WEB OF LIFE

Sea otters live in the shallow waters of the Pacific and in various types of habitats that include rocky shores, tidal estuaries, and kelp forests. Kelp forests are a key habitat often associated with sea otters. **Kelp** is an algae that grows in ocean waters. The type of kelp that dominate the kelp forests within the range of the sea otter are the giant kelp (***Macrocystis pyrifera***). These huge plants can reach up to 100 feet in height, commonly grow at a phenomenal rate of 1.5 feet per day, and form forests along the shore. Kelp forests are biologically productive areas that provide a home for countless species including sea urchins, sea stars, abalone, fish and sea otters. Sea otters sometimes wrap themselves in kelp when sleeping. Kelp forests also act as a nursery for young fish as they are able to hide from predators in the kelp. In addition, kelp forests act as a damper against winter storms to protect the coastline from severe damage.

Sea otters are described as a **keystone species** and indicators of nearshore **ecosystem** health. Their importance in shaping the nearshore marine ecosystem is well documented. When sea otters were hunted to near **extinction**, the kelp forests throughout the north Pacific, especially in California, were **decimated** by sea urchins. The sea otter, which is the sea urchin's top **predator**, was not present to keep these rocky reef **invertebrates** in check, and the urchins **proliferated** to unhealthy numbers. As sea otter numbers increased as a result of protections granted to them through the International Fur Seal Treaty of 1911, so did the kelp forests. Maintaining a balance between all inhabitants in the kelp forest ecosystem is imperative to creating a rich, diverse habitat. Kelp forests are important as fish nurseries. They dampen the impact of severe winter storms on the nearshore habitats and their inhabitants, provide shelter for sea otter mothers and their pups and provide foraging areas for many marine species.

With sea otters present, the kelp forests and rocky reef communities they **inhabit** flourish. A sea otter's affect on the ecosystem is disproportionate to how many sea otters there are. Very few sea otters can have a large effect. When sea otters are absent or are in decline, kelp communities are absent and the rocky reef communities become dominated by sea urchins and other **herbivorous** grazers.

Not only are they a keystone species of nearshore marine ecosystems, but sea otters also are linked to the **biodiversity** of these ecosystems as well. A lack of biodiversity in an ecosystem is an indicator that the ecosystem's health may be suffering. Many biologists believe that the recent decline in the southern sea otter population is a signal that the health of our oceans is at risk. In addition, if sea otters are declining due to disease and effects from environmental contaminants, then it is likely that the **prey** they are consuming is suffering as well. Since humans consume a variety of seafood, the health of our oceans is a major factor in the quality and safety of that food source.

The sea otter is an important species to preserve not only for its ecological value but for economic reasons. Sea otters provide a **profound** economic benefit to coastal areas in

the form of tourism. Many coastal areas rely on native wildlife, including the sea otter, to bring tourists to their area. In addition, many people visit zoos and aquariums to observe sea otters.

VOCABULARY

kelp
collective name for various large, brown algae.

keystone species
an organism whose abundance or activity is central to maintaining the nature of the habitat; they may be important habitat modifiers, pollinators, seed dispersers

ecosystem
the complex of a community of organisms and its environment functioning as an ecological unit

extinction
in the process of being destroyed so that it no longer exists

decimated
to kill a large number of (something), or to reduce (something) severely

predator
an organism that lives by preying on other organisms

invertebrates
an animal that lacks a spinal column

proliferated
to increase greatly and suddenly in number

inhabit
to live in (a place)

herbivorous
an animal that eats grass and other plants

biodiversity
a term used to describe the number, variety and variability of living organisms.

prey
a creature that is hunted and killed for food by another animal

profound
extreme

Check Your Reading Skills

Web Of Life

1) What is the growth rate commonly documented for the giant kelp?

2) How are sea otters indicators of nearshore ecosystem health?

3) How does the decline in sea otters relate to human health?

4) How does tourism relate to sea otter preservation?

5) Provide two reasons why preserving sea otters is important.

6) What zoo or aquarium exhibits have you seen that educated you about an endangered species? What did you learn?

Reading Comprehension Check
Answers

1) Approximately 1.5 feet/day.

2) When sea otters are present, the rocky reef and kelp forest communities they inhabit flourish.

3) The decline in sea otter numbers affects human health because humans consume seafood. Sea otters are indicators of nearshore ecosystem health and when otter numbers are low, contamination and pollution could be the cause and may be in the seafood consumed in that area.

4) Many people visit coastal areas to view wildlife including sea otters. Aquariums help to educate tourists and the general public about the importance for preserving this endangered species.

5) Preserving sea otters is important because they are a gauge on which scientists can rely to check the health of our oceans. Also, they help to maintain a healthy balance in the nearshore ecosystem.

6) Answers will vary.