APPENDIX J

High-Level Summary of Waterbody Information Shared Through Available Inuit Knowledge

(Pages J-1 to J-43)

MARY RIVER PROJECT

Desktop Review of Available Inuit Knowledge on Waterbodies Near the Mary River Project

Prepared for:	Baffinland Iron Mines Corporation
Prepared by:	Knight Piésold Ltd.
P/A Number:	NB102-181/108-2
Revision Number:	0
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NB102-181/108-2

MARY RIVER PROJECT

DESKTOP REVIEW OF AVAILABLE INUIT KNOWLEDGE ON WATERBODIES NEAR THE MARY RIVER PROJECT

Rev	Description	Date
0	Issued in Final	June 7, 2024

EXECUTIVE SUMMARY

Baffinland Iron Mines Corporation (Baffinland) requested that Knight Piésold Ltd. (KP) provide a desktop review of available Inuit knowledge regarding waterbodies of importance near to the Mary River Project, in support of Baffinland's application to renew its Type A Water Licence No. 2AM-MRY1325 that expires on June 10, 2025. Specifically, this is part of a response to technical comments from the Qikiqtani Inuit Association (QIA) on a draft application which requested that relevant Inuit knowledge be incorporated in the licence renewal application.

Specifically, KP carried out a desktop review of the IQ made available to Baffinland and reduced to writing which is relevant to the topic of identification of waterbodies that are important to local communities, and which water bodies that have been identified are near the Project. This summary is meant to reflect what was shared on this topic in the source documentation only and is not intended to be an exhaustive summary of all available IQ on this topic. It is noted that additional relevant engagement may be undertaken on this topic by Baffinland or others in future.

The following sources present Inuit knowledge of water and fishing sites covering the period of the 1980s through to the recent past (i.e., 2021):

- **Nunavut Atlas** - describes fishing patterns in the late 1980s (Riewe, 1992).
- **Nunavut Wildlife Harvest Study** - describes fish harvests from 1996 to 2001 (Priest and Usher, 2004).
- **Mary River Inuit Knowledge Study (MRIKS)** - describes fish harvests up to about 2007 (KP, 2014).
- **Nunavut Coastal Resource Inventories** – describes the types and locations of coastal resources (including fish) that the communities harvest (Government of Nunavut, 2008, 2010, 2014, 2018b, 2018b).
- **Mary River Phase 2 Proposal Community Risk Assessment Workshops** - describe the risks, impacts and mitigation measures relevant to the railway and shipping activities associated with the previous Phase 2 Proposal.
- **Tusaqtavut Study** - presents freshwater values identifies from contemporaneous interviews conducted between 2019 and 2021.

In these materials, Inuit have identified that waterbodies can be important for generally three reasons:

- Drinking water
- Fish harvesting
- Cultural or historical significance

Generally, the sources listed above indicate that snow and waterbodies (lakes and streams) are important where they are utilized as a source of drinking water while on the land. The Phillips Creek valley within which the Tote Road is located is an important overland route to access caribou hunting areas, and to a lesser extent, inland lakes supporting landlocked Arctic char. The Tusaqtavut Study (QIA, 2019a) identified several freshwater values along the Tote Road. Though the specific nature of these freshwater values has not been shared by the study authors, we infer that these are associated with camping sites that have been identified in the MRIKS (KP, 2014).

Lakes and rivers may also be considered important by local communities because they are important for harvesting fish. Several sources of information reviewed in this report (Nunavut Atlas, the Nunavut Wildlife

Harvest Study, MRIKS, DFO's Commercial Fishing Quotas, and the Nunavut Coastal Resource Inventory) indicate that the waterbodies supporting anadromous populations of Arctic char are the focus of the local communities, and that this has not changed meaningfully over the past several decades.

Reviewing the location of rivers and lakes that are important for fishing, the northern portion of the Project area is removed from important anadromous Arctic char river/lake systems. The Robertson River / Qurluktuk Lake and the Tugaat River, while removed from the physical footprint of the Project, flow into Milne Inlet. There are three anadromous Arctic char lakes near the Steensby Railway and Port: Kuugjuaq (Cockburn River), Ikpikiturjuaq, and Uiguqliq. These lakes have a long history of use by the community of Igloolik, though they are distant from the community, and other lake/river systems closer to the community appear to be higher use. While fishing may occur within the landlocked Arctic char lakes in the area, that fishing is primarily focused on the river/lake systems closer to the coast that support anadromous Arctic char.

The MRIKS is a useful resource for identifying waters that are important to Inuit, i.e., with a cultural attachment and peculiar and special value. The use of waterbodies for drinking water or fishing notwithstanding, no waterbodies of cultural or historical importance near to the Project were identified in the review. The MRIKS identified one waterbody of cultural and historical significance. Inuktorfik Lake is where the survival story of Atagutaaluk occurred. This location is removed from the Project area.

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ABBREVIATIONS

Mary River Project	the project
ATV	all-terrain vehicle
DFO	Fisheries and Oceans Canada
FEIS	final environmental impact statement
GN	Government of Nunavut
HTA	hunters and trappers association
HTO	hunters and trappers organization
KP	Knight Piésold Ltd.
QIA	Qikiqtani Inuit Association
MRIKS	Mary River Inuit Knowledge Study

1.0 INTRODUCTION

1.1 SCOPE OF WORK

Baffinland Iron Mines Corporation (Baffinland) requested that Knight Piésold Ltd. (KP) provide a desktop review of available Inuit knowledge regarding waterbodies of importance near to the Mary River Project, in support of Baffinland's application to renew its Type A Water Licence No. 2AM-MRY1325 that expires on June 10, 2025. Specifically, this is part of a response to technical comments from the Qikiqtani Inuit Association (QIA) on a draft application which requested that relevant Inuit knowledge be incorporated in the licence renewal application.

Specifically, KP carried out a desktop review of the IQ made available to Baffinland and reduced to writing which is relevant to the topic of identification of waterbodies that are important to local communities, and which water bodies that have been identified are near the Project. This summary is meant to reflect what was shared on this topic in the source documentation only and is not intended to be an exhaustive summary of all available IQ on this topic. It is noted that additional relevant engagement may be undertaken on this topic by Baffinland or others in future.

1.2 SOURCES OF INUIT KNOWLEDGE

The following sources present Inuit knowledge, land use patterns, or harvesting information covering the period of the 1980s through to the recent past (i.e., 2021):

- **Nunavut Atlas** - describes fishing patterns in the late 1980s (Riewe, 1992).
- **Nunavut Wildlife Harvest Study** - describes fish harvests from 1996 to 2001 (Priest and Usher, 2004).
- **Mary River Inuit Knowledge Study** - describes fish harvests up to about 2007 (KP, 2014).
- **Nunavut Coastal Resource Inventories** – describes the types and locations of coastal resources (including fish) that the communities harvest. These studies were completed by the Government of Nunavut, Department of Fisheries and Sealing in Igloolik (2008), Arctic Bay (2010), Clyde River (2014), Sanirajak (2018) and Pond Inlet (2018) (Government of Nunavut, Department of Fisheries and Sealing, 2008, 2010, 2014, 2018a and 2018b).
- **Mary River Phase 2 Proposal Community Risk Assessment Workshops** - describe the risks, impacts and mitigation measures relevant to the railway and shipping activities associated with the previous Phase 2 Proposal (ERM, 2019).
- **Tusaqtavut Study** - presents freshwater values identifies from contemporaneous interviews conducted between 2019 and 2021 (QIA, 2019a, 2019b, 2021a, 2021b).

Information from the first three references was presented in the Final Environmental Impact Statement (FEIS; Baffinland, 2012), including a Land Use Report presented in FEIS Appendix 4C (KP, 2010), and Inuit knowledge shared with Baffinland over the period of 2006-2010 as part of the Mary River Inuit Knowledge Study (MRIKS; KP, 2014). Most of the information from MRIKS was shared through interviews with key knowledge holders in 2007 and 2008, and workshops conducted in 2008.

Collectively, these various information sources provide a temporal perspective to the Inuit knowledge reflected in writing and reveal whether land use patterns have changed over time. Decades of research demonstrate consistent feedback from Inuit. It is expected Inuit will continue to be engaged on this important topic throughout the life of the Project.

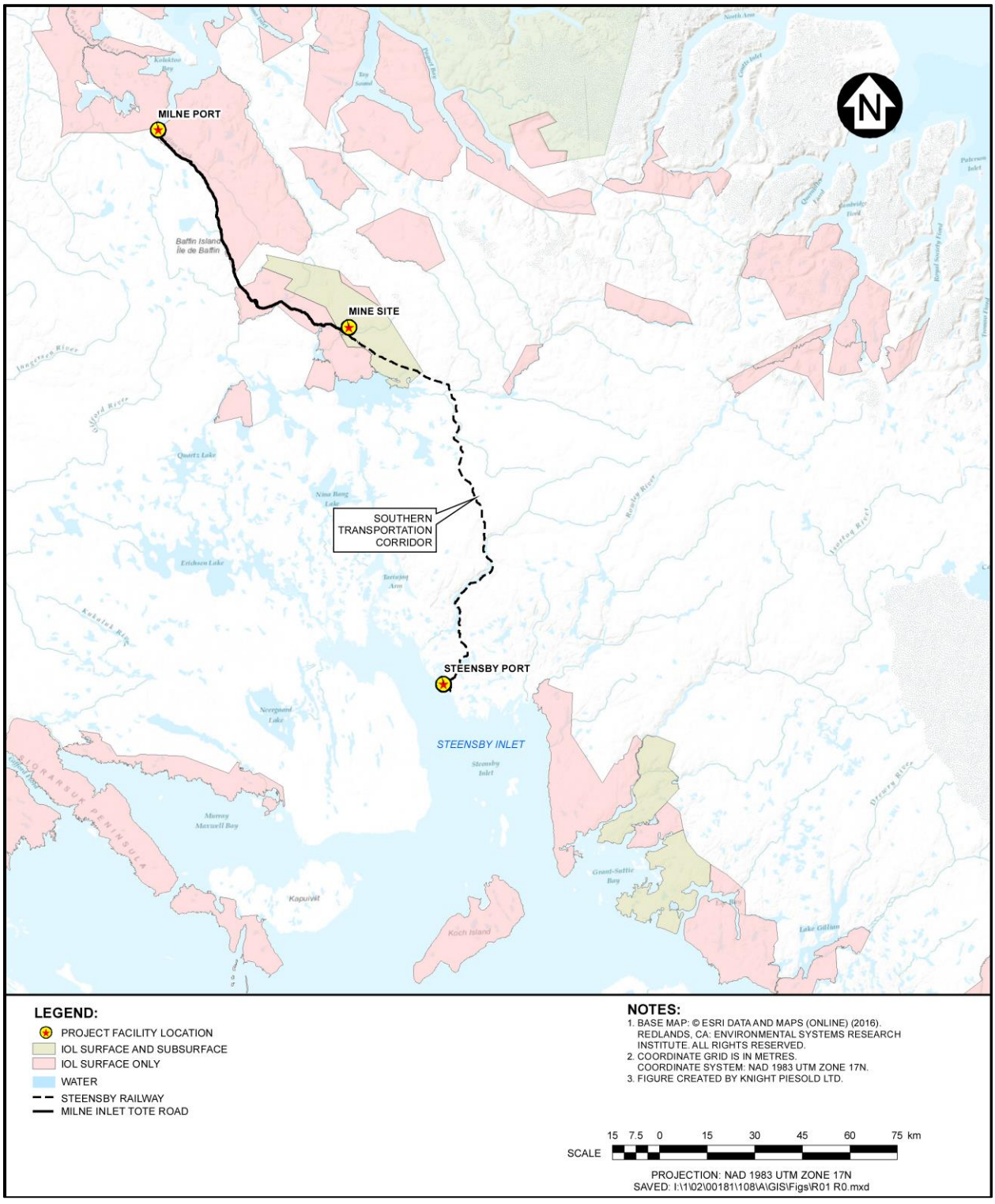


Figure 1.1 Project Location Map

1.3 REASONS WATERBODIES MAY HAVE IMPORTANCE

Based on our review of the referenced sources for this report, there are three main reasons that waterbodies (lakes and rivers) are important to Inuit:

- **Drinking water** - Snow is the primary source of drinking water while out on the land during winter, unless perhaps a hunter has augured through the ice to fish. During summer, freshwater lakes and streams are the primary sources of drinking water.
- **Fish harvesting** - Most fishing activity concentrates on anadromous populations of Arctic char, though limited harvesting of landlocked populations of Arctic char does occur, and on the Melville Peninsula and in some cases, lake trout).
- **Cultural or historical significance** - Some waterbodies hold important cultural value. For example, Inuktorfik Lake (located downstream of Angijurjuk Lake on the Ravn River system) is the location of the well-known story of cannibalism and survival of Attagutalik, the “Queen of Igloolik”.

We have organized our review of the available information under these headings in Sections 2 (Drinking Water), 3 (Fishing) and 4 (Cultural or Historical Significance).

2.0 DRINKING WATER

2.1 THE IMPORTANCE OF GOOD DRINKING WATER

The MRIKS documented perspectives on the importance of water, generally, as described below, as well as the importance of specific waterbodies. Several study participants stated that good drinking water was of primary importance for well-being, and water is also an important source of food (fish).

> *It's vitally important you get some water for drinking purposes. But, lakes are also important because when I go fishing to a lake and I stay there for a long time and when I become thirsty I can drink the water from the lake. Yea, there are a whole lot of lakes in this area here. For example, the residents of Pond Inlet we go to this lake to go fishing.* (PI-03, Pond Inlet)

Several Elders emphasized the need to have a good water source near to camp sites.

> *We made sure to camp nearby water sources such as lakes, rivers and streams so we had water nearby our camp… This has always been one of the case for all time, when choosing a camp site, we had to be sure to have a water source nearby… Lakes and rivers are all important as we camp or live around those for our water source and we fish off the lakes and rivers during the run… Having water is essential to us and water keeps us alive.* (Elijah Panipakoocho, Pond Inlet)

> *We have always had to live nearby lakes for our water source and we even use it as storage or deep freeze with our meat supplies. This lake is where the river runs from where we fish. … These lakes are very, very important to me. Some campers camp where there are no lakes, and in early fall they have no water source at all, so it is important to live or camp nearby lakes.* (Ikey Kigutikkarrjuk, Arctic Bay)

While out on the land, hunters and travellers consume water from ice, snow, lakes and rivers. In winter, snow is relied upon as a water source. Water from glaciers was identified by many study participants as the best available water.

> *Only when you have good drinking water are you more livelily and when you don't have good drinking water it is unpleasant and you always look for a source of good drinking water… When you're at Qaurnak in the summertime and the icebergs arrive you have an excellent source of drinking water… When we were camping out there we had excellent drinking water. Water is very important to our livelihood.* (Jochabed Katsak, Pond Inlet)

> *Our waters are frozen for longer periods of time. There is a lot of snow that we can also use for water. They are clean as they are frozen more than half the time. Outside of the community there are lakes that have clean water. Lakes up here freeze often and there is an abundance of it to be used for drinking. There is a lot of that in our environment. We can get our water anywhere. We can either use ice or snow.* (AB-13, Arctic Bay)

The lakes and rivers are an important source of food, fish are caught from their depths and mammals are hunted from the water. During the open water period, major rivers are generally preferred over smaller watercourses, and in particular, rivers with a gravel bottom, with an awareness that smaller streams or streams with finer substrate (and hence lower flow) are more likely to contain harmful bacteria. Inuit commonly observe the water to see if it is foggy or murky, since it is believed that clear water is the best water to consume.

