

# Baker Lake, ℅Lσ⁻⊃ຝ∿, Qamani'tuaq, "Where the river widens" Introduction

Qamani'tuaq is situated inland on the freshwater Baker Lake, and at the mouth of the Thelon River<sup>1</sup>. In 2016 the population was 2069. This area has always been a traditional gathering place for Inuit summer hunting and fishing. The community's hunting and fishing area includes Baker Lake, Chesterfield Inlet, the Thelon and Kazan Rivers, and Schultz, Aberdeen, and Tehek Lakes<sup>2</sup>. Opposition to uranium mining has a long history in Qamani'tuaq. It was the landmark Baker Lake Court case of 1980 that helped establish Inuit rights in the region and paved the way for the signing of the Nunavut Land Claim Final Agreement (NLCA) in 1993, which preceded the creation of the Nunavut Territory and the Government of Nunavut in 1999<sup>3</sup>. Over the past five years, the local economy has seen increased mineral exploration and development activity. The Thelon Wildlife Sanctuary covers an expanse of 52,000 square km (20,077 square miles) straddling the border of Nunavut and the Northwest Territories<sup>4</sup>.

## **Community Restoration Priorities**

At the time we visited the community, no urgent community restoration priorities were identified.

## **Community Map and Workshop Highlights**

The CRN research team visited the community in February 2019.

#### **Baker Lake** Map Legend Water issues: 1 Too shallow, can't navigate by boat anymore). 18 2 Water levels decreasing, so fish moving to deeper waters, 1 Water levels decreasing every year, land is rising), 14-16 Fish. 24 Fish migration routes: 3 Fish staying in lake, not migrating anymore, 4 Fish meet here before going to sea, 17 Char meet here, 18 & 19 Char upstream migration route, 20 & 21 Char overwintering site, 36 One giant trout repeatedly spotted by community members, 39 & 40 Sharks spotted when water calm - Greenland sharks?, 42 Char, trout Baker Lake 58 60 and unknown fish species, and 48 Increasing numbers of sculpin. ties change: 5-9 Unknown fish species [pike] since 2014, 12 Crabbing area since 1965, but decreasing since mother ship traffic increasing in the late 1960s onwards, 41 Sick fish, big heads with 39 small bodies. 50 Arctic char from Hudson Bay area very skinny now. maybe from increased marine traffic, **56** New species [ivitaroq: the fish that watches you]; like char but longer and skinnier, and 60 Used 13 49 19 Shipping issues: 13 Boat traffic mother ships 48 46 Building or structure: 22 Cabin for hunting, 33 Mine, 38 Water source for drinking, 47 Mother ship docking area; 4 or 5 ships anchor at a time during ice-free season - July to October, 55 17 Bridge, and 57 Sewage lagoo 4235 54 9 Harvesting areas: 30 Crabbing area since 1965 but decreasing 60 34 56 Lake55 47 37 39 38 since mother ship traffic increasing in the late 1960s onwards), 25 29 37 Jigging spot, 44 Local char fishing site, 45 Spring char fishing 57 40 36 48 46 3 18 12 30 28 site, and 54 Catch char by kakivak in June/July; char still very healthy, taste like saltwater / sea-run fish. 31 32 10 2014 or 2015: unsure if removed 49 Fish and water quality testing desired between Baker Lake and Chesterfield Inlet; sea 22 mammals decreased once mine opened in 2010), and 58 Sewage travels along route; want sand around the lagoon so doesn't leech into the lake. 15 al Migration: 32 & 43 Some seal and walrus still appear if not too much ship noise, and 46 Killer whales and belugas follow nother ship traffic near the community, into the lake 50 50 Kilometers









#### **Literature Review**

Baker Lake is a receptacle of seven immense watersheds and is very sensitive to change in hydrological and microbial conditions at a very large scale. There are growing concerns relating to water quality, including impacts from climate changes, industrial development, and pollution from daily community activities<sup>5</sup>.

Attributes	Examples of Environmental Changes and Observations
Sea ice	• Ice is becoming thinner and taking longer to freeze leading to more rough and broken ice. For community members, this makes travelling very dangerous <sup>2</sup> .
Glacier melt	<ul> <li>The glacier on the north side of Schultz Lake is diminishing<sup>6</sup>. A reconstruction model describing temperature changes has inferred a 2°C increase in mid-summer surface water temperature over the last 60 years<sup>9</sup>.</li> </ul>
Snow	• There is less snow now making it very difficult to build ice housing. Summers are also a lot hotter now due to the lack of snow on the ice <sup>2</sup> .
Seasonal	<ul> <li>Winter is coming later, there are fewer blizzards, and the weather is warmer overall<sup>2</sup>.</li> </ul>
events	<ul> <li>Prevailing winds are also no longer strictly from the north, and when blizzards arrive, the wind is immediately stronger<sup>8</sup>.</li> </ul>
Weather	<ul> <li>Winter weather and ice conditions are harder to predict. As such there is a greater degree of perceived and real risk to hunters and travelers on the ice<sup>8</sup>.</li> </ul>
Freshwater	Water level is dropping in all three major heritage rivers that flow into Baker Lake. The community has
levels	been monitoring these levels since August 2018, as other lakes are also drying up $^6$ .
	<ul> <li>Lower Thelon river levels in the autumn now limit accessibility to small aluminum boats. Wayfinding remains possible only because boat drivers stay within deep water channels<sup>7</sup>.</li> </ul>
Sea levels	<ul> <li>Sea-level projections to monitor the uplift of bedrock indicate that sea level will continue to fall throughout this century, resulting in a shallowing of the approaches to the Baker Lake outflow<sup>9</sup>.</li> </ul>

Attributes	Examples of Ecosystem Changes and Observations
Whales	Appears to be an increase in beluga whales in the area, which maybe because the whales follow the
	sealift barges as the come into the area <sup>2</sup> .
Fisheries	<ul> <li>Some community members have also reported seeing and/or finding new fish not observed before<sup>2</sup>.</li> </ul>
Birds	<ul> <li>Concern about the potential of birds like ptarmigan bringing diseases to the area<sup>2</sup>.</li> </ul>
	<ul> <li>An increase in bald eagles, which are seen nesting and feeding on char<sup>2</sup>.</li> </ul>
	• The presence of new ducks in the area, and fewer geese, although they used to nest there before <sup>2</sup> .
Invertebrates	• An increase in small planktonic <i>Cyclotellataxa</i> over the past 60 years, with the largest increase within the
	last 5 years. These changes may suggest a warmer climate and longer ice-free periods <sup>5</sup> .

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

- Monitoring and testing: Water near the mine sites seems contaminated and community members had seen oil and gas spills. Concern about the impact that this would have on the animals in the area. For example, prior to the mine opening, fish had small heads and large bodies, now it is the opposite<sup>5</sup>.
- Fisheries development studies: North of Baker Lake, and in the rivers to the east there are large char that community members feel could be harvested commercially<sup>5</sup>.
- Remediation of contaminated sites: Contaminated soil designated as the old MOT/NCPC has been an ongoing problem for the last 30 years. The current remediation ditch does not prevent contaminated soils leeching into Baker Lake. There is a need to develop a land farm for the reclamation of soil, and the storage or contaminated materials<sup>2</sup>.

### **Selected References**

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