



Sea Otter

Resource Brief

Importance

Sea otters are a “keystone” species that can dramatically affect the structure and complexity of their nearshore environment. Sea otters prey on sea urchins (‘grazers’) that feed on kelp resulting in top-down cascading effects on the nearshore community structure. Heavy predation on sea urchins greatly alters the abundance and composition of lower trophic levels (e.g., kelps). Also, sea otters tend to have smaller home ranges in comparison to other marine mammal; require high caloric intake, have an incidence of disease that is correlated with contaminants; and have broad appeal to the public, which make them a prime species for monitoring. In September 2005, the Southwestern Alaska stock of sea otters, which includes the Katmai NPP (KATM) population, was federally listed as threatened.



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James Bodkin, USGS, observes foraging sea otters (KEFJ, 2007)

Long-term Monitoring

Sea otter monitoring was initiated in 2006 and 2007, respectively, in KATM and Kenai Fjords NP (KEFJ). Aerial surveys (conducted every 3 years) are used to estimate abundance. Data are collected on foraging sea otters to estimate prey size distribution, species composition and energy recovery. To supplement these direct observations, prey remains are collected from sea otter spraint found at haul out sites. In addition, sea otter carcass surveys are completed annually. A tooth is extracted from collected skulls to determine the age of the sea otter. This information is used to develop age-specific survival estimates based on population models. KATM has several sea otter haul out areas where large numbers of carcasses can be collected to obtain an adequate sample size. However, KEFJ has more limited sea otter haul out areas, making it difficult to implement the full protocol.

Discussion

There were an estimated 1,511 sea otters (Table 1) in KEFJ (2007) and 7,095 sea otters in KATM (2008). Preliminary results of foraging observations illustrate differences in sea otter selection of prey species between the two parks. Mussels are the predominate prey item in KEFJ, whereas clams are the predominate prey in KATM. In 2009, we will continue collecting sea otter foraging and carcass data in both KATM and KEFJ.



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Sea otters shape the community structure of the nearshore ecosystem through predation.

Table 1. Results of sea otter population estimates.

	KATM	KEFJ
Population Estimate	7,095 (2008)	1,511 (2007)

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