> *Like there are some rivers which can smell of sod or ground as well, it's just a river. Even in the summertime you can smell the sod or the ground by drinking water. As long as it's not glacial ice that'd be considered unsafe drinking water… ice, glacial ice, iceberg waters are very good drinking water source, as long as it didn't come from a lake which has some fish… (PI-03 (Pond Inlet), KP, 2014)*

> *After there's no longer some ice we didn't just fetch water from ordinary streams but major rivers seemed to have better drinking water source and also rivers have little germs… we were discouraged from drinking from small streams or lakes. Only we were told to drink water from major rivers such as if the river had gravel bottom. That's a very good drinking water and everyone has known that for a long time… if it's for making tea then you can easily identify if it's poor source of drinking water and the tea tends to turn black and you can tell that it is not good drinking water by sampling the tea you can notice it right away so tea is an excellent source of identifying the quality of drinking water because they tend to turn black and then you know.* (Jochabed Katsak, Pond Inlet)

Tea is said to be a good indicator of water quality. Also, nowadays people reportedly boil their water before consuming.

2.2 WATERS IMPORTANT TO INUIT

Understanding that land users are likely to access water for drinking from nearby waterbodies during travel and hunting, Inuit interviewees that participated in the Mary River Inuit Knowledge Study (KP, 2014), interviewed in 2007 and 2008, were asked the following question about important waterbodies:

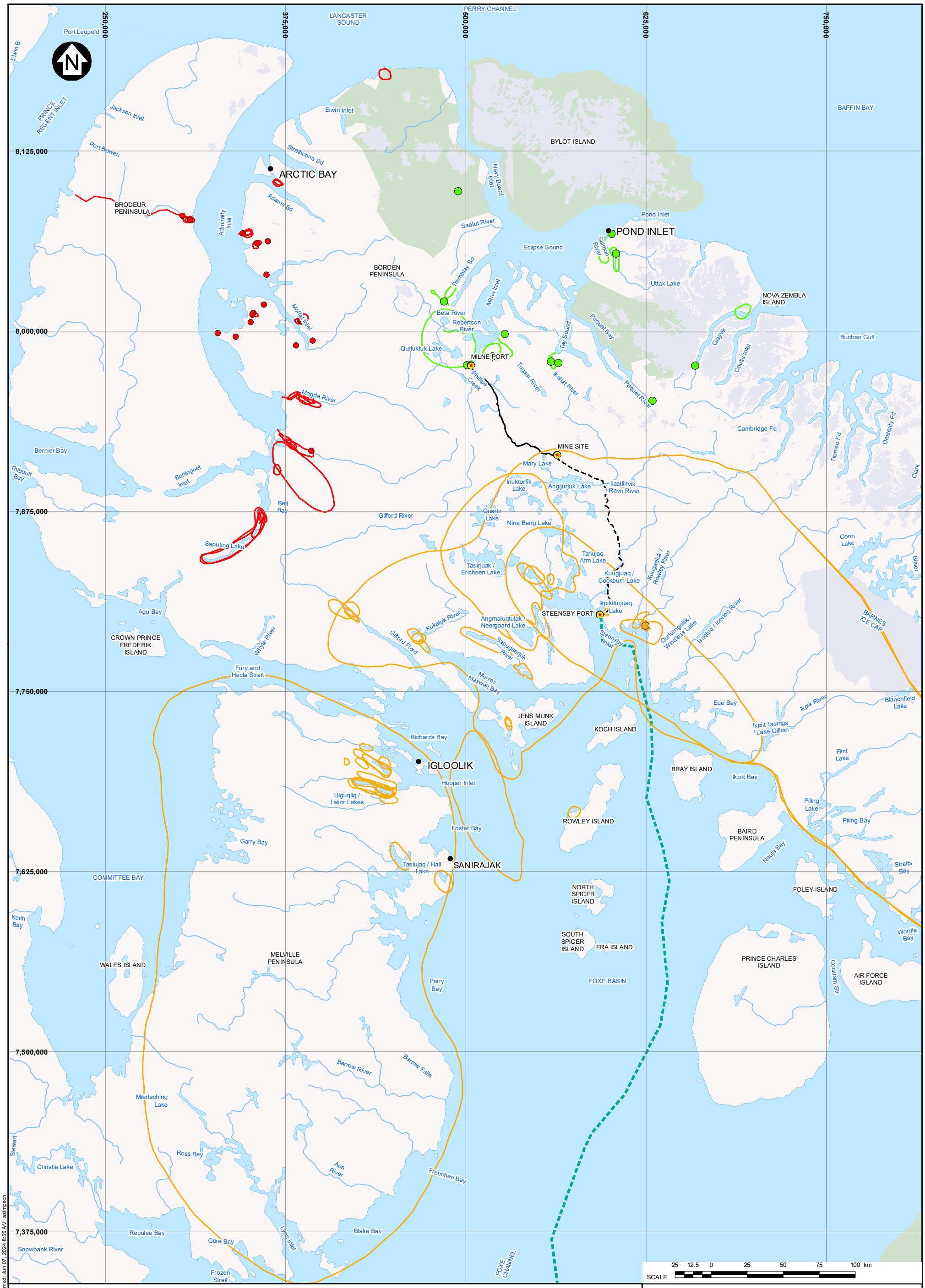
> *Could you show me [on the map] which lakes and rivers are most important in your area? Why are they important?*

This was question #45 on the longer questionnaire used in Pond Inlet, and question #30 on the consolidated questionnaire used in Arctic Bay and Igloolik. The mapped information from this question is presented on Figure 2.1.

For the community of Pond Inlet, the lakes that are more regularly fished for anadromous Arctic char were identified, including the Salmon River and Utuk Lake near the community, Ikaluit Lake and River in Tay Sound, the Beta River at the top of Tremblay Sound, and the Tugaat River and Qurluktuk Lake and Robertson Rivers draining into Milne Inlet. The mouth of Phillips Creek was also identified as a waterbody of importance, though it doesn't support an anadromous char population. It is, however, at the trailhead for land users from Pond Inlet who travel inland.

For the community of Igloolik, the latest that were identified as most important included several lake/river systems that support anadromous Arctic char populations that drain into Steensby Inlet, as well as lake/river systems closer to the community. Close to the Project area, Uiguqłiq Lake located adjacent to the proposed railway just north of the Steensby Port area were identified. Several MRIKS participants identified large geographic areas as containing important waterbodies, including all of Melville Peninsula, the west side of Baffin Island, and Steensby Inlet and surrounding areas.

A common theme appears to be that the important waterbodies are those that have been historically harvested for anadromous Arctic char. This theme is reinforced with the historical Inuit knowledge presented below.



LEGEND:

- PROJECT LOCATION
- COMMUNITY
- MILNE INLET TOTE ROAD
- PROPOSED RAIL ALIGNMENT
- NOMINAL SHIPPING ROUTE
- LAKES AND RIVERS OF IMPORTANCE (ARCTIC BAY)
- LAKES AND RIVERS OF IMPORTANCE (POND INLET)
- LAKES AND RIVERS OF IMPORTANCE (IGLOOLIK)

NOTES:

1. COORDINATE GRID IS IN METRES.
   COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N.
2. BASE MAP: © ATLAS OF CANADA - NORTHERN CANADA, 2011.
3. THIS MAP WAS PRODUCED FROM INFORMATION COLLECTED DURING INUIT QAUJIMAJATUQANGIT INTERVIEWS WITH LOCAL RESIDENTS FROM 2007-2008 AS PART OF THE MARY RIVER INUIT KNOWLEDGE STUDY (KP, 2014). THIS INFORMATION SHOWS PATTERNS OF LAND USE AND LOCAL KNOWLEDGE OF THE LAND. THE MAP IS NOT INTENDED TO BE A COMPLETE REPRESENTATION OF WHAT IS KNOWN.

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MARY RIVER PROJECT

LAKES AND RIVERS OF IMPORTANCE INTERVIEW RESULTS (2007-2008)

Knight Piésold CONSULTING

P/A NO.	REF NO.
NB102-181/108	2

FIGURE 2.1 REV 0

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The Tusaqtavut Study was completed by the QIA over the period of 2019 to 2021 focused on documenting Inuit knowledge, land use, and concerns with mining, specific to Baffinland's previous Phase 2 Proposal (QIA, 2019a; 2019b, 2021a, and 2021b). The freshwater and fishing important areas map presented in the 2019 study for Pond Inlet is presented as Figure 2.2, and the same map for all communities presented in the final synthesis report (QIA, 2021b) is presented as Figure 2.3.

The Tusaqtavut Study synthesis map (Figure 2.3) shows several individual features throughout the area, as well as a large circular polygon that encompasses the southern half of Milne Inlet, the Tote Road, Mine, and the northern half of the Steensby Railway. Information as to the nature of these values (i.e., drinking water sources, fishing sites, etc.) is not provided with the map.

The large circular polygon covers anadromous Arctic char lake/river systems that are known to be important to Pond Inlet (Ikaluit River, the Tugaat River, and the Richardson River and Qurluktuk Lake), but also a large swath of land with landlocked populations of Arctic char that are known to be fished occasionally but not as the priority. Thus, we speculate that the freshwater values in this area are associated with drinking water sources while travelling on the land, and possibly reflects the general high level of concern over the Phase 2 Proposal, since this data was collected for this purpose. It also identifies the Ravn River system from the outlet of Angijurjuk Lake south to where the Ravn River discharges into Steensby Inlet.

2.3 TRAVEL ROUTES AND CAMPS

In addition to direct inquiry regarding waters of importance (Section 2.2), the location of camps provides an indication of where drinking water will be sought by land users. Travel routes mapped from 46 individual interviews completed in 2007-2008 in three communities (Arctic Bay, Igloolik, and Pond Inlet) are presented on Figure 2.4, and travel routes mapped during 2008 land use workshops held in all five North Baffin communities (the three above plus Clyde River and Sanirajak) are presented on Figure 2.5.

There are some interesting differences between these maps. The travel routes mapped during individual interviews represent only three of the five communities. The travel routes are also more consistent and patterned between the interviewees, revealing an intensity of use. Those interviewed individually also tended to be older, and a larger proportion of them may have travelled using dog teams before adopting snowmobiles, and thus they had a higher affinity to using the same trails.

The participants of the 2008 land use workshops were from five communities and tended to represent a broader cross-section of the community, that is, a mix of both Elders and younger land users. Most younger land users have only used snowmobiles (and not dog teams) to travel over the land, and in some cases with the use of global positioning system (GPS) units to reach their destinations. The workshops do not capture the same intensity of use that the individual interviews do, because once a route has been identified in a workshop, it is less likely that someone else will trace out the same route. Thus, it is difficult to interpret intensity of use from the workshop results. This may also indicate that younger hunters have less affinity to the same trails, because modern snowmobiles make overland travel much easier than dog teams or older snowmobiles.

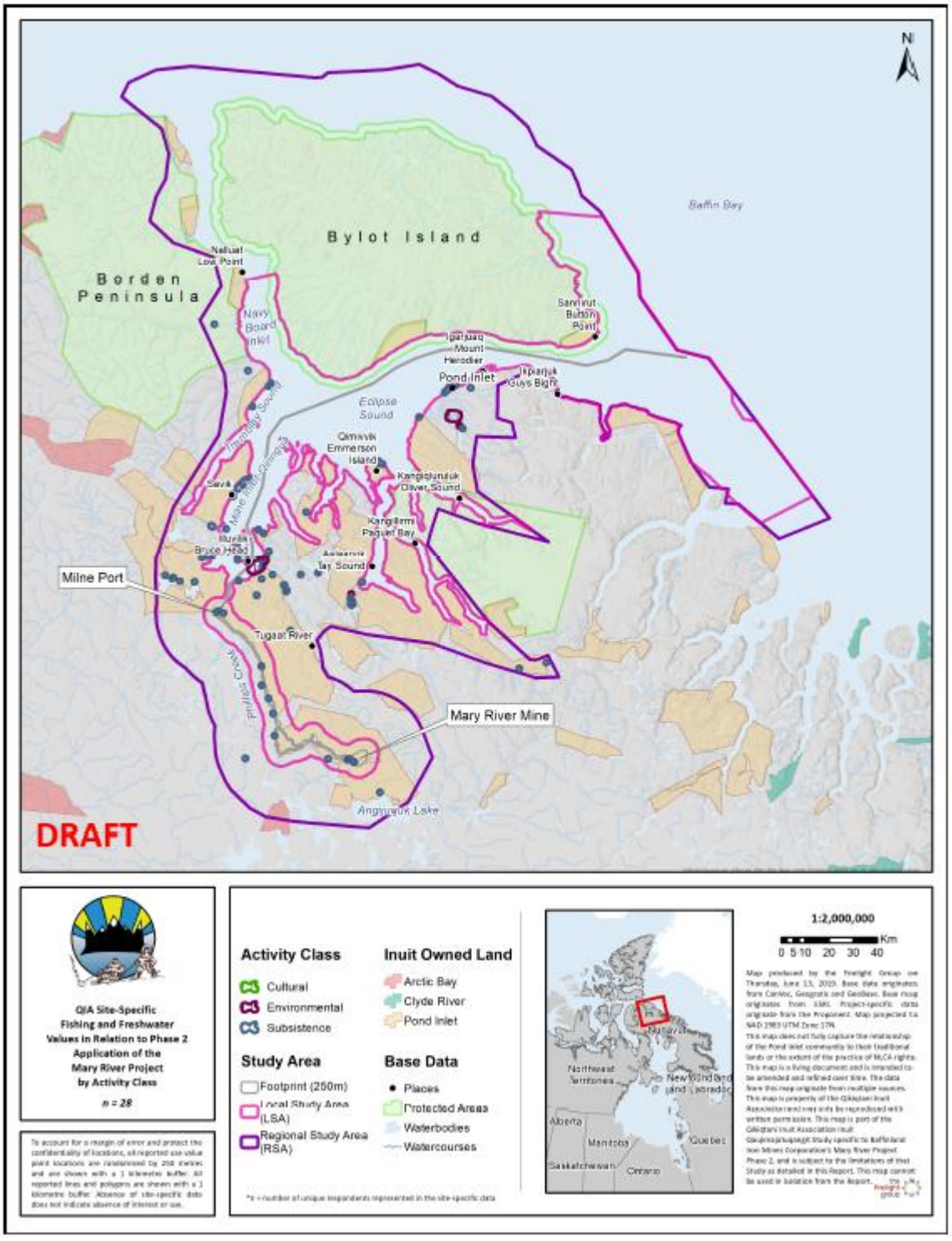


Figure 2.2 Fishing and Freshwater Values in the Project Area (QIA, 2019)

