



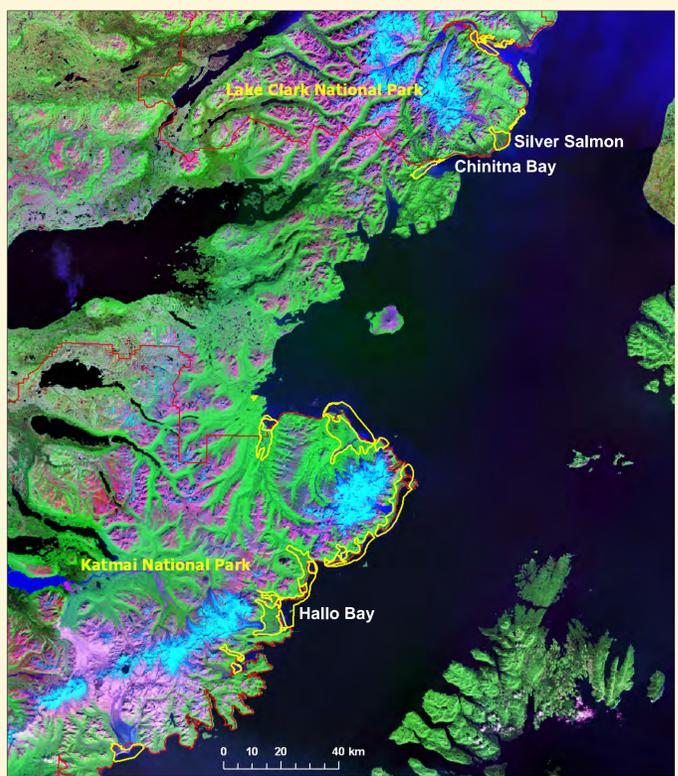
# Monitoring Salt Marshes in the Southwest Alaska Network of National Parks



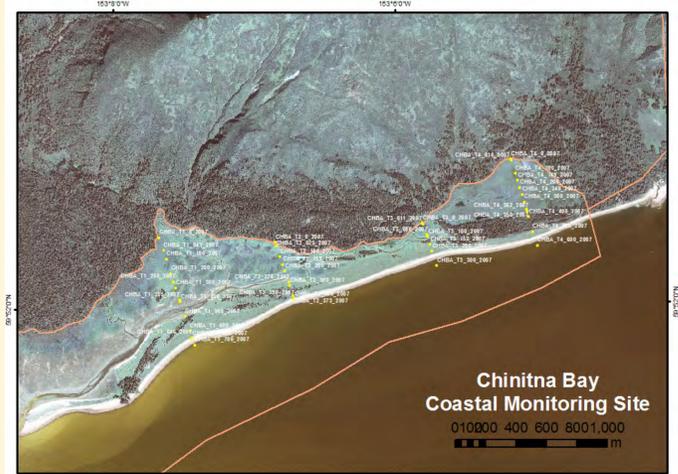
## Abstract

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Salt marshes are among the most productive ecosystems in the world. The sheltered salt marshes and tidal flats associated with coastlines of Southwest Alaska are important ecological features because they support productive, high-quality forage that serves as important feeding and resting habitat for brown bears, waterfowl, and shorebirds. They are abundant in Tuxedni Bay, Chinitna Bay, Silver Salmon, Kamishak River Delta, Douglas River Delta, Swikshak River Delta, and Hallo Bay along the coasts of Lake Clark (LACL) and Katmai (KATM) National Park and Preserves. A long-term monitoring program was initiated in 2007 to quantify changes in the physical (topography, soil temperatures, water levels and storms, sedimentation), chemical (salinity and pH), biological (vegetation, bears), and disturbance (debris and trails) components of terrestrial coastal ecosystems. The sampling design for the monitoring consists of a nested approach, using extensive and intensive ground measurements and remote sensing techniques. The nested sampling design included: (1) stratification of coastal landscapes along the KATM and Cook Inlet coast using subsection mapping; (2) establishment of equally distributed monitoring transects oriented perpendicular to the coastal gradient; and (3) systematic allocation of monitoring plots every 100 m along the transects. In addition, subjectively placed plots were established along the transects in uncommon vegetation communities to increase their sample size. Coastal subsections dominated by salt marshes that were selected include the Chinitna Bay tidal flats and Silver Salmon in LACL, and Hallo Bay in KATM. Fieldwork was conducted at Chinitna Bay and Silver Salmon in 2007 at Hallo Bay in 2008.

