

Bull Kelp, Sea Otters, and the Fur Trade



Purple Urchin

Bull kelp is susceptible to predation by a number of herbivores, notably sea urchins. Sea otters and sunflower sea stars are urchins' top predators—but sea otters can eat fifteen to twenty pounds of large urchins in a day! Their voracious appetite can keep urchin populations under control, allowing kelp forests to grow lushly dense. This web of predator (otter), prey (urchin), and primary producer (kelp) is known as a *trophic cascade*.

In the absence of their top predator, urchin populations can surge and devour the bull kelp. The kelp forests that once served as dynamic habitats for fish and invertebrates become urchin barrens—bare rock bristling with a carpet of purple and red urchins. Without the bull kelp, countless organisms are left unprotected from predators.

Prior to 1740, an estimated 300,000 sea otters populated the North Pacific Ocean, ranging from the tip of Japan, along the Aleutian Islands, down the West Coast, and into Mexico. Sea otters have the thickest fur of all mammals with a million hairs per square inch of coat, making it luxuriously soft and warm. From 1740 until roughly 1875, sea otters were hunted for these rich pelts. By 1800, the Northwest maritime fur trade was in full swing as British and American outfits joined Russian enterprises, enslaving expert Aleut hunters to do the killing. While the hunting of sea otters became illegal in 1911, centuries of killing had driven the otters to near-extinction.

In 1938, a small otter colony was discovered near Carmel in California. Otter translocation efforts along the West Coast began in the late 1960s and 1970s, and sea otter populations have rebounded in parts of Alaska and British Columbia. As a result, kelp forests and fish populations along those shores have also rebounded as healthy, robust ecologies.



Sea Otter