

Project Summary

Rocky Mountains Cooperative Ecosystem Studies Unit

Project Title: Coastal Change in the Southwest Alaska Network
Discipline: Natural
Type of Project: Research
Funding Agency: National Park Service
Other Partners/Cooperators: University of Colorado at Boulder and Denver
Effective Dates: 9/1/2006 - 12/31/2008
Funding Amount: \$39,959

Investigators and Agency Representative:

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Project Abstract:

This project is phase 1 of a cooperative venture between the Southwest Alaska I&M Network of the National Park Service and University of Colorado, Boulder related to the extent and causes of coastal erosion in SW Alaska parks. Shoreline change was identified as a vital sign for the Southwest Alaska Network (SWAN) because land loss or gain at the marine edge has important ecological and jurisdictional implications. The physical configuration of the SWAN coastal shoreline is dynamic and constantly changing due to coastal erosion and accretion from natural events, such as storm-driven waves, high tides, nearshore currents, rainfall and runoff, landslides, and earthquakes. Changes in the position of the shoreline affect the composition, relative abundance, and distribution of coastal habitats. Shoreline position also has implications for park management and affects cabins and other structures along the coast.

The purpose of this project is to develop a strategy for long-term shoreline change analysis based on a time series of rectified aerial photographs extending as far back as the 1950's. The plan will include details for a consistent shoreline reference feature (SRF) -- digitized from the photos in a GIS -- to quantify the migration of the SRF over time. During the phase 1 of the project the NPS and CU-Boulder cooperators will develop a full study plan and begin review of all aerial photography and IKONOS imagery available for the SWAN coastline. They will identify additional sources of imagery and scan and create digital images of available photographs. An additional task will be to select target segments of shoreline for change analysis.

Outcomes with Completion Dates: Study plan and work schedule due 1 October 2007, and progress report that includes recommendations for additional imagery acquisitions and candidate segments of shoreline for change analysis [due August 31, 2007]

Keywords: Inventory and Monitoring Program, coastal erosion, aerial photos, Southwest Alaska I&M Network, Lake Clark National Park and Preserve, Katmai National Park and Preserve, Aniakchak National Monument and Preserve, and Kenai Fjords National Park, University of Colorado at Boulder

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