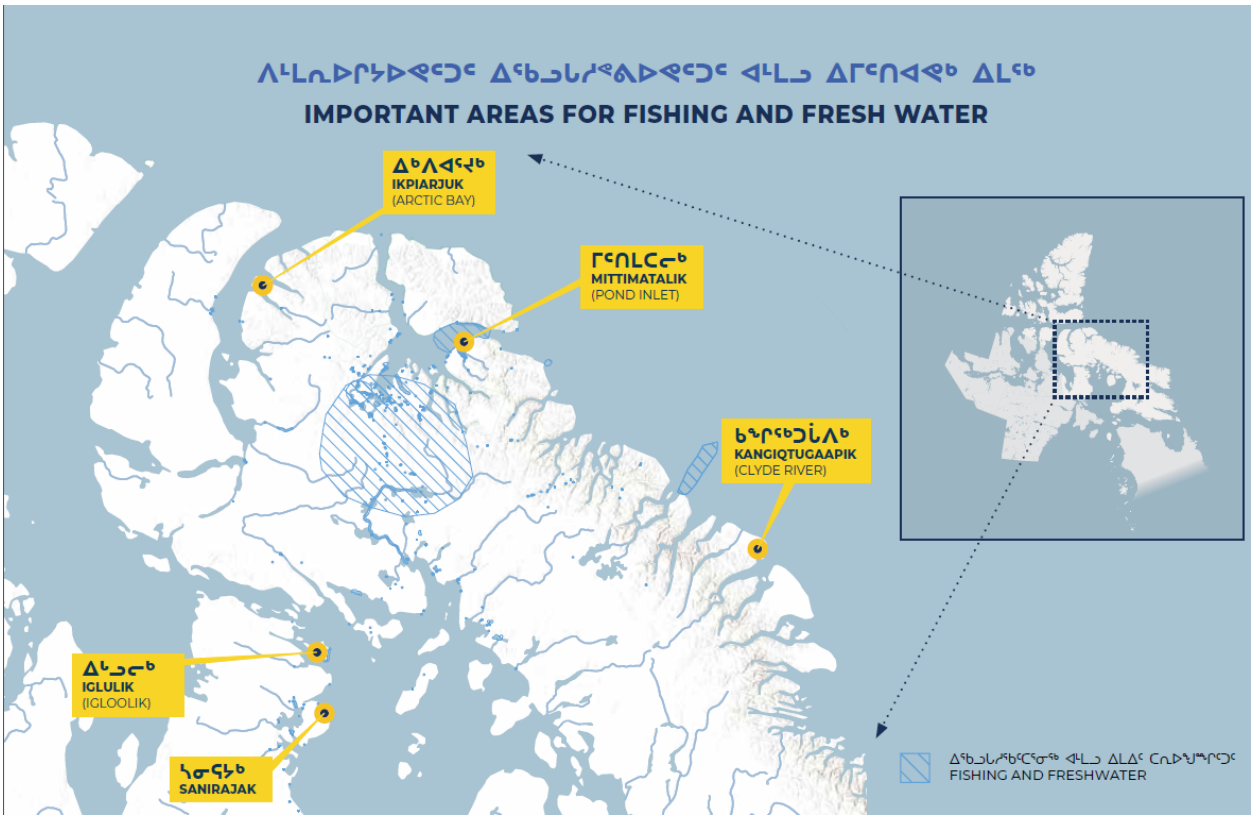
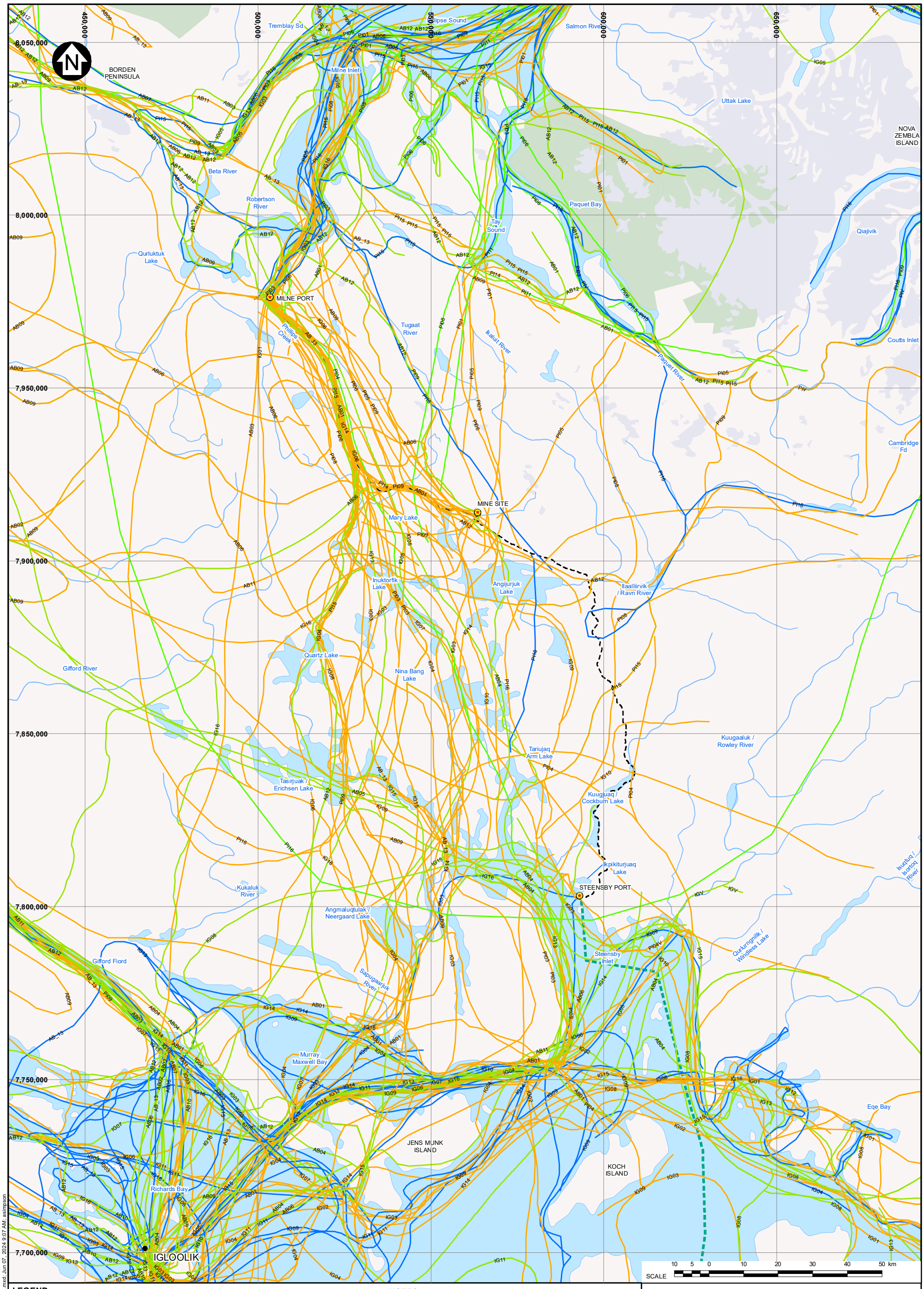


Figure 2.3 Important Areas for Fishing and Freshwater (QIA, 2021b)

There is some important context that is needed when reviewing and interpreting travel routes within the Project area (i.e., the Milne Port – Mine – Steensby Port corridor). First, much of the overland travel presented on the maps is by snowmobile during the winter, when snow covers the land. There are no direct overland routes between the communities and the Project area, and thus overland travel during winter does not begin until it is safe to travel over the landfast ice. From Pond Inlet, the entry points to the interior of the island at the head of Tay Sound and Milne Inlet are not available until sometime in November. Baffin Island isn't normally accessible from Igloolik Island until December. Snow usually disappears from the land during the month of May, such that most of the land is snow-free and not passable by snowmobile by the end of May. Thus, most overland travel through the Project area by snowmobile (or dog team) occurs sometime between November/December and early May. Travel over the sea ice, however, continues into early July.

To access the inland Project area during summer (August and September), land users from Pond Inlet load all-terrain vehicles (ATVs) into boats and travel to the head of Milne Inlet at Milne Port. The Tote Road and the Phillips Creek valley generally is easy to traverse during the summer months due to relatively flat ground and the presence of streams that can be forded without a crossing. Mittimatalingmiut from Pond Inlet can reach Mary River from Milne Inlet with reasonable ease. The greatest overlap of the Project with travel routes from the 2007-2008 period exists along the Milne Inlet Tote Road within the Phillips Creek catchment.



LEGEND:

- PROJECT LOCATION
- COMMUNITY
- MILNE INLET TOTE ROAD
- PROPOSED RAIL ALIGNMENT
- NOMINAL SHIPPING ROUTE
- TRAVEL ROUTE
- TRAVEL ROUTE USED IN THE PAST
- SEA ICE MAIN TRAVEL ROUTE

NOTES:

1. COORDINATE GRID IS IN METRES.
   COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N.
2. BASE MAP: © ATLAS OF CANADA - NORTHERN CANADA, 2011.
3. THIS MAP WAS PRODUCED FROM INFORMATION COLLECTED DURING INUIT QAUJIMAJATUQANGIT INTERVIEWS WITH LOCAL RESIDENTS FROM 2007-2008 AS PART OF THE MARY RIVER INUIT KNOWLEDGE STUDY (KP, 2014). THIS INFORMATION SHOWS PATTERNS OF LAND USE AND LOCAL KNOWLEDGE OF THE LAND. THE MAP IS NOT INTENDED TO BE A COMPLETE REPRESENTATION OF WHAT IS KNOWN.

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BAFFINLAND IRON MINES CORPORATION

MARY RIVER PROJECT

TRAVEL ROUTES
INTERVIEW RESULTS (2007-2008)

Knight Piésold CONSULTING

P/A NO.	REF NO.
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FIGURE 2.4 REV 0

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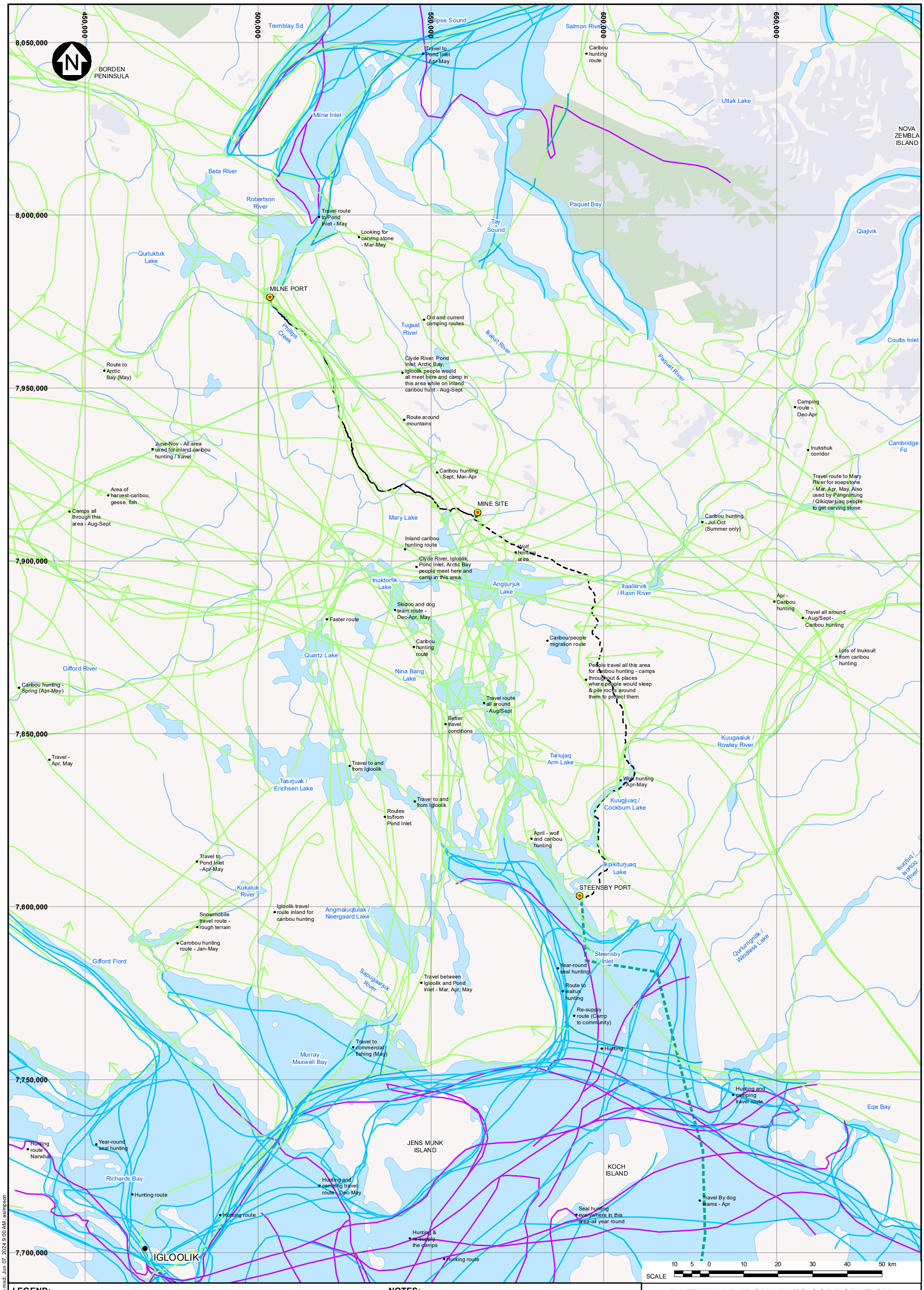

LEGEND:

- PROJECT LOCATION
- COMMUNITY
- MILNE INLET TOTE ROAD
- PROPOSED RAIL ALIGNMENT
- NOMINAL SHIPPING ROUTE
- LAND TRAVEL ROUTE
- ICE TRAVEL ROUTE
- WATER TRAVEL ROUTE

NOTES:

1. COORDINATE GRID IS IN METRES.
   COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N.
2. BASE MAP: © ATLAS OF CANADA - NORTHERN CANADA, 2011.
3. THIS MAP WAS PRODUCED FROM INFORMATION COLLECTED DURING INUIT QAUJIMAJATUQANGIT WORKSHOPS IN THE COMMUNITIES OF ARCTIC BAY (JULY 22-23, 2008), CLYDE RIVER (JULY 18-19, 2008), HALL BEACH (JULY 8-9, 2008), IGLOOLIK (JULY 10-12, 2008) AND POND INLET (JULY 15-17 AND SETEPMBER 4, 2008). THIS INFORMATION SHOWS PATTERNS OF LAND USE AND LOCAL KNOWLEDGE OF THE LAND. THIS MAP IS NOT INTENDED TO BE A COMPLETE REPRESENTATION OF WHAT IS KNOWN.

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	07JUN'24	ISSUED WITH REPORT	RAC	AS	WOG

BAFFINLAND IRON MINES CORPORATION

MARY RIVER PROJECT

TRAVEL ROUTES WORKSHOP RESULTS (2008)

Knight Piésold CONSULTING

P/A NO.	REF NO.
NB102-181/108	2

FIGURE 2.5 REV 0

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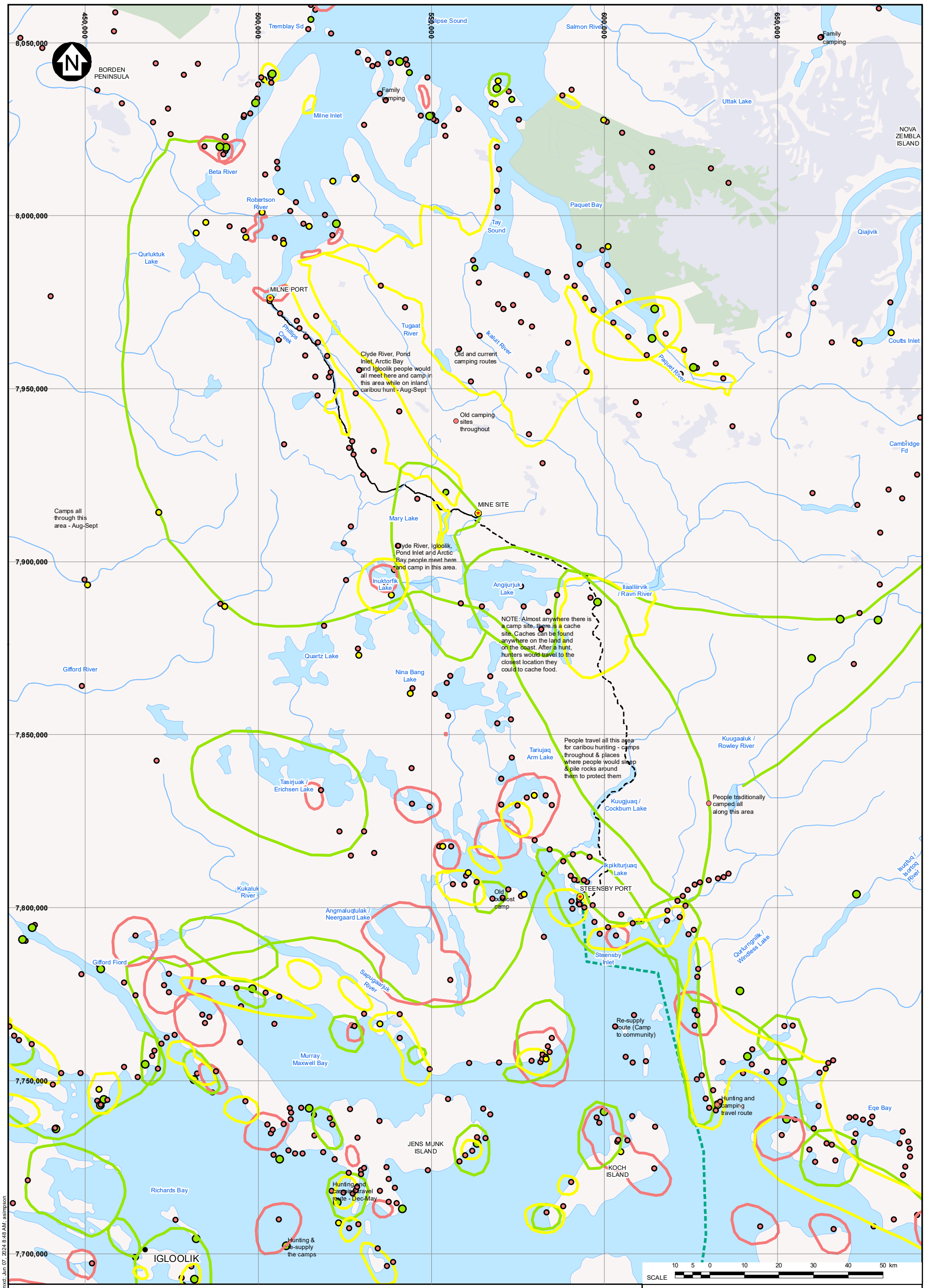
However, overland travel further afield than this becomes difficult because of mountains, or rough terrain (rock outcrops, boulder fields, etc.) or large rivers that cannot be forded with an ATV. Heavy travel continues from the Milne Inlet Tote Road towards Igloolik, though all this travel will be in winter with snowmobile or dogsled.

