Traditional and Local Knowledge Workshop for the Paulatuk Area of Interest

FINAL

Prepared for:
Fisheries and Oceans Canada
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Table of Contents

List of Tables

List of Figures

List of Photos

Abbreviations

AOI ..... Area of Interest
DFO ..... Department of Fisheries and Oceans
HTC ..... Hunters and Trappers Committee
ISR ..... Inuvialuit Settlement Region
MPA ..... Marine Protected Area
TK/LK ..... Traditional Knowledge/Local Knowledge

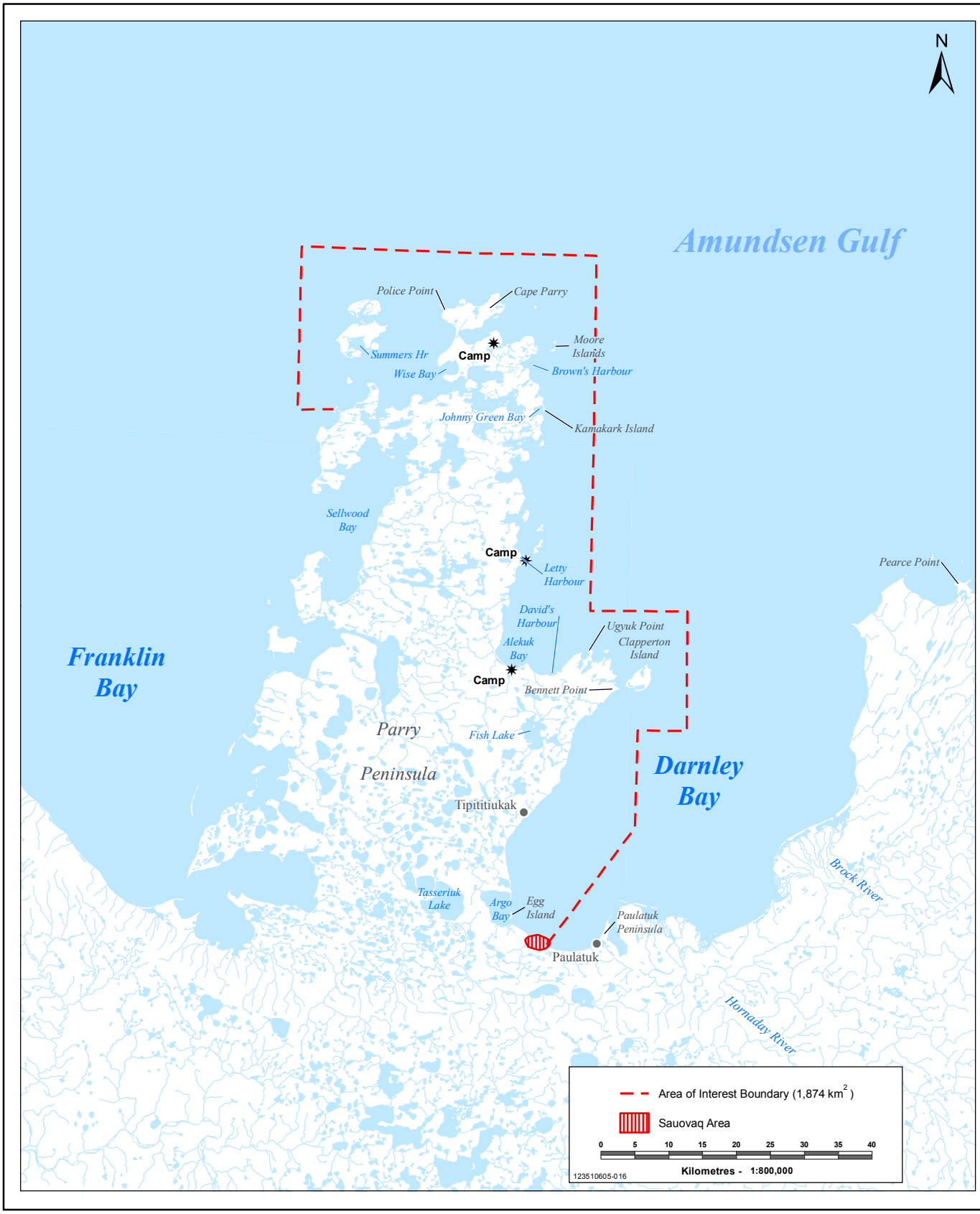
1 Introduction

In 2009 an Area of Interest (AOI) for a potential Marine Protected Area (MPA) was selected by a Site Selection Advisory Committee in collaboration with members from the communities of Paulatuk, Ulukhahtok and Sachs Harbour (KAVIK-AXYS 2010). The AOI selected included the coastal waters of Darnley Bay.

Paulatuk is the only coastal community in Darnley Bay, and is located on its southern coastline. Darnley Bay is a large productive bay which opens into Amundsen Gulf to the north, thereby linking it to the Beaufort Sea to the west and Northwest Passage to the east.

The purpose of this study was to gather Traditional and Local Knowledge (TK/LK) on the organisms and plant life in the vicinity of the Parry Peninsula with the focus based from Cape Parry along the eastern coastline down to the Paulatuk Peninsula. .

Figure 1-1 depicts the proposed boundary from which the workshop participants drew from. The information gathered from the workshop will assist with future boundary discussions and supplement existing knowledge of the area.



Paulatuk Bay AOI and Place Names

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FIGURE NO.
1-1

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2 Methods

A one and half day workshop was conducted in Paulatuk on March 17 and 18, 2011 to collect Traditional and Local Knowledge on the Paulatuk Area of Interest (AOI) for a proposed Marine Protected Area (MPA). Twelve Inuvialuit residents of Paulatuk were selected by the Hunter's and Trapper's Committee (HTC) based on their knowledge of the area. Participants ranged from young adults to elders thus representing current and past users of the area.

