

SEA OTTER EVOLUTION

No one knows exactly how sea otters evolved, but it is believed that they arose from primitive, fish-eating otter mammals about 5 to 7 million years ago during the late **Miocene** and early **Pliocene** periods. It is likely that their ancestors were originally land mammals that only later entered the ocean to escape **predators**, seek shelter and find a more abundant food supply. They probably began to **forage** for food along the seashore where the low tide brought in mussels, snails, urchins and limpets, but soon discovered the abundance of food underwater.

Once these otter ancestors entered the oceans, they began adapting to the marine environment and developed permanent characteristics for survival at sea, such as a waterproof coat, webbed hindfeet, flippers, larger lung capacity, the ability to survive without drinking fresh water, and the ability to give birth and raise their young entirely at sea. In fact, even though they may spend some of their time on land, sea otters could spend their entire lives at sea, eating, sleeping, giving birth and rearing their young without ever coming ashore.

The sea otter belongs to the weasel family or Mustelidae, which also includes weasels, skunks, badgers, river otters, wolverines and minks. The classification system for sea otters is listed in the chart below. The modern sea otter genus, *Enhydra*, has been confined to the North Pacific since the Pleistocene period, about 1 to 3 million years ago.

The sea otter is in:		Which includes:	And excludes:
Kingdom	Animalia	All multicellular organisms that lack cell walls and cannot perform photosynthesis	Plants, fungi, bacteria
Phylum	Chordata	All animals that have a backbone or similar internal support	Invertebrates (insects, snails, seastars, etc.)
Class	Mammalia	All chordates that have fur and produce milk	Fish, amphibians, reptiles and birds
Order	Carnivora	All mammals that mostly eat meat	Rodents, deer, primates, etc.
Family	Mustelidae	All carnivores that are weasel-like, with long, slender bodies and scent glands	Lions, tigers, bears, raccoons, whales, wolves, etc.
Genus	<i>Enhydra</i>	Sea Otters	River Otters and other otters
Species	<i>lutris</i>	Sea Otters	River Otters and other otters
Subspecies	<i>nereis</i> <i>kenyoni</i> <i>lutris</i>	southern, California sea otter northern sea otter Russian sea otter	Any other otter

VOCABULARY

Miocene

pertaining to an epoch of the Tertiary Period, the period from 25 to 10 million years ago, when grazing mammals became widespread

Pliocene

pertaining to an epoch of the Tertiary Period, which occurred from 10 to 2 million years ago, and characterized by increased size and numbers of mammals, by the growth of mountains, and by global climatic cooling

predators

an organism that lives by preying on other organisms

forage

to look for food; food for animals especially when taken by browsing or grazing

Check Your Reading Skills

Sea Otter Evolution

1) Provide examples of how sea otters adapted to ocean life.

2) What are some of the reasons why the ancestors of the sea otters entered the ocean?

For questions 3 & 4 refer to the chart.

3) What are the three subspecies of the sea otter?

4) What are some of the characteristics that belong to the family Mustelidae?

5) Do you think that sea otters escaped to the sea for all three reasons or only one? Why or why not?

Reading Comprehension Check

Answers

- 1) Answers may include: Sea otters developed: a waterproof coat, webbed hindfeet, flippers, larger lung capacity, do not need to drink fresh water, ability to give birth and raise their young at sea.
- 2) Answers may include: Some reasons why sea otter ancestors entered the ocean were: to escape predators, seek shelter and find a more abundant food supply.
- 3) The three subspecies of the sea otter are: southern, or California sea otter, northern sea otter and Russian sea otter.
- 4) The family Mustelidae are all carnivores that are weasel-like, have long, slender bodies, and have scent glands.
- 5) Answers will vary.