

In 2006 we field tested a protocol for monitoring nearshore ecosystems in the Katmai National Park and Preserve (KATM) unit of the Southwest Alaska Network (SWAN) of National Parks. The protocol includes six draft standard operation procedures that correspond to NPS "vital signs". These include:

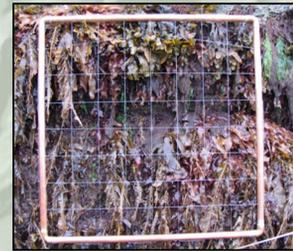
- water chemistry/temperature
- marine algae
- intertidal invertebrates
- marine birds
- black oystercatchers
- sea otters

We established five permanent rocky intertidal transects that provide focal points for vital sign sampling (**red diamonds**)



Black Oystercatchers

Data from the 2006 marine bird and mammal survey indicated bloy densities of 3.2/km². Black oystercatcher nest transects were selected based on the 5 permanent rocky intertidal sites We located 12 black oystercatcher nests on 100 km of systematic transect, 10 active nests contained a total of eight eggs and 10 chicks.



Water Chemistry Maine Algae Intertidal Invertebrates

A Hobo temperature recording device was placed at each transect origin of the permanent rocky intertidal sampling sites. Algae and invertebrates were sampled along these 100 m transects in a nested sampling design. Samples of mussels and limpets at each site were used to estimate size distributions.



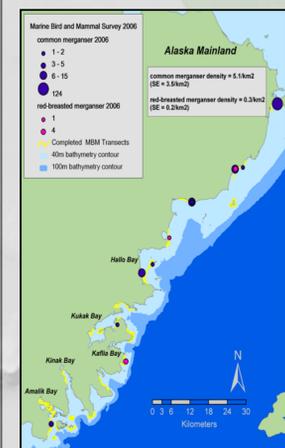
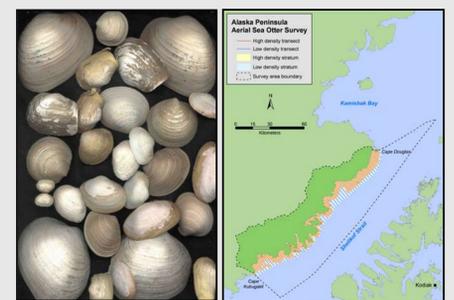
Sea Otters

Data from the 2006 marine bird and mammal survey indicated sea otter densities were 4.9/km². Foraging and carcass collection areas were selected based on the 5 permanent rocky intertidal sites Sea otter diet consisted predominantly of clams (76%), octopus (2%), snails (10%), sea stars (2%), chitons (5%), crabs (3%), urchins (2%), and other prey items (<1%). We recovered 37 sea otter carcasses from beaches along the KATM coast, most of those associated with off shore islands where sea otters commonly haul out.



Plans for 2007

- Repeat monitoring SOP's from 2006
- Implement sea otter aerial surveys
- Implement soft sediment invertebrate sampling



Marine Birds and Mammals

We surveyed marine birds and mammals along 25 systematically chosen transects (**yellow lines**). The most abundant seabirds were glaucous-winged gulls (87.2/km²), cormorants (68.3/km²), black legged kittiwakes (58.4/km²), scoters (21.4/km²), and harlequin ducks (16.9/km²). Steller sea lions (6.2/km²) had the highest density of the marine mammals.

- ◆ Permanent rocky intertidal sites
- Established marine bird and mammal survey transects

Acknowledgements:

The National Park Service, SWAN and KATM, and the USGS Alaska Science Center supported this work. Field assistance was given by Alan Bennet, Bill Thompson, Sharon Kim, Dan Monson, Allen Gilliland and Alan Fukuyama. Dorothy Mortensen, Jeff Cotterman, and Kim Kloecker continue to provide expert guidance in matters related to data management. We also thank John Rogers of the R/V Waters for sharing his knowledge of KATM.