Both maps show some travel across the Steensby Railway, particularly at the Ravn River crossing. In recognition of this, Baffinland committed in the FEIS to building several snowmobile crossings at strategic locations along the length of the railway, to preserve these travel routes (Baffinland, 2012).

Figure 2.6 presents camp locations identified during the same land use workshops in 2008. The camps located closest to the Project include about 15 locations along the Tote Road, a couple along the future railway, and a couple at the coast next to the Steensby Port. There are several camps located inland along the Pond Inlet to Igloolik snowmobile route. The inland areas along the coast of Steensby Inlet are accessed for caribou hunting when the caribou are abundant in the area, but the many camps used by Iglulingmiut are located along the coast and are used for marine mammal harvesting and fishing in the numerous lake/river systems that support anadromous Arctic char.

One of the Igloolik interviewees (IG-03 Theo Ikummaq) lived in the former outpost camp located next to Steensby Port for a period of seven years several decades ago. At Steensby Port, the Ikpiktturjuaq River is a short (100 m long) river that connects two connected lakes to the ocean. These two lakes support anadromous Arctic char populations and are referred to by several interviewees in the MRIKS (KP, 2014). This is discussed further in Section 3.4.



LEGEND:

- PROJECT LOCATION
- COMMUNITY
- MILNE INLET TOTE ROAD
- PROPOSED RAIL ALIGNMENT
- NOMINAL SHIPPING ROUTE
- PLACES THAT YOU HAVE CAMPED IN YOUR LIFETIME
- PLACES THAT YOU KNOW YOUR FAMILY AND FRIENDS HAVE CAMPED IN THE PAST
- CAMPS THAT WERE OCCUPIED SO LONG AGO THAT YOU DON'T KNOW WHO CAMPED THERE

NOTES:

1. COORDINATE GRID IS IN METRES.
   COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N.
2. BASE MAP: © ATLAS OF CANADA - NORTHERN CANADA, 2011.
3. THIS MAP WAS PRODUCED FROM INFORMATION COLLECTED DURING INUIT QAUJIMAJATUQANGIT WORKSHOPS IN THE COMMUNITIES OF ARCTIC BAY (JULY 22-23, 2008), CLYDE RIVER (JULY 18-19, 2008), HALL BEACH (JULY 8-9, 2008), IGLOOLIK (JULY 10-12, 2008) AND POND INLET (JULY 15-17 AND SETEPMBER 4, 2008). THIS INFORMATION SHOWS PATTERNS OF LAND USE AND LOCAL KNOWLEDGE OF THE LAND. THIS MAP IS NOT INTENDED TO BE A COMPLETE REPRESENTATION OF WHAT IS KNOWN.

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	07JUN'24	ISSUED WITH REPORT	RAC	AS	WOG

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BAFFINLAND IRON MINES CORPORATION

MARY RIVER PROJECT

CAMPING LOCATIONS WORKSHOP RESULTS (2008)

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P/A NO. NB102-181/108

REF NO. 2

FIGURE 2.6

REV 0

3.0 FISHING

3.1 HISTORICAL FISHING PRACTICES

Fishing has been part of the Inuit way of life for millennia (Bennett and Rowley, 2004), and Inuit have used the area in and around the Project across multiple generations (FEIS Appendix 4C; QIA, 2019). Fishing continues to be an important part of Inuit diet and culture, and marine and freshwater fish are an important source of country food to Inuit in the region.

Traditional fishing tools of the Thule ancestors of the modern Inuit included the *kakivaq* (three-pronged fish spear) and *saputiit* (fish weirs). Inuit also jigged for fish using small hooks and fish lures (Glenbow Museum, 2008). Fishing tools were constructed from bone, ivory, or antler, while lines were made from sinew or baleen. The Thule also used stone weirs in rivers, lakes, and ponds to trap fish during their season runs. During the late fall and early winter, the Thule also used hand-held ice picks and ice scoops for ice fishing (Howse, 2016). Although fishing occurred during the Thule period, fish was seen as supplemental compared to harvesting sea and land mammals (Whitridge, 2001). Thule women and children are reported to have done much of the small-scale fishing and may have been involved in the manufacture of the associated gear (Whitridge, 2001). Women and children jigged for sculpin and polar cod, and women, children, and the elderly were active in weir fishing while the men were occupied with caribou hunting (Whitridge, 2001).

Hunting technologies changed in the 19th century with the arrival of European and American whalers, missionaries, and government representatives (Hurtebuise, 2016). Although Inuit fishing practices became more efficient due to new tools introduced by the whalers, traditional practices declined as European traditions took over with the introduction of materials such as metal and iron (Hurtebuise, 2016). Unchanged was the use of fish weirs that originated during the Thule period, but their use became more restricted to certain regions.

Although nets are currently used in many fisheries and in char fishing, this method was not traditional, and it is unknown when this tool was introduced (Hurtebuise, 2016). Net fishing was a task of the men, while women continued to use hooks (Giffen, 1930). Stone weirs also continued to be used at this time:

> *In the days before we started using nets, if they wanted to catch as much fish as they could, they made weirs at the river to tap [sic] sea run or to trap upstream going fish (Pond Inlet participant; KP, 2014).*

In addition to the use of weirs, Arctic char was speared during their spawning runs along the west side of Eclipse Sound, in the fjord to the south of Pond Inlet, and in the Salmon River near Pond Inlet (Qikiqtani Truth Commission, 2013). Sculpin and cod were caught on lines jigged through small cracks in the sea ice. Spring jigging was predominantly the work of women and children (Brody, 1976). The curing of fish was also traditionally a women's role as the fish were often sewed together after being dried (Giffen, 1930). Technology made a difference in the perception of the food:

> *In the past they never used nets, they only used kakivaks (fishing spears). They seemed to be the best food. When you catch one with a kakivak, you remove the guts right away and we had nothing but fresh food by using that method. If you use nets, the fish died in the ocean and they're not as fresh as the ones you had caught with a kakivak. I think in the past, they had nothing but fresh food (Pond Inlet participant; KP, 2014).*

Women continued to do most of the small-scale fishing and were sometimes assisted by children (Giffen, 1930). In the early 20th century during open water periods (July through September), Arctic char were fished with nets, and during fall men would fish the inland lakes through the newly formed ice (Mathiasson, 1992). This routine continued throughout the 20th century, fluctuating slightly as environmental factors dictated.

Traditional fishing practices changed in the mid-20th century with the relocation of Inuit into settlements. Moving into permanent settlements in the 1950s and 1960s did not change the reliance upon seasonal and traditional subsistence activities. It did, however, change how much time was spent on the land as the Inuit shifted to a wage economy (including being introduced to a commercial fishery), and public schools. Sharing of the harvest continued to be an important aspect even as permanent settlements were occupied (Qikiqtani Truth Commission, 2013). With changing habitation patterns and technologies, Inuit hunters and fishers could travel further from a home base in a day or a few days but were no longer nomadic or semi-nomadic and ultimately covered less territory (Qikiqtani Truth Commission, 2013).

A shift occurred in the mid-20th century to a reliance on nets for fishing, largely replacing the use of weirs. Nets are used in rivers and under the ice in lakes. Jigging and rod fishing both occur. Some traditional fishing implements are made from walrus and narwhal tusks, and many harvesting methods continue to be used today (QIA, 2019). During the Mary River Inuit Knowledge Studies, Elders recounted fishing anadromous (sea run) Arctic char in rivers using weirs during the open water period, sometimes drying the fish, and storing the meat in caches (KP, 2014):

> *Yes, for food people used to store them…. In Ikaluit and Kagiisuijuk (pn), people used to make fish trap in the river they would catch a lot of fish. I first found out how to fish there in the river. They were lots of stash of fish, during the following winter they were going to be dog food and for people too. (PI-09 (Pond Inlet); KP, 2014)*

During the summer months when the water was open, nets were set at river mouths and all along the coast. While in the late fall and early winter, nets were placed under the lake ice to catch Arctic char. In the early spring, jigging for Arctic char occurred at holes in the lake ice. By the spring, and char are speared with fishing spears. Late in this season, jigging was carried out at the end of the fast ice bordering on open river mouths. In the fall as the days get shorter, fishing was carried out through holes in the new ice with a jigging line and fish spear (Brody, 1976). A Pond Inlet community member discussed the seasonal variation of fishing:

> *Some people will set up their nets at the ocean and also after the ice has formed at a lake they can set up their nets as well. The char seemed to be very tasty. They're both very ideal to fish either at a lake or the ocean. They usually fish in the ocean in the summertime hardly anybody fish at the lakes in the summertime. In the winter they fish at the lakes (PI-14; KP, 2014).*

Bissett (1967) and Moshenko (1981) reported that fish weirs were used extensively on the Robertson River system which feeds into Milne Inlet to establish large fish caches for winter use, prior to the early 1960s. Cached fish were used during the winter for dog food and as a supplement to the Inuit diet (Mathiasson, 1992). Participants from the Mary River Inuit Knowledge Studies, discuss the use of fish caches (KP, 2014):

> *…they tried to cache some fish which they would be able to eat during the winter… so people were able to survive from their caches and when a lot of people cache their fish and they would sustain the people all throughout the winter, even sometimes in the springtime. (PI-03 (Pond Inlet); KP, 2014)*

> *Fish caches can be found at the mouth of rivers – long caches indicate fish cached for human consumption as they would be placed side by side, not touching, and hung to dry inside the cache. Fish cached for dog food would just be placed in a regular round cache. (Workshop participant, Igloolik Land Use Workshop; KP, 2014)*

> *I had witness in summer time when they hunt fish, and some were cached with stones made like a dome, and some were made to dry, some whole and some cut up, so when winter comes that they would have food to eat, they would cache animals and fish, that's how they used to live, so they will have food during winter, sometimes the animals would be hard to get, so during summer and spring in July use to lots of seals basking on ice, and when it was still in July narwhals would be coming in, nowadays I don't hear that anymore. (Pond Inlet community member; KP, 2014)*

Fishing continued to be an important activity for securing food as well as serving as a cultural and social activity. In the mid- to late 20th century the main species fished were land-locked Arctic char, anadromous or sea run Arctic char and marine fish such as sculpin and cod (Brody, 1976). Sculpin and cod were caught on lines jigged through small cracks in the ice (Brody, 1976). Arctic char has always been the most abundant of the fish species for the people of North Baffin (Brody, 1976). In 1982, the per capita annual consumption of fish in the communities of Arctic Bay, Sanirajak (Hall Beach), Igloolik and Pond inlet were an estimated 58 kg, 67 kg, 73 kg and 50 kg, respectively (Berkes, 1990).

Elders interviewed in 2007 and 2008 distinguished sea run (anadromous) Arctic char from the landlocked variant (*nutilliarjuk*), the latter of which was noted to dominate the waters around Mary River (KP, 2014). Sea run Arctic char were preferred for size and flavour, and the river systems where they were fished were well-known:

> *There is a lot of landlocked char which are red in color and they don't migrate to the ocean at all. Also, in the Mary River area, there is a whole lot of landlocked char. There are all kinds of fish which don't go to the ocean. And also, at a place in Ikaluit, so that's our fishing spot and at the area there. When you lived there, we would go berry picking because it's so close. As you approached it you could see the whole area and it looks like it's red. A lot of landlocked fish congregate there. Also, at a place called Auliqqua, the rivers there are very deep. When we were children, we would go out walking on the land trying to pick berries. There were a lot of black berries and a lot of times, you would see fish swarming, swimming away from us when the sun was shining. And you could see they were very red in color. We used to harvest them as well and the meat is white and they're very pleasant to eat but nowadays we hardly eat them anymore. (PI-14 (Pond Inlet); KP, 2014):*

> *At Tugaat Lake was I was saying the fish [sea run Arctic char] tastes like sweet taste and the skin is thin. At Tugaat Lake, I was saying this to, its even better, you can eat it but you don't have heart burn, if you eat too much you get heart burn. But Tugaat Lake you can eat it day after day, day after day and you don't get heartburn. (P07, 05-Feb-19 in QIA, 2019)*

Fishing of inland or land-locked char appears to be associated with traveling and hunting on the land. Often inland fishing sites were not the destination, but a part of a larger activity such as caribou hunting (Brody, 1976). Traditionally, land-locked char was an essential food source for Inuit and the dogs accompanying them during the mid to late 20th century (Aporta, 2009). Fish caches were placed strategically (Aporta, 2004). While snowmobile travel has replaced dogs for inland travel, fishing while inland travelling still takes place. One participant from Pond Inlet in the Tusaqtavut Report indicated they catch fish alongside other inland activities (QIA, 2019):

Every time they go through there [Mary River], they would catch fish as well. When they wish to eat fish, they would fish there (P04, 05-Feb-19, interpreted from Inuktitut in QIA, 2019).

Our understanding is that fishing inland lakes for landlocked Arctic char, when it occurs, is an incidental activity, and not the reason for travelling inland (usually, inland travel is to hunt caribou or to travel between communities). This contrasts with the key anadromous Arctic char supporting lakes closer to the coast (i.e., Utuk Lake, Ikaluit River, Tugaat River, Richardson River and Qurluktuk Lake, Beta River), which are destinations in themselves for harvesting anadromous Arctic char.

3.2 FISHING PATTERNS IN THE 1980'S

The distribution of fishing sites as presented in the Nunavut Atlas (Riewe, 1992) is shown on Figure 3.1. The Nunavut Atlas provides a detailed written description of the domestic and commercial fisheries of Igloolik and Sanirajak (formerly Hall Beach) at that time. This excerpt describes fishing by Iglulingmiut:

Fish, particularly anadromous Arctic char, are an important food for residents of Igloolik. Fishermen from the community range throughout the northeastern half of Melville Peninsula, to Jens Munk and Rowley Islands, and across Fury and Hecla Strait to coastal river systems on the southwestern side of Baffin Island. They travel by boat in summer and by snowmobile for the rest of the year, and catch lake trout, and Arctic char, cod, and sculpins, using gillnets, jigs, spears, and rod and reel. The trout and char are used mainly for human consumption while most of the cod is fed to the dogs. The sculpins, which are caught incidentally during the fishing, are occasionally eaten or fed to the dogs.

