



Resource Management Highlights

2018

New Species Discovered!

A new species to science was discovered in Exit Glacier Campground in 2015. The lichen species is called “*Acarospora toensbergii*.” Scientists named the species after Tor Tønsberg, a Norwegian lichenologist, who was part of the Southwest Alaska Inventory and Monitoring Network’s lichen inventory team, who collected the specimen. The lichen inventory is part of the network’s effort to document various species in the park. New discoveries like these show the invaluable nature of these inventories to science, and that there is still a vast unexplored world waiting to be discovered in our parks.



The new species of lichen, *Acarospora toensbergii*. Photo courtesy of K. Knudsen.

Bear Glacier’s Ice-dammed Lake

In 2017, the park and State of Alaska installed a remote timelapse camera to actively monitor the ice-dammed lake adjacent to and beneath Bear Glacier. This was done to better understand the glacial lake outburst flood that results when this lake drains. The camera takes a daily photo and emails it via satellite. Photos from 2017 have been compiled into a video illustrating active filling and rising of the ice-dammed lake; however, the lake has yet to drain. The camera remains in place, and a second camera will be installed next to Bear Glacier lagoon by the glacier’s terminus again this summer to record the results of a drainage event at both locations.



Sampling water for the aquatic invasive weed, *Elodea*. NPS Photo/C.Kriedeman.

Invasive Plant Management

The park’s invasive plant management team will be controlling invasives for the 14th summer in 2018. In 2017, we surveyed 58.7 acres and controlled 1.64 acres. Several invasive plant populations are candidates for complete eradication this year! We will also continue to survey for the invasive aquatic plant *Elodea*. The park has three freshwater lakes at risk of infestation by *Elodea*, which can spread rapidly and outcompete native aquatic plant species. We will conduct rake throw surveys and use sampling method called environmental DNA (eDNA) to analyze water samples for *Elodea* DNA to detect infestations. Outreach efforts will continue with our partners at the Kenai Peninsula Community Weed Management Area, and we will host the Seward community weed pull again this summer—last year, 266 pounds of bird vetch (*Vicia cracca*) were pulled at Seward Middle School.



Installing the Bear Glacier ice-dammed lake camera. NPS Photo/B. Briceland.

Archeology

Fieldwork for a Cultural Landscape Report of the Nuka Bay Historic Mining District is planned this summer, and will include an intensive inventory of previously recorded Nuka Bay mining sites. Many of these pre-World War II mines have not been archeologically documented for several decades. This project will reassess their condition and record the sites to today’s archeological documentation standards. The final Cultural Landscape Report will have two parts: a summary of the analysis and a treatment plan for each site. The park is also continuing its ongoing process of determining eligibility and nominating archeological sites to the National Register of Historic Places. National Register nominations have been submitted for two coastal archeological sites. The National Register details important sites for posterity and applies additional protections for these irreplaceable resources.



Pelton wheel at Nuka Bay mine site. NPS Photo.

Extra! Extra!

The *Historical Atlas of Seward, Alaska* book following Seward’s downtown district development through historical images and maps is now available at park headquarters.

Bald Eagle Nest Productivity

Each year, bald eagle (*Haliaeetus leucocephalus*) nest occupancy and productivity surveys are conducted in summer along the coastline of Kenai Fjords as an ongoing vital-signs monitoring program through Southwest Alaska Network (SWAN). In 2017, a total of 95 nests were located out of the 100 nests expected from previous years. Four new nests were located for a total of 99 known nests, 34 of which were occupied by one or more adult bald eagles. Nest productivity surveys located 33 out of the 34 occupied nests, with 11 having successfully reproduced offspring. Although, statistically, the number of productive nests this year is not significantly different from other years, nest productivity in 2017 was the lowest on record since monitoring began in 2010, and occupied nests were two-times less successful than all other years. Continued monitoring efforts and rigorous data analysis will help park and SWAN scientists determine the stability of this population into the future.



Bald eagles nesting. NPS Photo/K. Thoresen.

SWAN Inventory and Monitoring

The Southwest Alaska Inventory and Monitoring Network (SWAN) monitors specific vital signs that represent key indicators for the health of park ecosystems at Kenai Fjords, Katmai, Aniakchak, Lake Clark, and Alagnak Wild River. Kenai Fjords vital signs monitoring focus on **marine nearshore, weather, bald eagles**, glacier extent, nunatak vegetation, spruce-hemlock forests, and freshwater lakes. The marine nearshore includes **black oystercatchers, kelp, intertidal invertebrates, eel grass, marine birds, sea otters, and marine water chemistry**. (Bold vital signs are monitored annually.)



Southwest Alaska Network



These two photos, while not entirely matched in perspective, still give a sense of how much change had occurred for Exit Glacier terminus between May 2014 until May 2017. NPS Photos.

Exit Glacier Terminus Position & Scenario Discussions

From October 2016-October 2017, Exit Glacier retreated approximately 70 m (around 230 ft). This followed the largest annual retreat recorded in the previous year (spring 2016-October 2016) of 78 m (256 ft). Thus, in just two years, Exit Glacier retreated over 148 m (486 ft)! In comparison, from 1974-2004, Exit Glacier only retreated around 56 m (184 ft) over the 30 year span. The park will be leading Scenario Discussions based on the concept of “Scenario Planning,” a way of considering strategies for different possible futures in a structured way.

Acoustic Bat Monitoring

So far, the little brown myotis (*Myotis lucifugus*) is the only bat species found on the Kenai Peninsula. Currently, the park is working with Alaska Department



of Fish and Game, Chugach National Forest, Kenai National Wildlife Refuge, and the Alaska Center for Conservation Science to expand bat monitoring. The park will be inventorying for bats across coastal fjords to document bat distributions and identify summer roosts and hibernacula. These inventories will tie into future efforts to monitor for White-Nose Syndrome, a disease that has decimated bats in the Lower 48 states and has the potential to spread to Alaska.

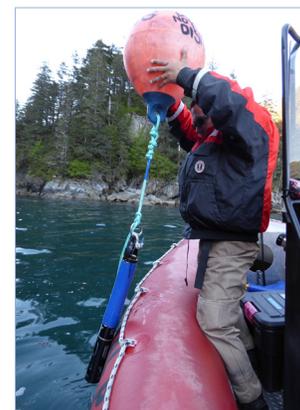
Setting up an acoustic bat monitoring station. NPS Photo/K. Mocnik.

Freshwater Monitoring

In August 2017, Southwest Alaska Network (SWAN) measured water quality in Delight and Desire Lakes near the East Arm of Nuka Bay. For each lake, measurements were taken along a vertical profile at fixed depth increments near the lake center. Measured variables included water temperature, pH, conductivity, turbidity, and dissolved oxygen. This was the SWAN’s second measurement of these lakes, following an initial visit in 2014.

Glacial Influences on Marine Nearshore

In 2017, U.S. Geological Survey and NPS began a project to understand glacial influence on the marine nearshore environment. Continuous oceanographic measurements were taken at two stations located at each end of Aialik Bay. Monthly point measurements were also taken of salinity, temperature, turbidity, and aragonite saturation at sites distributed along the length of the fjord. In 2018, researchers will continue this work and expand point oceanographic measurements into Northwestern and McCarty fjords.



Placing equipment to measure oceanographic properties NPS Photo/D. Kurtz.