United States Department of the Interior

National Park Service

Lake Clark National Park and Preserve

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Program Updates Fall 2020

Lake Clark National Park and Preserve

Southwest Area Inventory and Monitoring Network (SWAN)

SUBSISTENCE DIVISION, LIZA RUPP (907) 644-3648

Lake Clark National Park Subsistence Resource Commission

- The Lake Clark Subsistence Resource Commission met via teleconference on September 30, 2020. If safety considerations permit, the next meeting will be in Newhalen or Iliamna or else via teleconference in Spring 2021.

Subsistence Research Project: Changing Subsistence Use of Beavers in Lake Clark: Cultural and Ecological Implications

- Fieldwork is currently planned for late August and September 2020 to conduct fish and water quality sampling in the Kijik area. Work will include sampling above and below dams, to assess changes caused by beaver damming. In October, we will be conducting aerial surveys to count active beaver dams throughout the Lake Clark basin.

Subsistence Research Project: Transference of Subsistence Knowledge to the Younger Generation and between the Communities of Nikolai and Nondalton

- This project aims to promote the exchange of contemporary and traditional subsistence practices between Denali (Nikolai) and Lake Clark (Nondalton) communities, by documenting traditional knowledge about changing subsistence practices, the cultural connections between Nondalton and Nikolai, and the transmission of knowledge between youth and elders. No fieldwork was completed this summer, but the project leads continue writing the script for the 12 minute video detailing their research methods. Filming will take place in 2021.

Coastal Bear Survey

- On July 15, 2020, park staff conducted a bear trend count of coastal salt marsh areas. The flight resulted in 289 brown bears observed, which is the second highest total among 33 surveys. Last year's survey on July 12, 2019, resulted in 31 brown bears observed which is the second lowest total observed among all previous surveys. The differences in observations between these surveys demostrate how the variability in weather and senescence of the salt marsh meadows likely influences bear use of these areas.

Newhalen River Counting Tower

- Monitoring on the Newhalen River has been ongoing since 2000 and provides managers and subsistence users with information on salmon escapement, run timing, and population characteristics. This year, the return was about 460,000 sockeye salmon, which was 15% greater than the 20-year average of 400,000 sockeye salmon. Despite a later run into Bristol Bay and into Iliamna Lake, the run timing at the Newhalen River was only about one day later than average. This fall we plan to compare our visual counts with sonar data collected at the site.

Telaquana River Weir

- This was the 11th year of this collaborative project with the state of Alaska and provides a reliable estimate of salmon escapement to one of the few lake-rearing sockeye salmon populations in the Kuskokwim River drainage. Despite a relatively low return to the Kuskokwim River drainage, this year's return to Telaquana (175 thousand sockeye salmon) was the third highest escapement recorded since 2010 and about 2 times the 10-year average of 87,914 sockeye salmon.

Mercury in lake food webs

- This collaborative 3-year project with the NPS and U.S. Geological Survey will build on previous sampling efforts in the region and will examine the bioaccumulation of mercury through lake food webs in target lakes within Lake Clark NP&P, Wrangell Saint Elias NP&P, and Gates of the Arctic NP&P. Fieldwork is currently planned for September 2020 and will assess the accumulation of mercury in lake trout, associated prey species, zooplankton, and phytoplankton in Kontrashibuna Lake. Because of logistical difficulties only one lake will be sampled this year.

Aquatic Plant Monitoring

- Fieldwork is currently planned for September 2020 to conduct aquatic plant surveys and vegetation mapping in Lake Clark waters to evaluate the presence of Elodea, an aquatic invasive to Alaska.

CULTURAL RESOURCES DIVISION, LIZA RUPP (907) 644-3648

Many of our projects were not able to take place this summer due to COVID-19, but we continued working with researchers and collaborators to plan for work in 2021. The projects that we hope to restart next year included the Quk' Taz'un Outdoor Leadership Camp, Kontrashibuna/Upper Tazimina Lake Archeological Phase I Survey, Dena'ina Women Life Histories and traditional squirrel camp, and Place Names of the Lake Clark Region.

Kijik National Historic Landmark Cultural Landscape Report

- In 2019 the park began a multi-year project to document the Kijik NHL cultural landscape and to develop a framework to manage the site that is informed by the perspectives and values of Dena'ina communities. We hope that the project will also clarify the roles and responsibilities of the NPS and Dena'ina communities in collaboratively managing the NHL in the future – for the benefit of all stakeholders, including non-Native resident zone communities and park visitors in addition to tribes. The project will also help to identify interpretive and educational opportunities for Dena'ina and other youth, and visitors. The park held an initial consultation meeting with park-associated tribes in February 2020.