In the spring, March until mid-July, gillnets are set under the ice of the Lailor Lakes and Hall Lake to catch lake trout and Arctic char. In June and early July, holes are cut in the lake ice and trout are caught on small lures. Char are attracted to the holes with hookless lures and speared with a leister. In late June and early July, anadromous Arctic char are gillnetted at the river mouths as they migrate downstream out of the Lailor Lakes, Gifford River, (70°19'N, 83°00'W) a large lake on Melville Peninsula, and a lake on Jens Munk Island. They are also speared at stone weirs on the latter two rivers and from the end of fast ice bordering on open river mouths. Anadromous char are gillnetted along the west coast of Igloolik Island at the same time.

In the summer, mid-July until mid-September, anadromous Arctic char are caught in gillnets set along the coast of Hooper Inlet and Mogg, Quilliam, Richards and Griffiths Bays on Melville Peninsula. Along the west coast of Igloolik island, the northwest coasts of Jens Munk and Rowley Islands, and along the coasts of Gifford Fiord, Murray Maxwell Bay, and Steensby Inlet on the southwestern coast of Baffin Island. From mid-August until mid-September, most nets are set near the river mouths in these areas and at Agu Bay (70°30'N, 87°09'W) to catch anadromous char which are also caught by angling at river mouths, particularly where the outlets stream from Lailor Lakes empties into Mogg Bay.

In the fall, mid-September until mid-November, Igloolik fishermen gillnet Arctic char and lake trout in the Lailor Lakes and on the Crozier River system. Landlocked char or trout in a lake on Igloolik Island (69°23'N, 81°29'W) and Arctic char in lakes on southwestern Baffin Island (70°30'N, 87°09'W; 70°22'N, 83°15'W); 70°13'N, 81°55'W; 70°35'N, 79°45'W). Anadromous Arctic char overwintering in these lakes are the fish most sought after. Fishing continues until it is too dark to travel and resumes when the light returns.

LEGEND:

- PROJECT LOCATION
- COMMUNITY
- MILNE INLET TOTE ROAD
- PROPOSED RAIL ALIGNMENT
- NOMINAL SHIPPING ROUTE
- FISHING SITE

NOTES:

1. COORDINATE GRID IS IN METRES. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N.
2. BASE MAP: © ATLAS OF CANADA - NORTHERN CANADA, 2011.
3. LAND USE AND WILDLIFE MAP FOR POND INLET, MELVILLE NORTH, AND FOXE BASIN NORTH, PAGES 84, 110 AND 122 OF THE NUNAVUT ATLAS (RIEWE, 1992).

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BAFFINLAND IRON MINES CORPORATION

MARY RIVER PROJECT

FISHING SITES IDENTIFIED IN THE NUNAVUT ATLAS (1992)

Knight Piésold CONSULTING

P/A NO. NB102-181/108 | REF NO. 2

FIGURE 3.1 | REV 0

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A similar summary of fishing patterns is not provided in the Nunavut Atlas for Pond Inlet or Arctic Bay. However, the fishing sites shown on Figure 3.1 are consistent with the fishing sites identified on later sources of information described in the sections that follow.

3.3 REPORTED FISH HARVESTS FROM 1996 TO 2001

The Nunavut Wildlife Harvest Study (Priest and Usher, 2004) presented reported fish harvests for a 5-year period from June 1996 through May 2001, and these are presented on Figure 3.2. The most intensive fishing during the study period occurred closest to the communities. Iglulingmiut harvested a small number of fish within rivers that drain to Steensby Inlet.

To understand who is represented by the fish harvests shown on Figure 3.2, the monthly hunter list in Igloolik over the 5-year period of June 1996 to May 2001 ranged from 212 to 273 hunters, of which between 167 and 193 hunters reported harvesting. The response rate among hunters registered in the study ranged from 77% in the first year, to between 93-94% during the remaining four years. Of the registered hunters, between 123 and 135 hunters reported harvesting Arctic char during the study period (Priest and Usher, 2004).

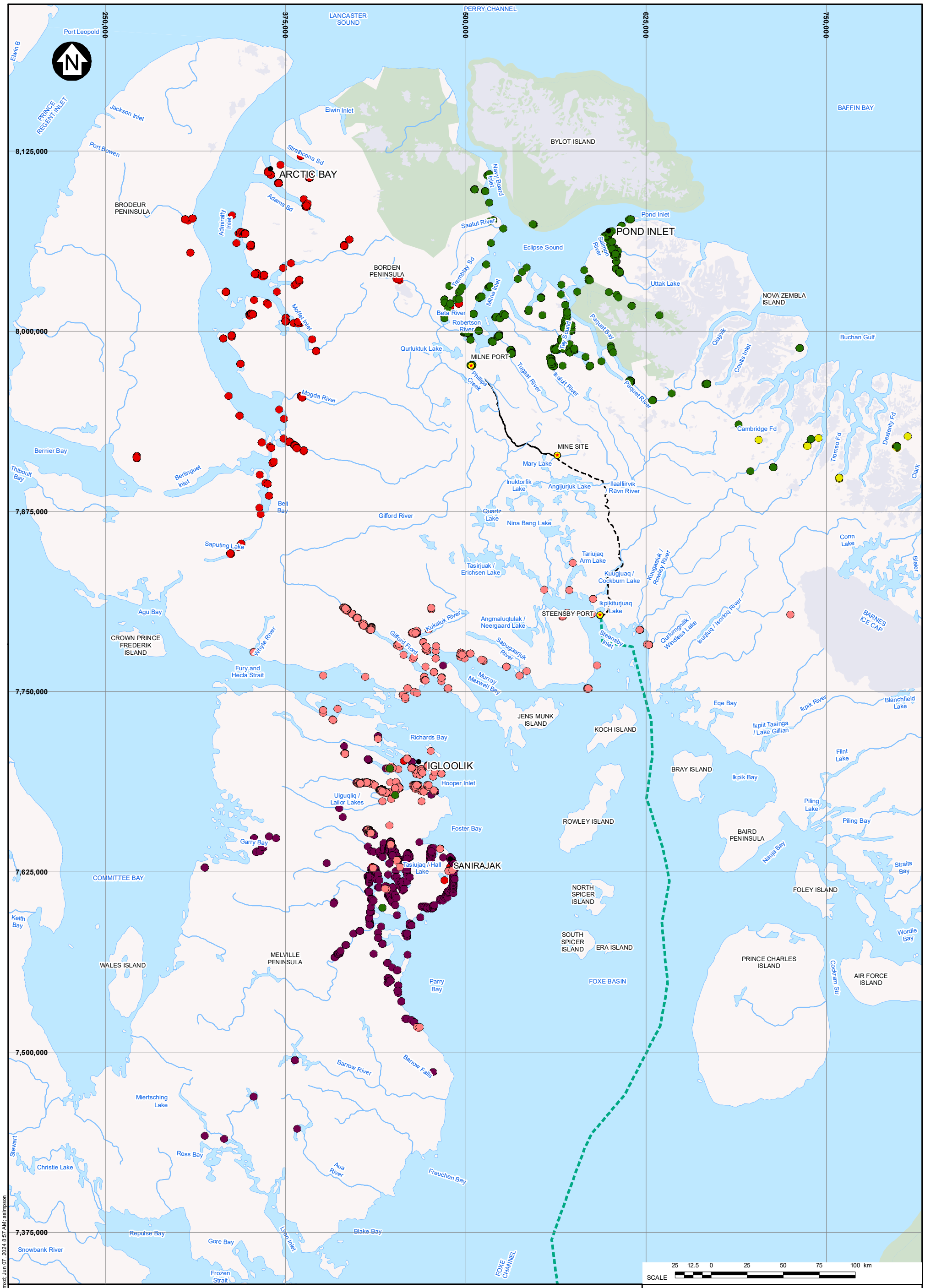
3.4 FISHING AREAS IDENTIFIED IN 2007 AND 2008 STUDIES

Elders interviewed in 2007 and 2008 distinguished sea run (anadromous) Arctic char from the landlocked variant (*nutilliarjuk*), which was noted to dominate the waters around Mary River (KP, 2014). Sea run Arctic char were preferred for size and flavour, and the river systems where they were fished were well-known:

> *There is a lot of landlocked char which are red in color and they don't migrate to the ocean at all. Also, in the Mary River area, there is a whole lot of landlocked char. There are all kinds of fish which don't go to the ocean. And also, at a place in Iqaluit, so that's our fishing spot and at the area there. When you lived there, we would go berry picking because it's so close. As you approached it you could see the whole area and it looks like it's red. A lot of landlocked fish congregate there. Also, at a place called Auliqqua, the rivers there are very deep. When we were children, we would go out walking on the land trying to pick berries. There were a lot of black berries and a lot of times, you would see fish swarming, swimming away from us when the sun was shining. And you could see they were very red in color. We used to harvest them as well and the meat is white and they're very pleasant to eat but nowadays we hardly eat them anymore. (PI-14 (Pond Inlet); KP, 2014):*

> *At Tugaat Lake was I was saying the fish [sea run Arctic char] tastes like sweet taste and the skin is thin. At Tugaat Lake, I was saying this to, its even better, you can eat it but you don't have heart burn, if you eat too much you get heart burn. But Tugaat Lake you can eat it day after day, day after day and you don't get heartburn. (P07, 05-Feb-19 in QIA, 2019)*

Fishing of inland or land-locked char appears to be associated with traveling and hunting on the land. Often inland fishing sites were not the destination, but a part of a larger activity such as caribou hunting (Brody, 1976). Traditionally, land-locked char was an essential food source for Inuit and the dogs accompanying them during the mid to late 20th century (Aporta, 2009). Fish caches were placed strategically (Aporta, 2004). While snowmobile travel has replaced dogs for inland travel, fishing while inland travelling still takes place. One participant in the Tusaqtavut Report acknowledges catching fish alongside other inland activities (QIA, 2019):



LEGEND:

- PROJECT LOCATION
- COMMUNITY
- MILNE INLET TOTE ROAD
- PROPOSED RAIL ALIGNMENT
- NOMINAL SHIPPING ROUTE

FISH HARVEST LOCATIONS

- POND INLET
- OGLOOLIK
- SANIRAJAK (HALL BEACH)
- CLYDE RIVER
- ARCTIC BAY

NOTES:

1. COORDINATE GRID IS IN METRES.
   COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N.
2. BASE MAP: © ATLAS OF CANADA - NORTHERN CANADA, 2011.
3. HARVEST DATA FROM THE NUNAVUT WILDLIFE HARVEST STUDY (2004). ISSUED BY THE NUNAVUT WILDLIFE MANAGEMENT BOARD (PRIEST AND USHER, 2004).

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BAFFINLAND IRON MINES CORPORATION

MARY RIVER PROJECT

FISH HARVESTS
NUNAVUT WILDLIFE HARVEST STUDY
(1996-2001)

Knight Piésold CONSULTING

P/A NO.	REF NO.
NB102-181/108	2

FIGURE 3.2 REV 0

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Every time they go through there [Mary River], they would catch fish as well. When they wish to eat fish, they would fish there (P04, 05-Feb-19, interpreted from Inuktitut in QIA, 2019).

Elders from Arctic Bay, Igloolik and Pond Inlet that were interviewed in 2007 and 2008 identified the Arctic char fishing areas identified on Figure 3.3. Community members still fish for Arctic char at the mouths of Robertson River, Phillips Creek and Tugaat River and fish in the areas of Qurluqtuq and Tugaat Lake, all of which are accessed from Milne Inlet.

Figure 3.4 presents the waterbodies that Pond Inlet Elders confirmed support only landlocked Arctic char populations. This includes several lakes within the Philip Creek watershed next to the Tote Road, Camp Lake and Sheardown Lake within the Mine Site, and several lakes on the Ravn River system (Angijurjuk Lake and Inuktorfik Lake), and another lake that drains south to Steensby Inlet. A few lakes were also circled that are known to support anadromous Arctic char populations (Qurluktuk Lake and Beta River, the upstream reaches of the Tugaat River).

These fishing sites are intimately connected to camps and dwelling locations, where large groups of community members would and could gather to fish. Participants in the Tusaqtavut Report (QIA, 2019) discuss the areas they camped and fished:

And a whole bunch of people would be camped out at Qurluqtuq Bay, all fishing (P02, 04-Feb-19, interpreted from Inuktitut in QIA, 2019).

Before Mary River. Fishing place in the summertime right there through the river up to here [Phillips Creek]. That's the falls. Right there is where they – that's where they would camp out when the fish are going up stream. That is a very famous fishing spot (P04, 05-Feb-19, interpreted from Inuktitut in QIA, 2019).

But when they lived–when they were camped at Tugaat they would have like gill nets out in the ocean, they would catch lots of fish there (P02, 04-Feb19, interpreted from Inuktitut in QIA, 2019).

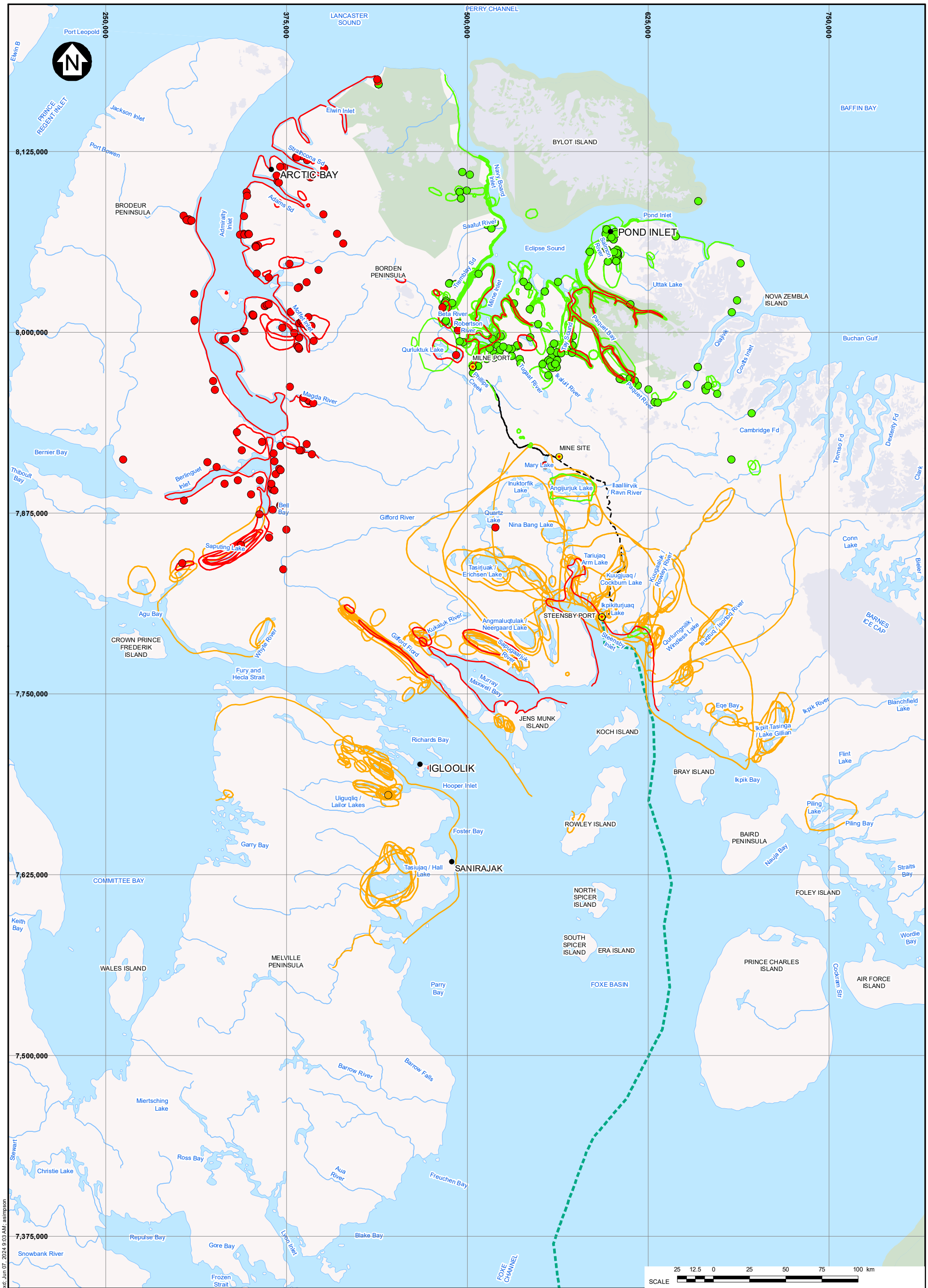
Declines in Arctic char numbers was reported in the Tusaqtavut Report (QIA, 2019). Interviewees observed that the declines were taking place in lakes near the Tote Road and Mine Site, but not exclusively. Some declines were observed well away from the Mine Site and Tote Road such as on the Tugaat River and on Utuk Lake near Pond Inlet. These comments reinforce the value that is placed in Arctic char by Inuit in the region.