A questionnaire was developed by Fisheries and Oceans Canada (DFO) with the assistance of KAVIK-AXYS. The questionnaire was used to guide the discussion in the workshop (Appendix B). Three scales of maps (1:50,000, 1:125,000, and 1:250,000) were used to facilitate discussion and record participant information on. Other resources that were available to the workshop participants included: the Paulatuk Community Conservation Plan (Paulatuk et al. 2008); Inuvialuit Harvest Study Atlas and data report (Joint Secretariat 2003); pictures of commonly harvested species and assorted reference books. The workshop proceedings were recorded using digital audio recorders and by taking hand written notes. Participants drew on the maps provided to indicate presence of key species, migration routes, nesting areas and other information of value. Photos were taken of the maps and workshop participants. Furthermore, short videos were taken during the workshop to assist with accurately recording the knowledge provided.

The workshop was conducted in the Paulatuk hotel meeting room. This facility had enough space for the interview materials (maps, audio recording, and reference books) and participants to work comfortably. The workshop was facilitated by Michael Fabijan (KAVIK-AXYS) with support from Blythe Browne (DFO). The first day of the workshop began with a short introduction to the workshop process, the MPA process and current status of the Paulatuk AOI. Collection of Traditional and Local Knowledge information followed with a large group discussion of the proposed MPA area. The entire group sat circled around the 1:50,000 scale map of the area. In the afternoon workshop participants broke up into two smaller focus groups each working around a map of the area.

Discussion during the large group and breakout group sessions followed a semi-structured, open-ended question format using the developed questionnaire to guide the discussion. Maps of the study area were used to facilitate discussion and were used by the participants and facilitators to mark features such as species location, ice features, harvest areas, trails, camp locations and traditional sites. The focus of discussion was on the coastal area along the northern and eastern shores of Parry Peninsula eastward to the Paulatuk Peninsula.

The second day of the workshop was used to review, clarify and validate information collected during the first day. The facilitators presented an overview of what they had heard and understood from the previous day and asked for clarification on a number of items. The workshop participants confirmed, clarified and supplemented this information.