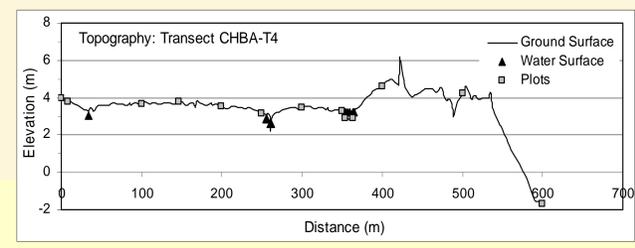


Location of coastal monitoring sites within coastal subsections along the LACL and KATM coasts.

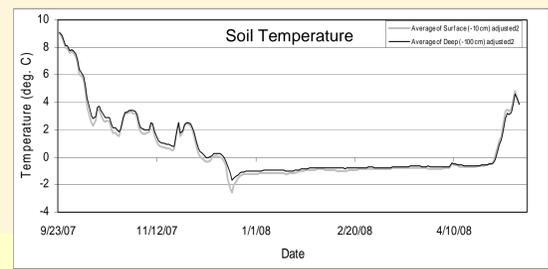


Distribution of monitoring plots along four transects at Chinitna Bay, LACL

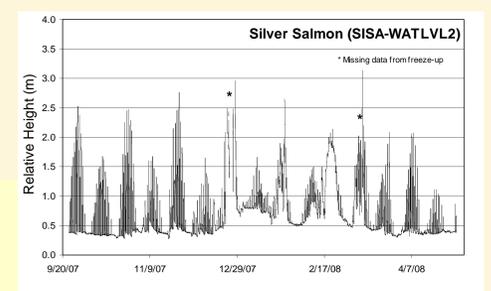
## Topography



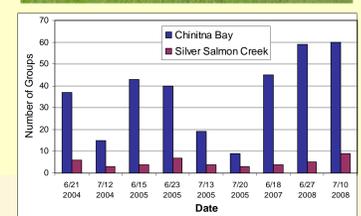
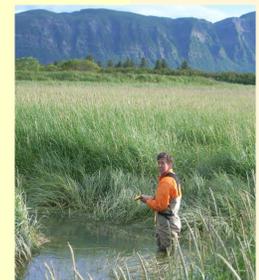
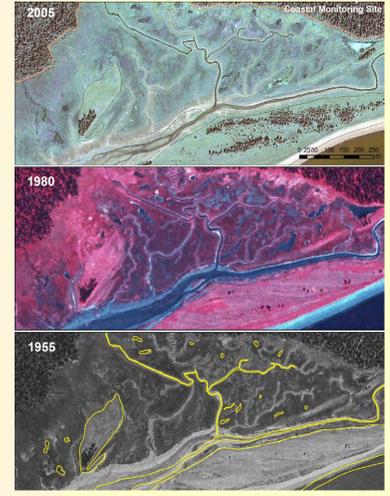
## Microclimate



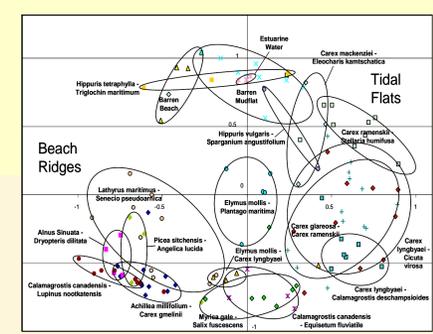
## Tides / Storms Surges



## Remote Sensing



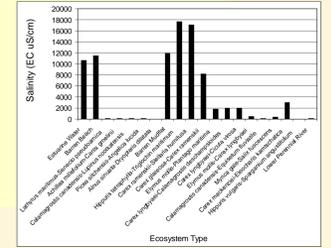
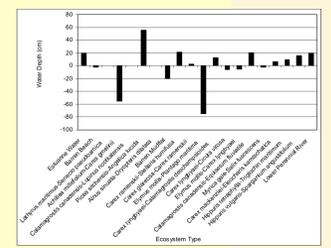
## Bears



## Vegetation



## Sedimentation



## Salinity