

Kugaaruk, ᐃᓄᓴᓴ, “Little stream”

Introduction

Kugaaruk is located on the southwest shore of the Simpson Peninsula, on the east side of Pelly Bay in the Kitikmeot region. In 2016 the population was 933. The wildlife economy plays an important role in Kugaaruk, with many residents supporting themselves by hunting, fishing, trapping, and gathering. Community members also participate in wage-based economic activities¹. Important coastal resources in the Kugaaruk region include bowhead whales, narwhals, seals, polar bears, and Arctic char, with residents sometimes travelling long distances to reach hunting and fishing grounds². The community’s hunting and fishing area includes Pelly Bay, Boothia Peninsula, Committee Bay, Rae Strait, and The Gulf of Boothia². Current there are no national or territorial parks located near Kugaaruk, however, several fishing and hunting camps exist nearby.

Community Restoration Priorities

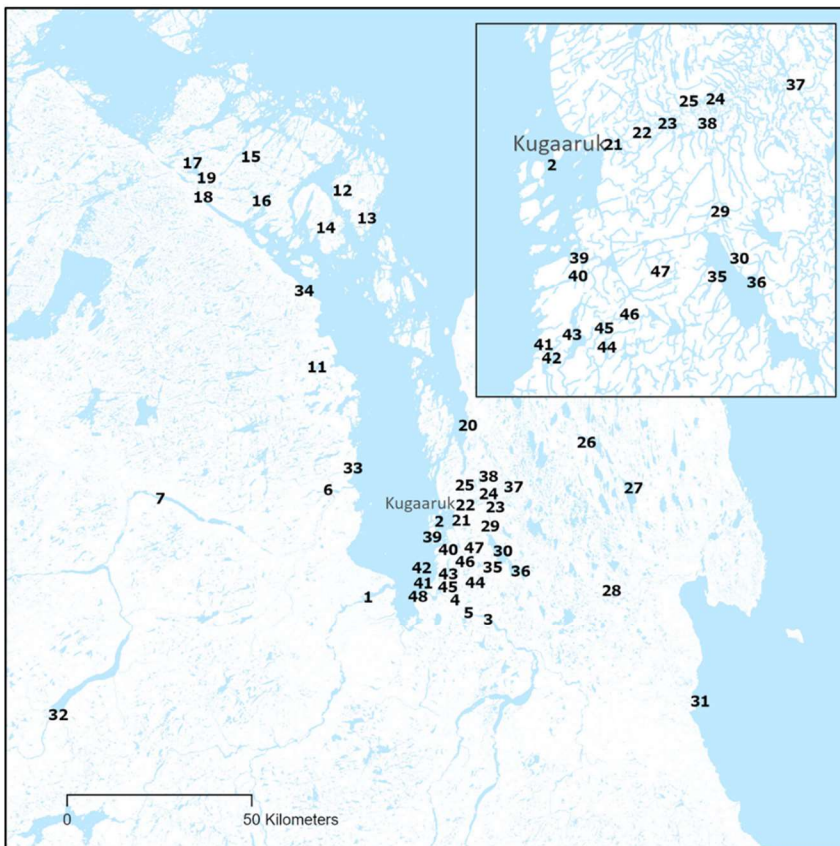
1. The restoration of key fishing rivers and monitoring of water quality and fish health in local waterbodies, as water levels are too low, and rivers are drying up - remediation action and new infrastructure will be required; and 2. Observed changes in water quality and fish health in some areas have been noted for awhile. A community-led water quality and fish health monitoring programs should be put in place.

Community Map and Workshop Highlights

The CRN research team visited the community in March 2019.

Kugaaruk

Map Legend



-  **Harvesting areas:** 1 Commercial quota, 3 Key char migration route; main char and white fish fishing site, 6 Commercial quota - 2000, 11 Potential commercial quota; need stock assessment, 17 Abundant sea-run char; lake trout, 21 Seal abundant at mouth of Kugaaruk River, 23 Key char fishing site – gill nets, 25 Fish weir, 26 Abundant lake trout, 27 Abundant, bug lake trout; DEW line lake, 28 Commercial quota – 9000, 33 Tourist river; char very healthy, 36 Barrow Lake: Char, land-locked char, lake trout, 37-38 Fish weir, 43 Two types of white fish, and 44-46 Commercial potential.
-  **Fish migration routes:** 2 Arctic flounder congregate near new islands and shoreline, 24 Char migrate from Kugaaruk River to these lakes, 29 Char migration route, 30 Fish migrating in and out in June every year, and 42 Fish migration route.
-  **Species change:** 4 Kellett River: closed to commercial fishing because char were getting smaller – or more juveniles, not enough adults), and 20 Crab legs and mussels in stomachs of bearded seal – not seen along shoreline, only in stomachs.
-  **Contamination:** 5 & 22 Test for mercury – main fishing site.
-  **Water issues:** 8-9 Rivers drying up, 10 Shallow area – too shallow for commercial boats; bearded seals, 12-13 River drying up; char migration route; big char, 14 Water levels decreasing, 15-16 River drying up; char migration route, 18-19 River drying up; char migration route, 34 River drying up, 39-40 Too many rocks, and 41 Fish get stuck.
-  **Ice changes:** 31 Committee Bay: Packed with multi-year ice every summer.
-  **Debris and garbage:** 32 Abandoned barrels – empty.
-  **Building or structure:** 35 Old runway and 47 Old DEW line – closed 1992.
-  **Erosion:** 48 Island disappeared years ago due to erosion.

