



Alagnak

Aniakchak

Katmai

Kenai Fjords

Lake Clark

# Kelp and Eelgrass

Resource Brief

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## Importance

Kelps and eelgrasses are “living habitats” that serve as nutrient filters and provide understory and ground cover for planktivorous fish, clams, urchins, and a physical substrate for other invertebrates and algae. Kelps and eelgrasses also provide spawning and nursery habitats for forage fish and juvenile crustaceans. Kelps are the major primary producers in the marine nearshore and because they are located in shallow water, they are prone to be more impacted by oil spills and other human-related activities. Other potential stresses include activities that disturb the beds directly such as dredging and anchor scars, and events that reduce the ability for light to penetrate into the water column, such as runoff (increased turbidity) or nutrient addition.



## Long-term Monitoring

Intertidal kelps have been monitored annually at five sites in Katmai NPP (KATM) since 2006 and Kenai Fjords NP (KEFJ) since 2008. Percent cover of algae and sessile invertebrates is estimated from random point counts collected at 1.5 m and 0.5 m tidal elevations. Power analyses of percent cover data is being conducted to determine the sampling intensity necessary to detect biologically meaningful trends. Results from these analyses will help SWAN staff determine future sampling intensity for long-term monitoring. Eelgrass sampling occurs within a designated section of an eelgrass bed; percent cover is estimated through presence / absence determinations using an underwater video camera. Data collection and analysis methods are still being tested to determine the most suitable procedures to detect changes in eelgrass cover over time.



Dr. Allan K. Fukuyama, FHT Environmental, and Laura Phillips, KEFJ biologist, estimate eelgrass percent cover using an underwater camera and digital data display.

## Discussion

Relative abundance of kelps varies by park and tidal elevation, but *Fucus* spp. and *Alaria marginata* are the most abundant species. Notable differences between parks were observed at the lower (0.5 m MLLW) tidal elevation, with a greater percent cover of *Fucus* spp. at KEFJ and greater cover by *Alaria* at KATM. The only notable trend over time was an increase in cover by *Fucus* spp. at both 0.5 m and 1.5 m tidal elevations at KEFJ between 2008 and 2010 (Fig. 1). The mean abundance of *Fucus* spp. at both elevations at KEFJ sites more than doubled over this time. It is yet to be determined if this is a meaningful long-term trend. As for eelgrass monitoring, the percent of observations with eelgrass present is very similar between parks and there is no apparent indication of a trend (increasing or decreasing) at this time.

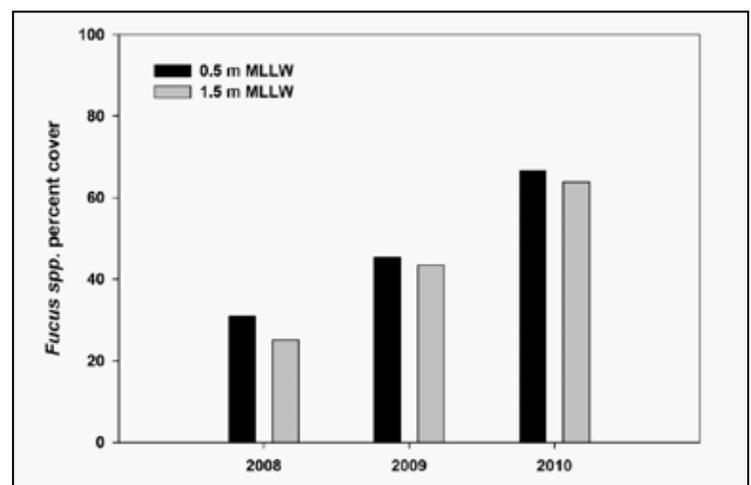


Figure 1. Between 2008 and 2010, percent cover of *Fucus* spp. has more than doubled at both the 0.5 m and 1.5 m mean lower low water (MLLW) in KEFJ. There is no apparent trend in KATM (data not shown).