Right now, there's not too many fish in this lake [Uttuuk Lake] anymore, so you'd be lucky if you get two or three overnight. There used to be just an amazing number of fish... and they would just use the gill nets along the beach [in front of Pond Inlet] and just scoop the fish. (P13, QIA, 2019).

He knows the way to Mary River very well, he's travelled it quite a few times. And they used to have a lot of fish, and they say - people are saying that the fish, that char, aren't there anymore. (P08, 05-Feb-19, interpreted from Inuktitut in QIA, 2019).

Growing up, we used to go there [Tugaat River] every summer for, we used to do that every summer for caribou hunting, there used to be plenty and lots of fish, now there's nothing. (P17, 07-Feb-19 in QIA, 2019).

One of the Igloolik Elders (Theo Ikummaq) interviewed in 2008 mapped the river/lake systems supporting Arctic char that flow into northern Foxe Basin (Figure 3.5). Theo and his family lived in the old outpost camp next to the Steensby Port site for seven years (IG-03 Theo Ikummaq; KP, 2014).



LEGEND:

- PROJECT LOCATION
- COMMUNITY
- MILNE INLET TOTE ROAD
- PROPOSED RAIL ALIGNMENT
- NOMINAL SHIPPING ROUTE
- ARCTIC CHAR FISHING LOCATION (ARCTIC BAY)
- ARCTIC CHAR FISHING LOCATION (POND INLET)
- ARCTIC CHAR FISHING LOCATION (IGLOOLIK)

NOTES:

1. COORDINATE GRID IS IN METRES.
   COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N.
2. BASE MAP: © ATLAS OF CANADA - NORTHERN CANADA, 2011.
3. THIS MAP WAS PRODUCED FROM INFORMATION COLLECTED DURING INUIT QAUJIMAJATUQANGIT INTERVIEWS WITH LOCAL RESIDENTS FROM 2007-2008 AS PART OF THE MARY RIVER INUIT KNOWLEDGE STUDY (KP, 2014). THIS INFORMATION SHOWS PATTERNS OF LAND USE AND LOCAL KNOWLEDGE OF THE LAND. THE MAP IS NOT INTENDED TO BE A COMPLETE REPRESENTATION OF WHAT IS KNOWN.

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BAFFINLAND IRON MINES CORPORATION

MARY RIVER PROJECT

ARCTIC CHAR FISHING LOCATIONS INTERVIEW RESULTS (2007-2008)

Knight Piésold CONSULTING

P/A NO.	REF NO.
NB102-181/108	2

FIGURE 3.3 REV 0

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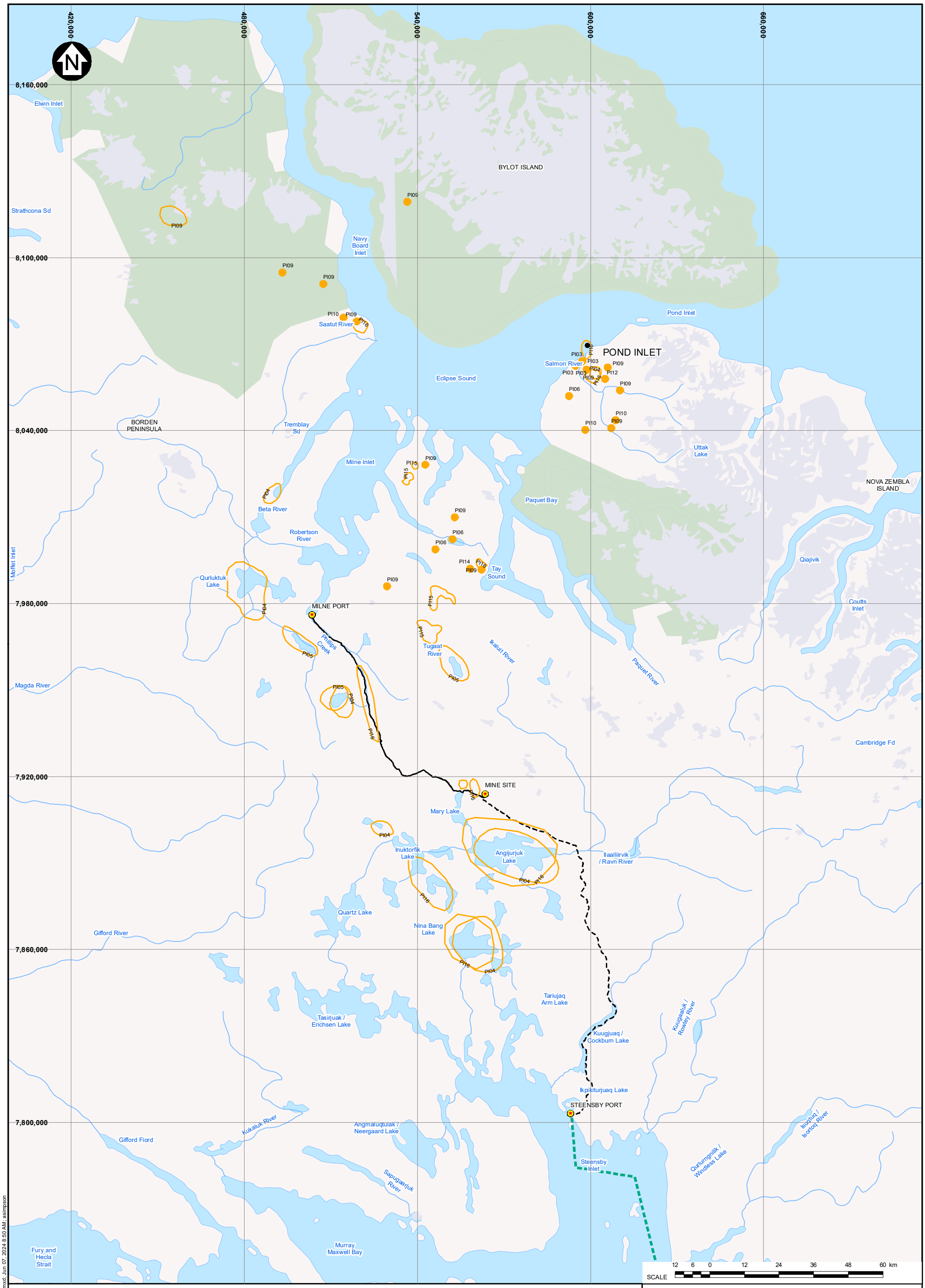

LEGEND:

- PROJECT LOCATION
- COMMUNITY
- MILNE INLET TOTE ROAD
- PROPOSED RAIL ALIGNMENT
- NOMINAL SHIPPING ROUTE
- ARCTIC CHAR-LAND LOCKED

NOTES:

1. COORDINATE GRID IS IN METRES.
   COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N.
2. BASE MAP: © ATLAS OF CANADA - NORTHERN CANADA, 2011.
3. THIS MAP WAS PRODUCED FROM INFORMATION COLLECTED DURING INUIT QAUJIMAJATUQANGIT INTERVIEWS WITH LOCAL RESIDENTS FROM 2007-2008 AS PART OF THE MARY RIVER INUIT KNOWLEDGE STUDY (KP, 2014). THIS INFORMATION SHOWS PATTERNS OF LAND USE AND LOCAL KNOWLEDGE OF THE LAND. THE MAP IS NOT INTENDED TO BE A COMPLETE REPRESENTATION OF WHAT IS KNOWN.

REV	DATE	DESCRIPTION	DESIGNED	DRAWN	REVIEWED
0	07JUN'24	ISSUED WITH REPORT	RAC	AS	WOG

BAFFINLAND IRON MINES CORPORATION

MARY RIVER PROJECT

LANDLOCKED ARCTIC CHAR LAKES - POND INLET INTERVIEW RESULTS (2007-2008)

Knight Piésold CONSULTING

P/A NO.	REF NO.
NB102-181/108	2

FIGURE 3.4 REV 0

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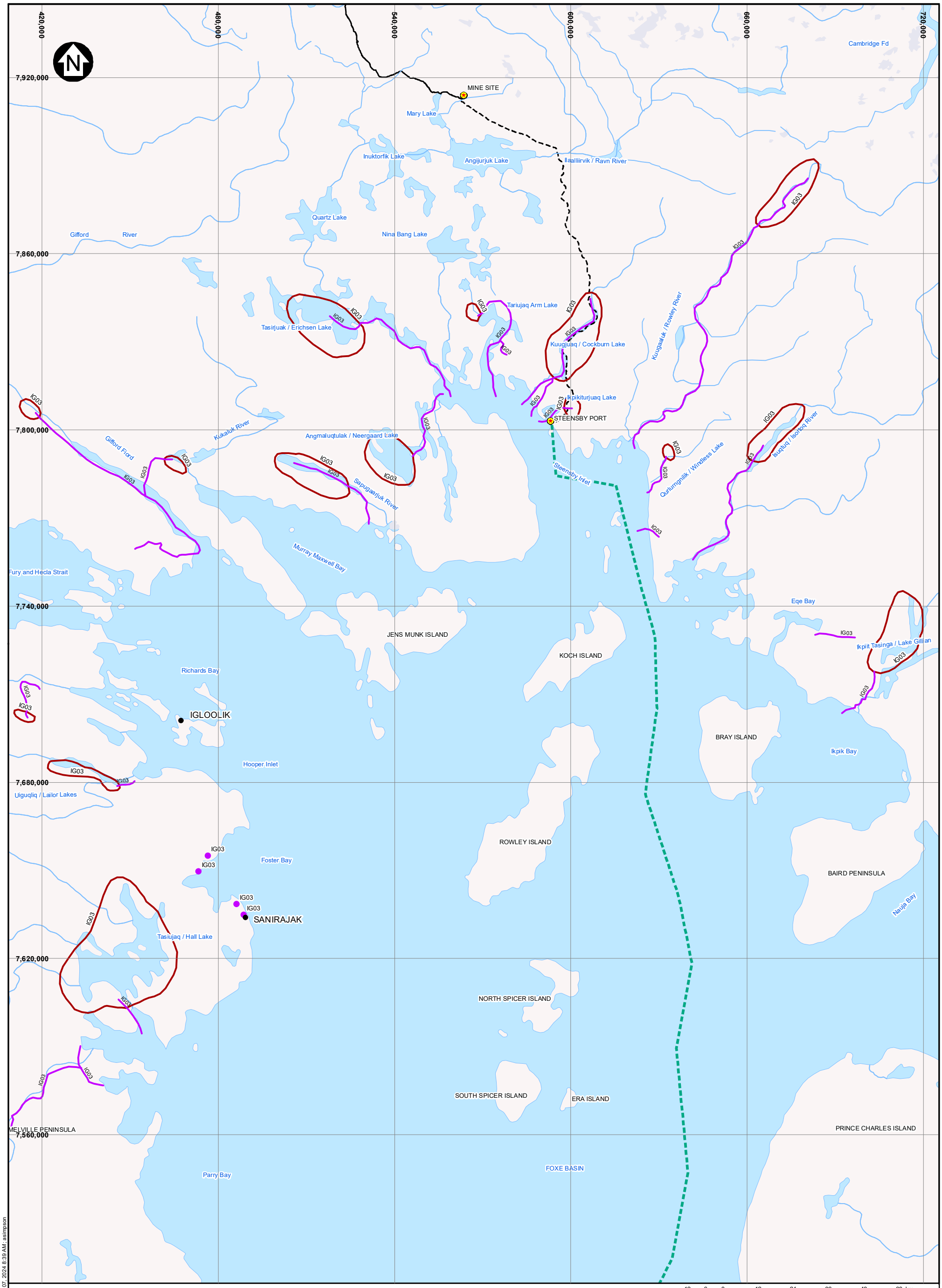

LEGEND:

- PROJECT LOCATION
- COMMUNITY
- MILNE INLET TOTE ROAD
- PROPOSED RAIL ALIGNMENT
- NOMINAL SHIPPING ROUTE
- IG03, ARCTIC CHAR - GENERAL
- IG03, ARCTIC CHAR - WINTER LOCATION

NOTES:

1. BASE MAP: © HER MAJESTY THE QUEEN IN RIGHTS OF CANADA, DEPARTMENT OF NATURAL RESOURCES (2004). ALL RIGHTS RESERVED.
2. COORDINATE GRID IS SHOWN IN UTM (NAD83) ZONE 17 AND IS IN METRES.
3. THIS MAP WAS PRODUCED FROM INFORMATION COLLECTED DURING INUIT QAUJIMAJATUQANGIT INTERVIEWS WITH LOCAL RESIDENTS. THIS INFORMATION SHOWS PATTERNS OF LAND USE AND LOCAL KNOWLEDGE OF THE LAND. THE MAP IS NOT INTENDED TO BE A COMPLETE REPRESENTATION OF WHAT IS KNOWN.

SCALE 12 6 0 12 24 36 48 60 km

BAFFINLAND IRON MINES CORPORATION

MARY RIVER PROJECT

ANADROMOUS ARCTIC CHAR RIVER/LAKE SYSTEMS IDENTIFIED BY THEO IKUMMAQ

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P/A NO. NB102-181/108

REF NO. 2

FIGURE 3.5

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3.5 LAKES WITH COMMERCIAL FISHING QUOTAS

The most productive river/lake systems in the region have been studied and commercial fishing quotas have been established by DFO under Schedule V of the Northwest Territories Fishery Regulations. Additional river/lake systems were identified in 2013 as exploratory fisheries (DFO, 2013). These are both shown on Figure 3.6. This includes the Salmon River and Utuk Lake located south of Pond Inlet, the Ikaluit River at the head of Tay Sound, and the Tugaat and Robertson Rivers that report to Milne Inlet. All these waterbodies support overwintering of anadromous populations of Arctic char (Read and Roberge, 1991; Riewe, 1992; Read, 2004). South of the Mine Site, there are several large rivers that drain into Steensby Inlet which also support anadromous populations of Arctic char: Ikpikitturjuak River near Steensby Port, Cockburn River and Lake adjacent to the Steensby Railway, the Rowley and Isortoq Rivers to the southeast, and the Ravn River draining into the northwest end of Steensby Inlet (Kroeker, 1987). These are the same river/lake systems identified as fishing sites in the information sources referenced above.

3.6 NUNAVUT COASTAL RESOURCE INVENTORY

The Government of Nunavut completed coastal resource inventories in Nunavut communities starting with a pilot project in Igloolik in 2007 (Government of Nunavut [GN], 2008). The coastal resource inventories were conducted with the following goals:

- Gather reliable information on coastal resources to facilitate their strategic assessment, leading to the promotion of economic development, coastal management, and conservation opportunities
- Preservation of Inuit knowledge
- Preparation for forthcoming environmental changes, particularly those driven by climate change.