Literature Review

Kugaaruk is characterized by coastal mountains and well-vegetated lowlands with several lakes, rivers, and ponds throughout the region, which provide important habitat for a variety of plants and animals². Land-fast lead systems are areas of separated land-fast ice and pack ice and can be found throughout this region². Overall, Arctic temperatures are increasing and recently much of Nunavut experienced unseasonably warm summer temperatures³. Residents are also experiencing milder winters and fewer extreme cold temperatures⁴. Due to glacial retreat in Kugaaruk, the land is rebounding to its former height, resulting in what appears to be declining sea levels⁵.

Attributes	Examples of Environmental Changes and Observations
Sea ice and Multi-Year Ice (MYI)	<ul style="list-style-type: none"> Longer ice-free seasons, less MYSI and increased unpredictability of conditions⁴. In 2015 sea ice appeared to be getting thinner compared to previous years and cracks in the ice seemed to be getting wider². Residents have reported an increase in 'rotten ice' or ice in an advanced stage of break-up⁶. Others have noted that more icebergs and rough ice in 2015 made it difficult to hunt⁴.
Season events	<ul style="list-style-type: none"> Snow is melting earlier and/or quicker in the region and there is a shorter duration of freshwater ice⁴.
Permafrost	<ul style="list-style-type: none"> Permafrost is melting⁴.
Weather	<ul style="list-style-type: none"> Residents witnessed more freezing rain, which covers ground vegetation in an ice layer and can prevent caribou from foraging that can lead to their starvation and death⁴. Members also reported increasing difficulty in predicting weather, which poses safety risks to hunting and fishing activities. Other changes include the strength and direction of winds, and the increase in frequency and intensity of storms⁴.
Freshwater levels	<ul style="list-style-type: none"> Residents have observed lower freshwater levels and that sea levels appear to be declining in the region⁴. Land uplift is leading to lower freshwater levels in lakes and rivers, which is affecting access to lake trout and Arctic char resources^{6, 7}.

Attributes	Examples of Ecosystem Changes and Observations
Polar bears	<ul style="list-style-type: none"> Polar bears have been observed on the western side of the Gulf of Boothia from Committee Bay to the northern part of the Boothia Peninsula and throughout Pelly Bay².
Seals	<ul style="list-style-type: none"> Ringed seals and bearded seals can be found throughout Pelly Bay². Ringed seals are also found in Lord Mayor Bay and Committee Bay where they form large groups when the ice melts². Bearded seals enter Pelly Bay in early summer and stay through winter, utilizing solid land-fast ice areas as haul-out locations⁴
Whales	<ul style="list-style-type: none"> Narwhals are common in the Kugaaruk region and are one of the whale species hunted by community members⁴. In the summer, bowhead whales enter Pelly Bay from the north². Beluga whales are less common but are now starting to come into this area².
Fisheries	<ul style="list-style-type: none"> Arctic char is abundant in Pelly Bay as well as several lakes and rivers near the community². Changes to the char include having reddish spots on their skin, mostly in areas with higher densities of fish⁴. Fish seemed different in taste, and the skin of char seemed to be getting thinner each year².
Birds	<ul style="list-style-type: none"> A decline in native bird populations, including ptarmigan, arctic tern, and eider ducks⁶. However, geese, falcons, and shore birds are found throughout Kugaaruk and the surrounding area².

Based on the Current Gaps in the Literature, Research Needs Include:

- Baseline and monitoring studies:** Monitoring the health and population status of marine mammals and fish in the region using Inuit Qaujimagatuqangit and Western science².
- Fisheries development:** Research on commercial fisheries and implementing feasibility assessments for the most suitable species to use for commercial harvest. An exploratory study to assess a turbot fishery².
- Shipping and transportation studies:** Update and improve Arctic waterway charts and increase mapping of Canada's Arctic to prevent accidents and protect important coastal resources⁸. Studies on potential impacts from Canadian Coast Guard vessels on seals, fish, and other coastal resources².

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