United States Department of the Interior

National Park Service

Lake Clark National Park and Preserve

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Program Updates Fall 2024

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 in Iliamna on April 14, 2024. The fall meeting will be in Port Alsworth on September 28, 2024.

Subsistence Harvest Surveys of Port Alsworth and Nondalton

- Through funding provided by the National Park Service (NPS), the Alaska Department of Fish and Game (ADF&G) Division of Subsistence conducted a comprehensive survey of both Port Alsworth and Nondalton in March 2022. These surveys document the harvest and use of wild resources by resident zone communities in Lake Clark National Park and Preserve. Final results are being tabulated and will be presented to the communities and to the NPS in 2025.

NATURAL RESOURCES DIVISION, BUCK MANGIPANE (907) 717-7044

Coastal Bear Survey

- In May, park staff completed a bear capture effort on the coast of Lake Clark as part of the coastal ecology project, “Where the land meets the sea: A case study of bear use of intertidal invertebrates during a period of sea otter recovery.” Over the capture period, 10 bears were captured and 9 fitted with GPS radio-collars. The 10 bears included 6 brown bears and 3 black bears. Bears were physically examined, and a suite of samples collected that will be used to assess their diet and health. Collars record bear locations every 1.5 hours. This is the final year of bear work for the project and brings the total to 36 captures over the duration of the study. The bears captured in 2024 will provide additional data to monitor bear movements and use pattern of the coastal system. Collars are programmed to release from the bears in late September.

- Two coastal bear trend counts were completed in the summer of 2024. On June 27, 2024, park staff flew a survey of the coastal salt marsh areas. The flight resulted in 177 brown

bears observed, which is slightly below the average of 18 prior late June surveys (Between June 15 and June 30). The second survey was completed on July 24, 2024, and 110 brown bears were observed. Only 4 surveys have been completed in late July (July 16 – July 30), with an average of 93 bears observed, so the 2024 data is above average. Last year's survey occurred in August, and observed 112 bears, similar to this years late July survey. It is possible that bears are using the salt marsh areas later into the season in recent years, but additional data will be needed to assess this trend.

Soundscape Monitoring

- Soundscape monitoring continued in 2024, with data collection being the last planned for the project. Sites in 2024 were chosen to improve the spatial and temporal distribution of monitoring locations. New stations were deployed at Upper Tazimina Lake, Lachbuna Lake, Kontrashibuna Lake, Caribou Lakes, Kenibuna Lake, and Drift River. We have one final deployment planned at Shelter Creek along the coast. We anticipate a final report to be completed on the project in 2025.

Chinitna Bay Clam Sampling

- In May and June, park staff, in partnership with ADF&G, estimated Pacific razor clam density, size, distribution, and age classes at Chinitna Bay. This was a continuation of sampling efforts started in 2021. Preliminary data estimate 1.0 million adult Pacific razor clams and 1.2 million juvenile Pacific razor clams. Clams collected for age and size will be analyzed by the Alaska Department of Fish and Game during this coming winter.

Newhalen River Counting Tower

Monitoring on the Newhalen River has been ongoing since 2000 and provides information on salmon escapement, run timing, and population characteristics. The 2024 estimated escapement was about 820,000 sockeye salmon, which was approximately 12% of the total Kvichak River return of 6.6 million. This year's escapement to the Newhalen River was the highest total since 2000 and more than double the 20-year average of 390,000 sockeye salmon. Run timing was later than average with the beginning of the run arriving approximately a week late and the mid-point 2 days later than average.

Telaquana River Weir

- This was the 15th 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. This year's return to Telaquana was 111,154 sockeye salmon representing 16% of the total estimated escapement past the Kuskokwim River sonar and was 24%below the 10-year average. Estimated escapement for Chum salmon and Chinook salmon were 33 and 41, 66% and 57% lower than average respectively.

Dragonfly and Mercury Monitoring

- Park staff continued their monitoring of dragonflies in waterbodies throughout the park. This sampling effort was part of a nationwide Dragonfly Mercury Project that has

sampled over 500 sites since 2014. This season, staff collected dragonfly larvae from three water bodies including the Beaver Pond near Port Alsworth, and two water bodies along the Lake Clark coast. Samples will be processed by the U.S. Geological Service and will provide an assessment of environmental mercury contamination in the park in relation to sites throughout the country.

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

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. The goal is also to 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 second and final consultation meeting was held in April, 2024 and the park is reviewing the report. We hope to print the final report in 2025.

SOUTHWEST ALASKA INVENTORY AND MONITORING NETWORK,
AMY MILLER (907) 644-3683

Water Quality 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 2024, 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 multiple points on Lake Clark and nine smaller lakes over the course of 1-2 days in July. Lastly, temperature loggers installed at a number of stream and beach locations around Lake Clark measured water temperatures where sockeye salmon spawn.

Surface Hydrology Monitoring

- Streamflow near the outlet Lake Clark has been estimated since 2009 by measuring water levels hourly during the ice-free portion of the year. In 2014, a second streamflow monitoring site was established near the outlet of Kijik Lake. This work continued during the 2024 field season. The data are useful for understanding patterns observed in aquatic systems because streamflow affects many processes, from nutrient loading to the timing and success of fish spawning.

Weather Stations

- All five of Lake Clark's remote automated weather stations (RAWS) have received annual maintenance in 2024. The stations are located at Snipe Lake, Silver Salmon Creek, in the Chigmit Mountains, near the Stoney airstrip, and in Port Alsworth.

Vegetation Monitoring

- Vegetation monitoring in Lake Clark provides information regarding long-term changes in species richness, cover and diversity across a range of vegetation types. In 2024, we revisited five sites in the alpine and near treeline in the Caribou Lakes area.

Cold Water Refugia

- In July, 2024, we began a new project to identify the areas of cold water refugia in Lake Clark National Park and Preserve. Cold water refugia are important freshwater locations where fish species can find relief as water temperatures approach or exceed thermal thresholds. Initial efforts used aerial surveys flown with an infrared camera to map the spatial distribution of thermal refugia in 11 salmon streams, Including parts of the Necons, Chilikadrotna, Mulchatna, Telaquana, Kijik, Little Kijik, Tanalian, Tazimina, Newhalen, and Johnson rivers, as well as Silver Salmon Creek.. Future efforts will assess the persistence of these areas through time using additional surveys and water temperature loggers.

Bald Eagle Surveys

- Lake Clark supports large populations of bald eagles. In May, June, and July 2024, bald eagle surveys were flown in LACL to nesting occupancy and determine nest productivity. The early occupancy surveys were completed in May and June, with the late productivity survey completed in late July. Data is currently being processed with results pending.