The study involved interviewing knowledgeable land users on where various coastal resources can be found, including marine mammals, fish, and invertebrates, birds, and marine plants. Coastal resource inventory reports were published for the other communities closest to the Project in subsequent years, including Arctic Bay (GN, 2010), Clyde River (GN, 2014), Sanirajak (GN, 2018a), and Pond Inlet (GN, 2018b).

Figure 3.7 presents the areas of occurrence of Arctic char identified through 10 interviews conducted with Pond Inlet knowledge holders in 2016 as part of the Nunavut Coastal Resource Inventory (GN, 2018). The areas identified included the coastal river/lake systems that support anadromous Arctic char. The inland waterbodies near the Project that support landlocked Arctic char were not identified. We interpret this as emphasizing the relative importance of the anadromous Arctic char waterbodies relative to those that support landlocked Arctic char.

Figures 3.8 and 3.9 show the areas of occurrence for Arctic char and lake trout, respectively, as identified by Igloolik knowledge holders in 2007. Lake trout are found in the lakes on Melville Peninsula, sometimes with Arctic char in the same lake (Riewe, 1992; GN, 2008).

Figure 3.10 shows the waterbodies that were identified by Igloolik land users as having a high abundance of fish. This includes several lakes on the Melville Peninsula as well as on Baffin Island. Tasirjuak (Erichsen Lake), which drains into Steensby Inlet and supports a landlocked population of Arctic char, was noted to have a high abundance of fish. Other river systems flowing into Steensby Inlet were not identified as having a high abundance of fish.

LEGEND:

- PROJECT LOCATION
- COMMUNITY
- MILNE INLET TOTE ROAD
- PROPOSED RAIL ALIGNMENT
- NOMINAL SHIPPING ROUTE
- LANDLOCKED POPULATION
- SEA-RUN AND LANDLOCKED POPULATION
- SEA-RUN POPULATION
- EXPLORATORY FISHERIES WATERBODY

NOTES:

1. COORDINATE GRID IS IN METRES. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N.
2. BASE MAP: © ATLAS OF CANADA - NORTHERN CANADA, 2011.
3. COMMERCIAL FISHING QUOTAS FROM SCHEDULE V OF THE NORTHWEST TERRITORIES FISHERY REGULATIONS.
4. EXPLORATORY FISHERIES IDENTIFIED BY DFO, 2013.

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BAFFINLAND IRON MINES CORPORATION

MARY RIVER PROJECT

WATERBODIES WITH COMMERCIAL FISHING QUOTAS

Knight Piésold CONSULTING

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REF NO. 2

FIGURE 3.6

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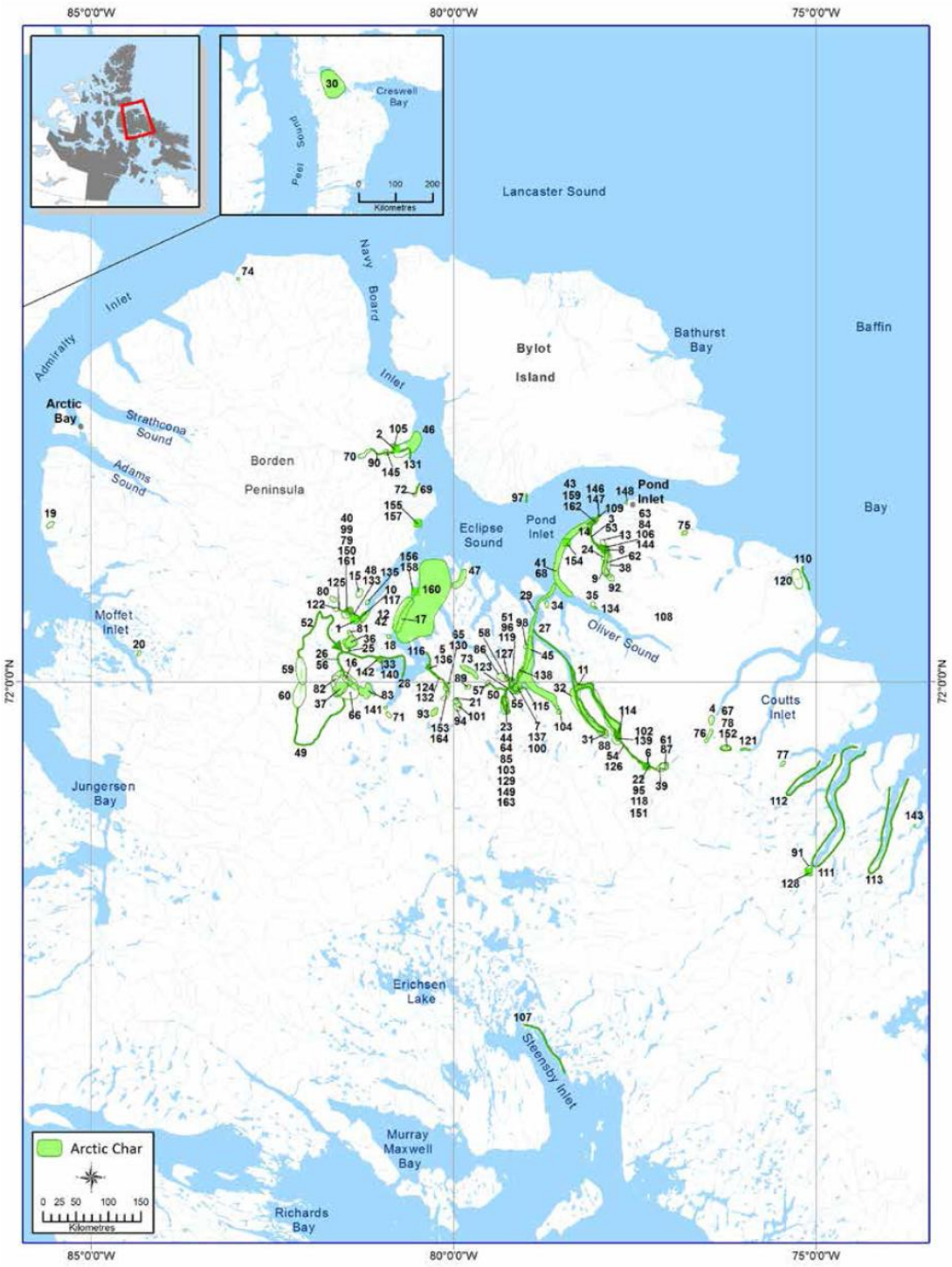


Figure 3.7 Pond Inlet's Arctic Char Areas of Occurrence (GN, 2018b)

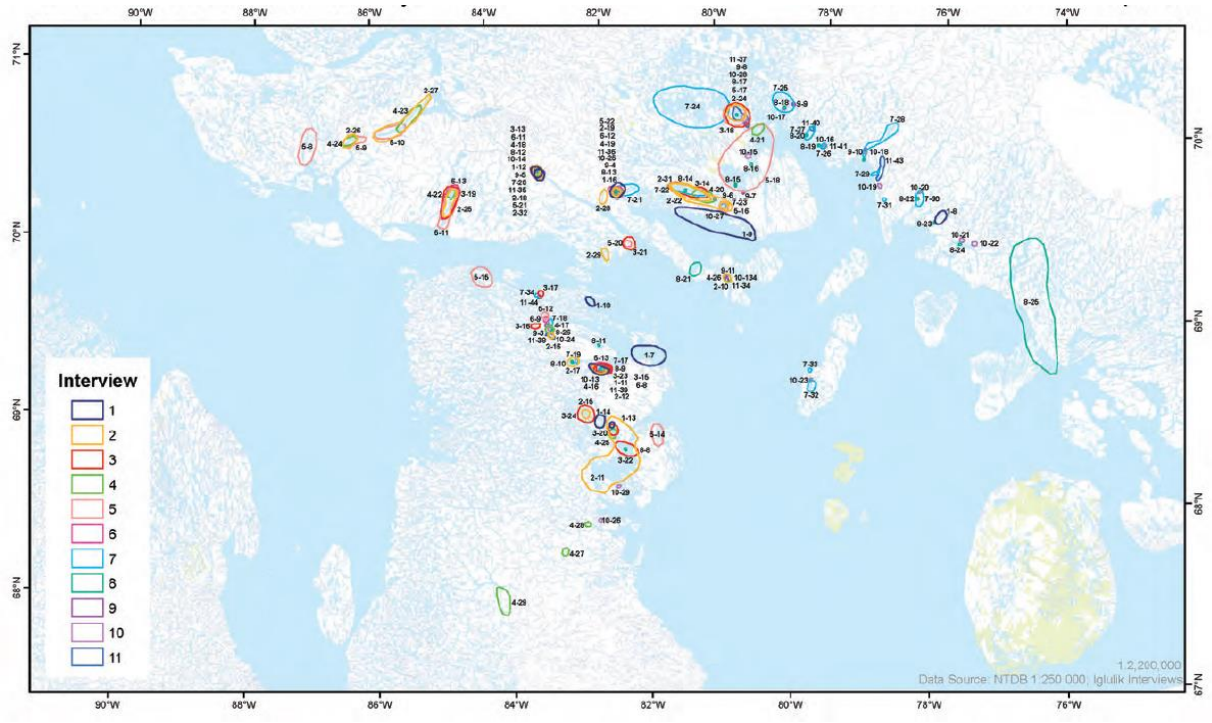


Figure 3.8 Igloolik's Arctic Char Areas of Occurrence (GN, 2008)

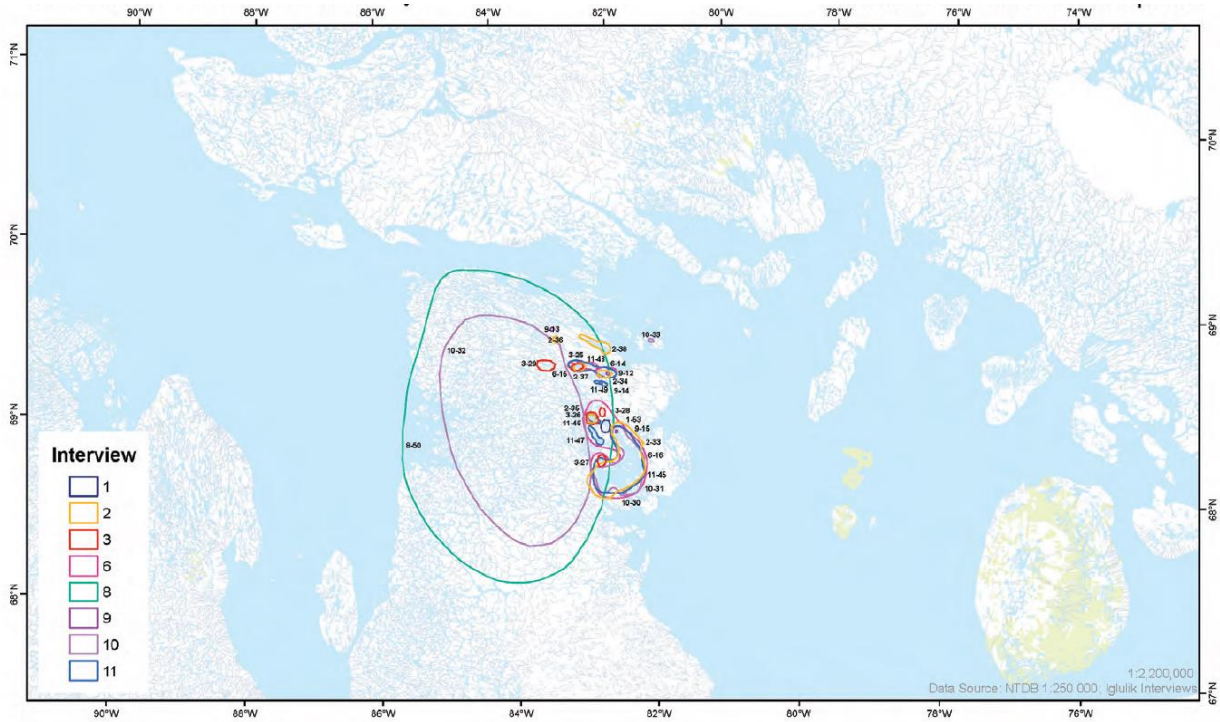


Figure 3.9 Igloolik's Lake Trout Areas of Occurrence (GN, 2008)

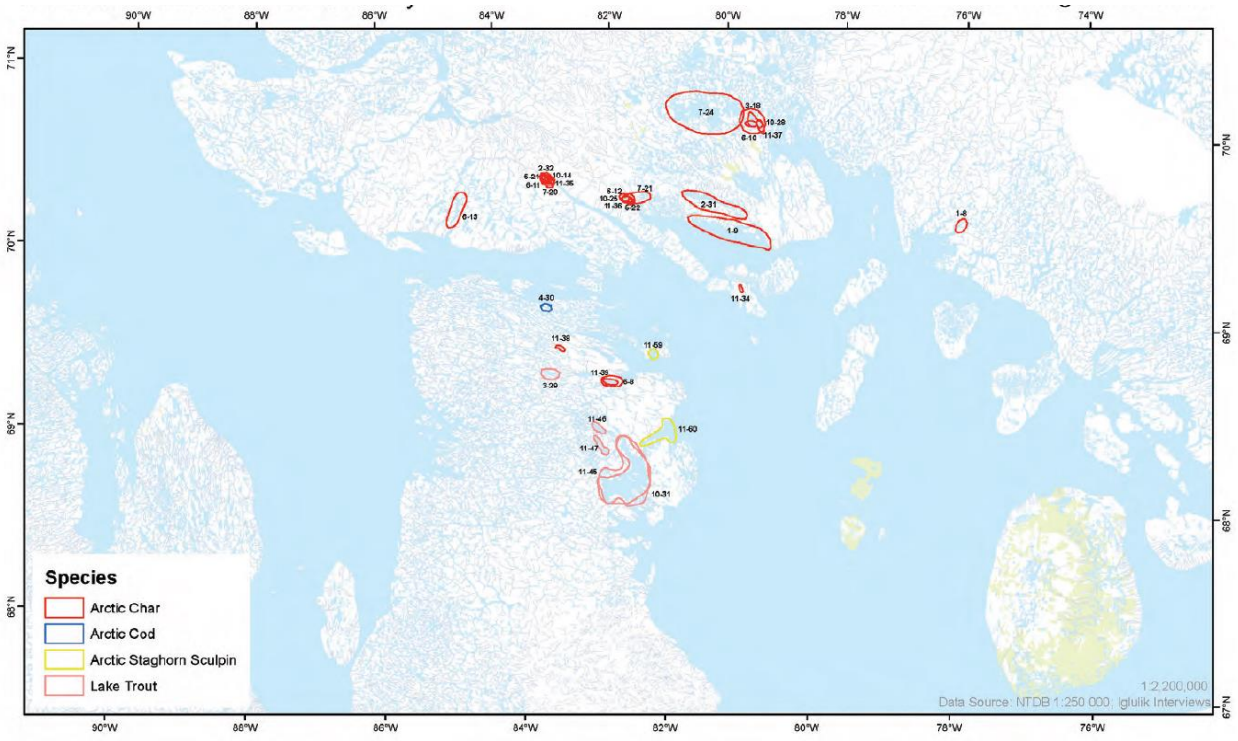


Figure 3.10 Igloolik's Areas of High Abundance of Fish (GN, 2008)

3.7 TUSAQTAVUT STUDIES

As noted in Section 2.2, the QIA completed Tusaqtavut Studies in the five North Baffin communities closest to the Project from 2019 to 2021 as part of its review of Baffinland's Phase 2 Proposal (QIA, 2019, 2021a, 2021b). Fishing and freshwater values are presented on Figures 2.2 and 2.3. As discussed in Section 2.2, we believe that the freshwater values are mainly sources of drinking water associated with camps that have been mapped in the area (Figure 2.6).

