the seals did during the eight to nine months the seals are at sea.

Dr. Brent Stewart is a H-SWRI scientist who uses TDRs to study the diving patterns and movements of elephant seals during the months they spend at sea. He documented diving depths, dive durations, and the amount of time the seals spend resting at the surface between dives. His study revealed some fascinating information.

For example, twice each year, male northern elephant seals (*Mirounga angustirostris*) migrate from the Channel Islands 4,025 km (2,500 miles) north to Alaska's Aleutian Islands, where they spend 40 to 50 days feeding before returning to Southern California (another 4,025 km). Each leg of the migration takes about 40 days.

The diving depths of northern elephant seals was also surprising. Some seals dove deeper than 1,800 m (6,000 ft.) and several dives lasted 80 minutes or more. Elephant seals are some of the deepest divers of any marine mammals.

This study's results helped in planning future studies of elephant seal movements at sea using satellite systems.