

Marine Kelp and Seagrass

Vital Signs Monitoring- Southwest Alaska Network



Importance / Issues

Kelp and seagrass were identified as a SWAN vital sign because they are "living habitats" that serve as a nutrient filter and provide understory and ground cover for planktivorous fish, clams, urchins, and a physical substrate for other invertebrates and algae. Kelps are the major primary producers in the marine nearshore and because they are located in shallow water they could be adversely impacted by oil spills and other human-related activities.



SWAN cooperator Susan Saupe, Cook Inlet Regional Citizens Advisory Council, uses a 0.25 m quadrat to document composition and cover of marine algae and seagrasses along the coastline of Katmai National Park and Preserve.

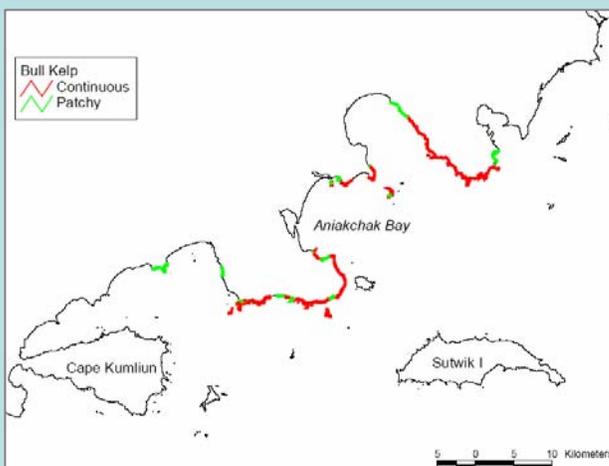
Sampling Design

Oblique aerial video imagery (Harper and Morris 2004) will be used to document broad-scale decadal changes in occurrence and distribution of canopy kelps, eelgrass, and surfgrass along the entire length of the SWAN coastline. Vertical aerial photography and ground-based quadrat counts will be used to document smaller-scale annual changes in species composition, distribution, and relative abundance of kelps and seagrasses within intensively sampled blocks in KATM and KEFJ (Bodkin and Dean 2006).

Current and Future Monitoring

In 2006, 5 permanent ground transects were established along the KATM coastline for monitoring change in kelp and seagrass on sheltered rocky shorelines. Eight ground stations were visited along the ANIA coastline to verify ShoreZone imagery and create a species list.

During 2007, permanent ground transects will be established and surveyed at KEFJ and annual monitoring will continue at KATM. Low-level aerial vertical photography will be tested at KATM to monitor annual changes in aerial coverage of canopy kelps and seagrasses.



Distribution of bull kelp (*Nereocystis luetkeana*), along the Aniakhak National Monument coastline, ShoreZone mapping survey 2003. Bull kelp is an annual canopy-forming macrophyte that forms extensive offshore beds.

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Bodkin, J. and T. Dean. 2006. Nearshore marine monitoring protocol, *In review*, Southwest Alaska Network

Harper, J. R and M.C. Morris. 2004. ShoreZone Mapping Protocol for the Gulf of Alaska (Ver 1.0), Coastal and Ocean Resources Inc. Sidney, BC