4.0 CULTURAL AND HISTORICAL IMPORTANCE

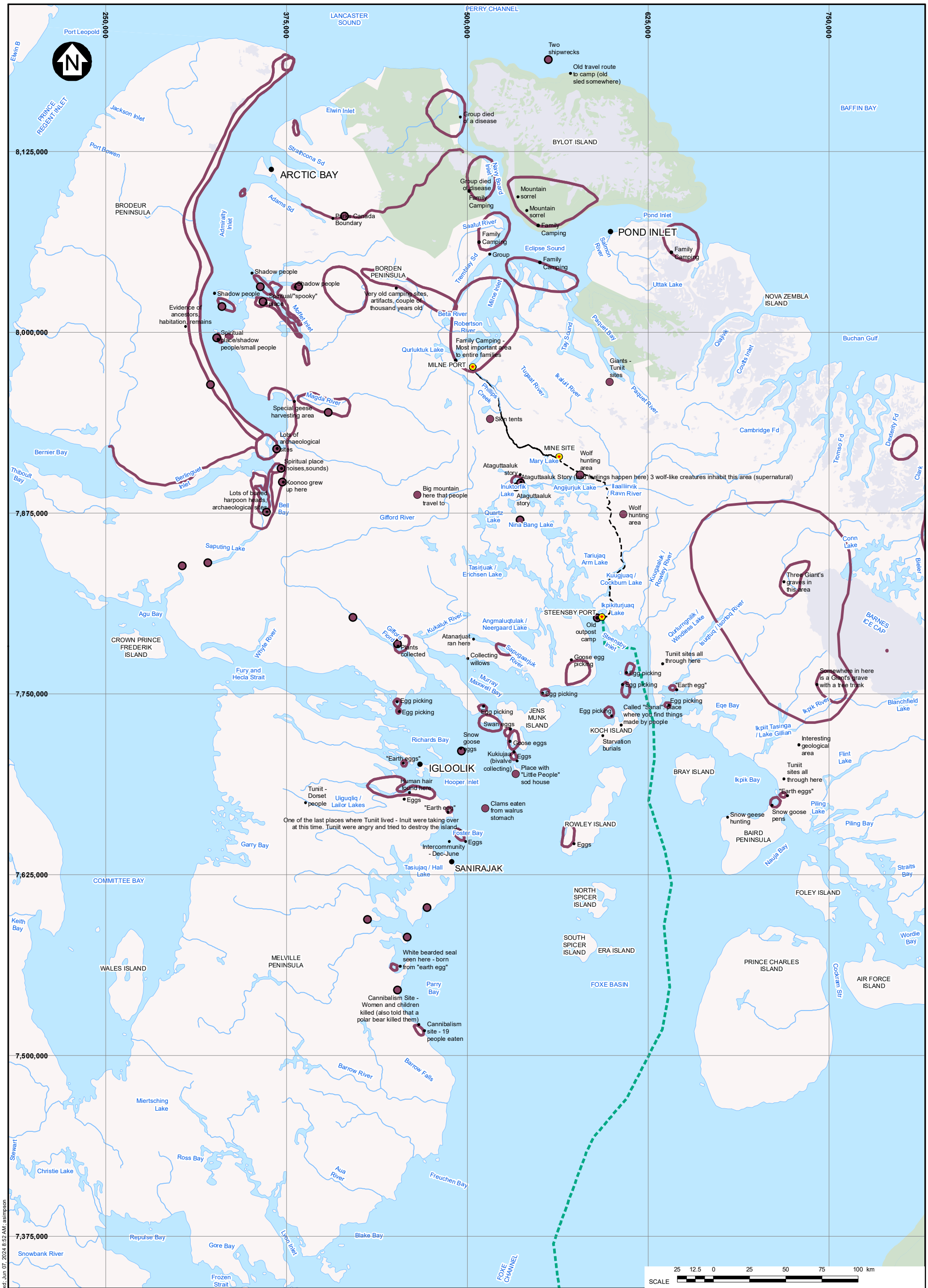
Waterbodies may also have cultural and historical importance to local communities. One such waterbody that we have become aware of through MRIKS is Inuktorfik Lake, which is located downstream Angijurjuk Lake on the Ravn River system, and removed from the Project (Figure 4.1). It is the location of the survival story of Atagutaaluk, who in about 1905 survived starvation by cannibalising her deceased family. She was eventually found and brought back to Igloolik, where she was brought back to good health and had another large family. She was honoured for her survival abilities and was named the Queen of Igloolik. Many of today's residents of Igloolik are her descendants, and the elementary school in Igloolik is named after her.

Other sites of cultural and historical importance are presented on Figure 4.1. For example, the same area where the story of Atagutaaluk occurred is said to be occupied by three supernatural wolves. Some knowledge holders identified archaeological sites related to the Tuniit, larger stature people who preceded modern Inuit. Several locations of "earth eggs" are also identified. These were described to the author by the late Mishak Allurut of Arctic Bay as being egg shaped objects the size of a football, that if disturbed, could cause severe weather, or misfortunes in hunting or otherwise (Mishak Allurut, pers.comm.). Igloolik Elder George A. Kappianaq described earth eggs as follows (Centre for Youth, Research, Science Teaching and Learning, University of Manitoba and Canadian Council for Learning Natural Sciences and Engineering Research Council, 2008):

> *One must also be careful about earth eggs [earthern spheres about the size of baseball to globe-size]. One must not break them or should take very good care of them, nor should one take one home. They are much bigger than the bird eggs. The hatching from an earth egg is known as PUKIQ [Albino]. Be it a caribou fawn or a fully grown PUKIQ, it should not be killed because you like the rare species. The reason is that the SILA's [weather's] grieving is said to be powerful.*
>
> *There are also earth eggs in the water. These will turn to marine animals. Last spring there was an earth egg that was seen in the water in the spring camp. I told everyone that they should leave it well alone. One time my cousin caught an albino yearling caribou in the spring time. What followed was a terrible snow storm. In the past people used to be hit with hard times when a foul weather unexpectedly came upon them which was said to be the SILA's way of grieving.*
>
> *The eggs that are found in the water are called when they hatch as `SILAAN' [earth eggs]. This covers the bearded seals, polar bears, and narwhales in particular. It is said that when a bearded seal is albino you while be able to see a diamond shape mark on the back between the shoulders of the bearded seals. Should one come across this type of bearded seal no matter how close it may get especially when it appears as if it is not afraid and would splash dive, it is advised that this animal should be left alone. It is also said that in the event that one is caught SILA can make her grieving known in a powerful way.*

Earth eggs were identified as existing along the western coast of Baffin Island, south of Steensby Inlet (Figure 4.1). No earth eggs were identified in close proximity to the Project.

Other special places identified during the 2007-2008 MRIKS interviews are presented in Figure 4.2. Many study participants identified the Mine Site as a source of carving stone and other important resources.



LEGEND:

- PROJECT LOCATION
- COMMUNITY
- MILNE INLET TOTE ROAD
- PROPOSED RAIL ALIGNMENT
- NOMINAL SHIPPING ROUTE
- SPECIAL PLACES

NOTES:

1. COORDINATE GRID IS IN METRES. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N.
2. BASE MAP: © ATLAS OF CANADA - NORTHERN CANADA, 2011.
3. THIS MAP WAS PRODUCED FROM INFORMATION COLLECTED DURING INUIT QAUJIMAJATUQANGIT WORKSHOPS IN THE COMMUNITIES OF ARCTIC BAY (JULY 22-23, 2008), CLYDE RIVER (JULY 18-19, 2008), HALL BEACH (JULY 8-9, 2008), IGLOOLIK (JULY 10-12, 2008) AND POND INLET (JULY 15-17 AND SETEPMBER 4, 2008). THIS INFORMATION SHOWS PATTERNS OF LAND USE AND LOCAL KNOWLEDGE OF THE LAND. THIS MAP IS NOT INTENDED TO BE A COMPLETE REPRESENTATION OF WHAT IS KNOWN.

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MARY RIVER PROJECT

SPECIAL PLACES - PROJECT STUDY AREA WORKSHOP RESULTS (2008)

Knight Piésold CONSULTING

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FIGURE 4.1 REV 0

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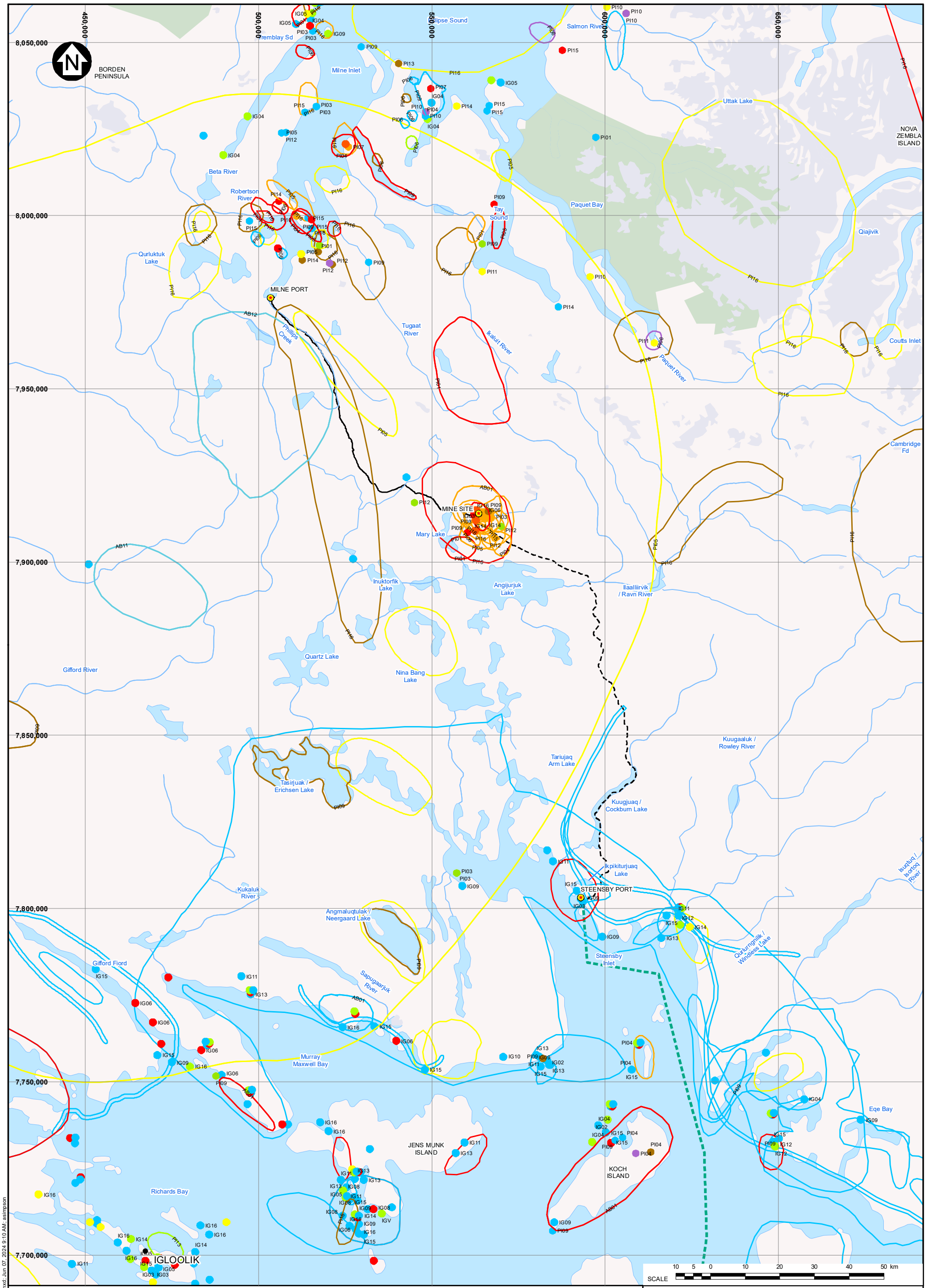

LEGEND:

- PROJECT LOCATION
- COMMUNITY
- MILNE INLET TOTE ROAD
- PROPOSED RAIL ALIGNMENT
- NOMINAL SHIPPING ROUTE
- ARCHAEOLOGICAL SITES
- BURIAL SITES
- CARVING STONE OR FLINT DEPOSIT LOCATION
- COLLECTION AREA FOR SIGNIFICANT RESOURCES (YEAR-ROUND)
- CONSULTANT'S BIRTH LOCATION
- CONSULTANT'S CAMP LOCATION AND MAJOR YEAR-ROUND CAMPS
- SPECIAL AREAS

NOTES:

1. COORDINATE GRID IS IN METRES. COORDINATE SYSTEM: NAD 1983 UTM ZONE 17N.
2. BASE MAP: © ATLAS OF CANADA - NORTHERN CANADA, 2011.
3. THIS MAP WAS PRODUCED FROM INFORMATION COLLECTED DURING INUIT QAUJIMAJATUQANGIT INTERVIEWS WITH LOCAL RESIDENTS FROM 2007-2008 AS PART OF THE MARY RIVER INUIT KNOWLEDGE STUDY (KP, 2014). THIS INFORMATION SHOWS PATTERNS OF LAND USE AND LOCAL KNOWLEDGE OF THE LAND. THE MAP IS NOT INTENDED TO BE A COMPLETE REPRESENTATION OF WHAT IS KNOWN.

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BAFFINLAND IRON MINES CORPORATION

MARY RIVER PROJECT

SPECIAL PLACES - PROJECT STUDY AREA INTERVIEW RESULTS (2007-2008)

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P/A NO. NB102-181/108

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FIGURE 4.2

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5.0 CONCLUSIONS

Through our review of the referenced sources, we have identified that waterbodies can be important to Inuit for generally three reasons:

- Drinking water
- Fish harvesting
- Cultural or historical significance

Generally, snow and waterbodies (lakes and streams) are important where they are utilized as a source of drinking water while on the land. The Phillips Creek valley within which the Tote Road is located is an important overland route to access caribou hunting areas, and to a lesser extent, inland lakes supporting landlocked Arctic char. The Tusaqtavut Study (Figures 2.2 and 2.3) identified several freshwater values along the Tote Road. Though the nature of these freshwater values is not available, we infer that these are associated with camping sites that have been identified in the MRIKS (KP, 2014).

Lakes and rivers may also be considered important by local communities because they are important for harvesting fish. Several sources of information reviewed in this report (Nunavut Atlas, the Nunavut Wildlife Harvest Study, MRIKS, DFO's Commercial Fishing Quotas, and the Nunavut Coastal Resource Inventory) indicate that the waterbodies supporting anadromous populations of Arctic char are the focus of the local communities, and that this has not changed meaningfully over the past several decades.

Reviewing the location of rivers and lakes that are important for fishing, the northern portion of the Project area is removed from important anadromous Arctic char river/lake systems. The Robertson River / Qurluktuk Lake and the Tugaat River, while removed from the physical footprint of the Project, flow into Milne Inlet. There are three anadromous Arctic char lakes near the Steensby Railway and Port: Kuugjuaq (Cockburn River), Ikpikiturjuaq, and Uiguqliq. These lakes have a long history of use by the community of Igloolik, though they are distant from the community, and other lake/river systems closer to the community appear to be higher use. While fishing may occur within the landlocked Arctic char lakes in the area, that fishing is primarily focused on the river/lake systems closer to the coast that support anadromous Arctic char.

The MRIKS is a useful resource for identifying waters that are important to Inuit, i.e., with a cultural attachment and peculiar and special value. The use of waterbodies for drinking water or fishing notwithstanding, no waterbodies of cultural or historical importance near to the Project were identified in the review. The MRIKS identified one waterbody of cultural and historical significance. Inuktorfik Lake is where the survival story of Atagutaaluk occurred. This location is removed from the Project area.

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7.0 CERTIFICATION

This report was prepared and reviewed by the undersigned.

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Specialist Environmental Scientist | Associate

Reviewed:

Oscar Gustafson, R.P.Bio.
Specialist Environmental Scientist | Associate

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