Introduction and history

The sea otter (Enhydra lutris, not to be confused with river otters) has at least three claims to fame other than being adorable: it is the smallest marine mammal (Kenyon 1969). It uses tools (opening shellfish by banging them with rocks or with other shellfish), and it has the densest fur of any animal: approximately 100,000 hairs per square centimeter (Kenyon 1969), compared with perhaps 150 for humans (HarvDirect 2007). This fur allows it to survive in the ocean without a thick layer of blubber; it also made sea otter pelts extremely valuable, especially in China (Kenyon 1969).

Sea otters’ daily calendars are dominated by three activities: grooming, eating, and napping. The first two of these activities are closely connected to staying alive in a cold environment.

Grooming consumes up to 20% of an otter’s waking hours and pays off by keeping a layer of air bubbles trapped between their skin and the Pacific Ocean. The importance of unoiled fur became apparent after the Exxon Valdez oil spill, which killed about 3,000 otters (Lance et al. 2004): early efforts to transport sea otters also failed when the animals’ fur was soiled by oil, excrement, and other substances (Kenyon 1969).

Eating 20-25% of their body weight each day (and foraging for that much food) takes up 25% or more of sea otters’ waking hours and pays off by helping them maintain a high metabolism. Sea otters are especially fond of eating sea urchins, and appear to be an important element in controlling sea urchin populations. (Absent sea otters, which are a keystone species, sea urchins can eat all the available kelp and otherwise dominate the ocean floor, creating what are called urchin barren.) Otter predation on the kelp-eating urchins is half of the mutualistic relationship between sea otters and kelp; as if in return, kelp forests help sea otters, e.g., by allowing mother otters to wrap up their young so that they don’t drift away while the mothers are foraging.

Napping isn’t just a good idea; it’s a law of nature. Sea otters often nap around noon-time. Napping is one of the few activities that sea otters engage in on land. If there are no islands to haul out on, however, sea otters will sleep in the ocean, if possible wrapping themselves in kelp so as to not drift away.

Sea otters evolved 1-3 million years ago (Lance et al. 2004) and were probably hunted by indigenous human populations for thousands of years (Kenyon 1969) in their original range, which included shallow ocean areas around the upper half of the Pacific Ocean, including the west coast of North America from Mexico north through Alaska, the islands of Japan and Russia on the northeast coast of Asia, and the Aleutian Islands that stretch between the two continents and divide the Pacific Ocean from the Bering Sea. (See figure x, from Lance et al. 2004.) Rapid over-exploitation began in the mid-to-late 1700s, when pelts were taken during the Bering and Cook expeditions and sold in China for prices of $50 or more. (In the late 1700s this exceeded one year’s salary for many workers.) Over the next century and a half, Kenyon (1969) estimates that about 500,000 sea otters were harvested and that world populations fell from perhaps 150,000 animals in 1740 to perhaps 1,500 animals: “by the end of the 19th century the sea otter was extinct commercially and nearly extinct as a species”. Prior to their international protection in 1911, nearly extinct as a species. Prior to their international protection in 1911, increasingly rare pelts were selling for as much as $1,125 (Kenyon 1969). This is a dramatic example of the tragedy of the commons.

How atom bombs brought otters back to Washington

In 1969, 29 otters were transplanted from Amchitka Island to the Washington coast; another 30 otters were transplanted the following year. The 1969 transplants appear to have died out, but the 1970 transplants have thrived and in 2004 numbered some 743 individuals (Lance et al. 2004). Prior to the mid-1960s the otters stayed on the west side of the Olympic Peninsula, but in the middle of that decade the otters’ range expanded around Cape Flattery to include Neah Bay, where potential conflicts over shellfish with the Makah tribe and other humans are more likely. (One public comment on the state recovery plan [Lance et al. 2004] said that “The recovery plan is terrible... It appears to me a sea otter population of 500 between Pillar Point and Destruction Island would be best, with the tribes hunting the surplus when available. This would also save a lot of potential future conflict. Allowing the sea otters to expand will deprive most clams, crabs, etc. from state recreation harvest.”)

Washington State sea otters are classified by the state as “endangered” and are protected under the federal Maine Mammal Protection Act of 1972. Although the otter subspecies found in California is listed as “threatened” under the federal Endangered Species Act, the northern subspecies (which includes the Alaska populations as well as their Washington transplants) are not listed under the federal ESA.