Telaquana Trail Cultural Landscape Report

- In September the park received the draft final report of the Telaquana Trail Cultural Landscape Report. This is the culmination of a five-year collaborative project with researcher Dr. Doug Deur of Portland State University. The report details the cultural significance to the Inland Dena'ina of the landscape of Telaquana Trail, as well as describing features and resources along the route. The report also offers suggestions for future management of the landscape including continued close collaboration with Dena'ina villages and corporations, enhanced educational and interpretive opportunities about the trail and further documentation of archeological resources associated with the landscape.

Twin Lakes Cultural Landscape Report

- In 2019, the park contracted with a landscape architecture firm, Mundus Bishop Inc., to write the Cultural Landscape Inventory/Cultural Landscape Report for the Twin Lakes area. Members of the Mundus Bishop team visited Twin Lakes in September of last year and have been working with park staff to develop the draft report over the past 11 months. The draft report was submitted to the park's tribal partners for consultation and comment. When the report is complete it will present an introduction to the cultural landscape, and detail the history of the area, and the existing conditions in the Twin Lakes Region. It will also present recommendations for managing the landscape in the future.

Two projects, bald eagle surveys and vegetation monitoring in spruce woodlands, were put on hold in 2020 due to COVID-19 but are expected to resume in 2021. Several other non-field based projects were completed over the spring and summer, including a story map that documented the 2015-2016 seabird die-off in the Gulf of Alaska; a paper on the effects of warming lake temperatures on lake trout in Lake Clark National Park and Preserve; a paper outlining an interagency review of our bald eagle survey methods; and a report on salt marsh monitoring conducted in 2007 and 2018 on the coast of Lake Clark. A new project examining interactions between brown bears, sea otters, and bivalves (clams, mussels) along the coast of Lake Clark was funded in 2020 and will begin field work in 2021.

Lake Temperature Monitoring

- Lake temperature has been monitored year-round in Lake Clark since 2006, and in Kijik Lake since 2010. In 2017, temperature monitoring also began in Telaquana Lake. In 2020, the freshwater crew was based in Port Alsworth and monitoring continued at all three sites. The monitoring relies on the use of programmable data loggers attached at various depths to moored vertical temperature arrays. Data from the temperature arrays allow tracking of freeze-up and break-up dates, lake stratification, and large-scale wind events, all of which influence lake productivity. Additional water quality measurements, including pH, dissolved oxygen, specific conductivity, and turbidity, were measured hourly at the outlet of Lake Clark over the course of the summer (June-September), and at 30 points on the lake once per summer (July). In addition, temperature loggers installed at a number of stream and beach locations measured water temperatures where sockeye salmon spawn.

Climate

- Three of Lake Clark's five remote automated weather stations (RAWS) have received or been scheduled for annual maintenance into October 2020

Glaciers

- Glacier Delineation; Changes in the area of Alaska's glaciers, including those in Lake Clark National Park and Preserve, are being mapped for the time period of 1984 to present using all available satellite imagery and supercomputer processing. This work is in process and is being done in collaboration with researchers at Oregon State University.

- Coastal Glacier Recession; A study on the impacts of tidewater glacier recession on coastal aquatic-associated ecosystems will start this fall. The study will begin by compiling baseline data from locations with recent tidewater or near-coastal glaciers that have since receded. This project will allow us to better understand the impacts on coastal ecosystems and the species that depend on them. Work on this project will be done in collaboration with researchers at Oregon State University.

INTERPRETATION, PARTNERSHIPS, AND PUBLIC AFFAIRS, MEGAN RICHOTTE (907) 644-3639

Interpretive and backcountry staff did not deploy to the field this summer because of health and safety concerns. Instead, staff were able to use the time to focus on improving training, interpretive programming, and resources for commercial guides. A new training resource for commercial guides on the west side of Cook Inlet will be available starting next Spring called *Discovering the West Cook Inlet Coast: A Guide for Guides*. Staff also developed new programs for delivery at Dick Proenneke's Cabin at Upper Twin Lake. Those will be delivered at the cabin starting in 2021.

Park Film Contract Awarded

- The park has awarded a contract to North Shore Productions out of Portland to create a park film for Lake Clark. This will be a three-year project that will result in an hour long film for broadcast and a thirty minute film for use in the park. Park staff are currently working with the filmmakers to plan tribal consultation meetings and workshops with park staff to develop the film's content. The earliest filming would start in the park is August of 2021.