3 Results

The results presented in this report are divided into four general categories; ice, marine biota, geographic locations and AOI boundary. The geographic focus of the workshop was the AOI and immediate adjacent areas; however information was also discussed for areas outside the geographic scope (e.g., mouth of Horton River). Information on organisms from these areas is also presented in the results. During the workshop terrestrial animals such as caribou or robins were also mentioned. Although these animals are not marine species, they have been included in the results in order not to lose information provided at the workshop.

3.1 Ice

The ice in Darnley Bay was said to be all landfast ice[1]. Landfast ice is often referred to as "fall time ice". In the fall the wind often blows from the east causing rubble ice fields to be created in parts of Darnley Bay. Offshore of Cape Parry a strong current and west wind creates a rubble ice field. This ice rubble field marks the boundary between landfast ice and pack-ice (Figure 3-1).

Ice was reported in the workshop as not being as thick as it used to be. The area in Amundsen Gulf between Cape Parry and Nelson Head on Banks Island would often freeze over entirely with ice being 7-8 feet thick. For example, in 1984 one workshop participant travelled approximately 40 miles over the ice out towards Nelson Head, Banks Island. Now, the ice is often less than 5 feet thick and the area between Cape Parry and Nelson Head rarely freezes over completely. Generally it is no longer possible to travel 40 miles offshore anymore. The ice in this area opens and freezes throughout the winter.

Freeze-up was said to be coming later in the year. It used to be safe to travel on the ice in December; this is not always the case now and it was said that one has to be more careful now and look for black ice which is dangerous. It was reported that multi-year ice is not present anymore in Darnley Bay; one workshop participant mentioned that they had not seen multi-year ice since 1995.

In Darnley Bay, leads in the ice begin forming in May. Leads and ridges appear to form in the same places every year. Regularly occurring leads include one lead outside Brown's Harbour, one lead across Darnley Bay and another lead from the sand spit near Paulatuk westward towards the Fish Lake area (Figure 3-1).

June to early July is when the ice begins moving out of Darnley Bay, but the exact timing varies from year to year. Ice is blown out of Darnley Bay with south winds and the currents keep the ice out after that however in the last two years the ice melted within the bay.

[1] Landfast ice is generally considered ice that forms a continuous sheet of ice from the coast and is relatively immobile.

Ice Features

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FIGURE NO.
3-1

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3.2 Biota

3.2.1 Marine Vegetation

Several forms of marine vegetation have been observed by community residents in the Paulatuk AOI. The term “seaweed” was often referred to during the workshop and could mean kelp, grass like vegetation or other forms of marine vegetation. Also it was explained that when the term kelp was used, the residents were not sure if the vegetation was kelp or some other sort of marine vegetation.

Marine vegetation was reported to be most prevalent between Paulatuk and Bennett Point. It also was identified as being present in Browns Harbour and Wise Bay. Dark patches indicating vegetation can be seen when flying over nearshore areas by plane or helicopter. These areas are not large but small and scattered. Marine vegetation was reported to be generally found in areas of sandy substrate. It was noted that marine algae was observed on rocks in intertidal areas

Kelp-like seaweed was described as having blades which were approximately 2 feet in length and six inches across. Blades were described as being as thick as cow hide (approximately 1/8 inch) and having a bulb at the end. One person described kelp as consisting of a bulb, a stock and a leaf. When looking at pictures it was said to look similar to *Laminaria sp.,* a type of kelp. Fresh kelp-like seaweed when washed on shore was black, green or brown, and black when dried out. This seaweed was described as being found in shallow sandy areas and also seen in 6 feet of water but the plants do not reach the surface of the water. Workshop participants indicated that kelp-like beds do not get as large as found in coastal areas of British Columbia. Mussels were often said to be associated with the kelp-like beds.

A grass-like form of marine vegetation which grows in small patches in shallow waters was described. The blades are a quarter inch wide and approximately 1.5 – 2 feet in length. It is green and exhibits a wave like motion as water flows through it.

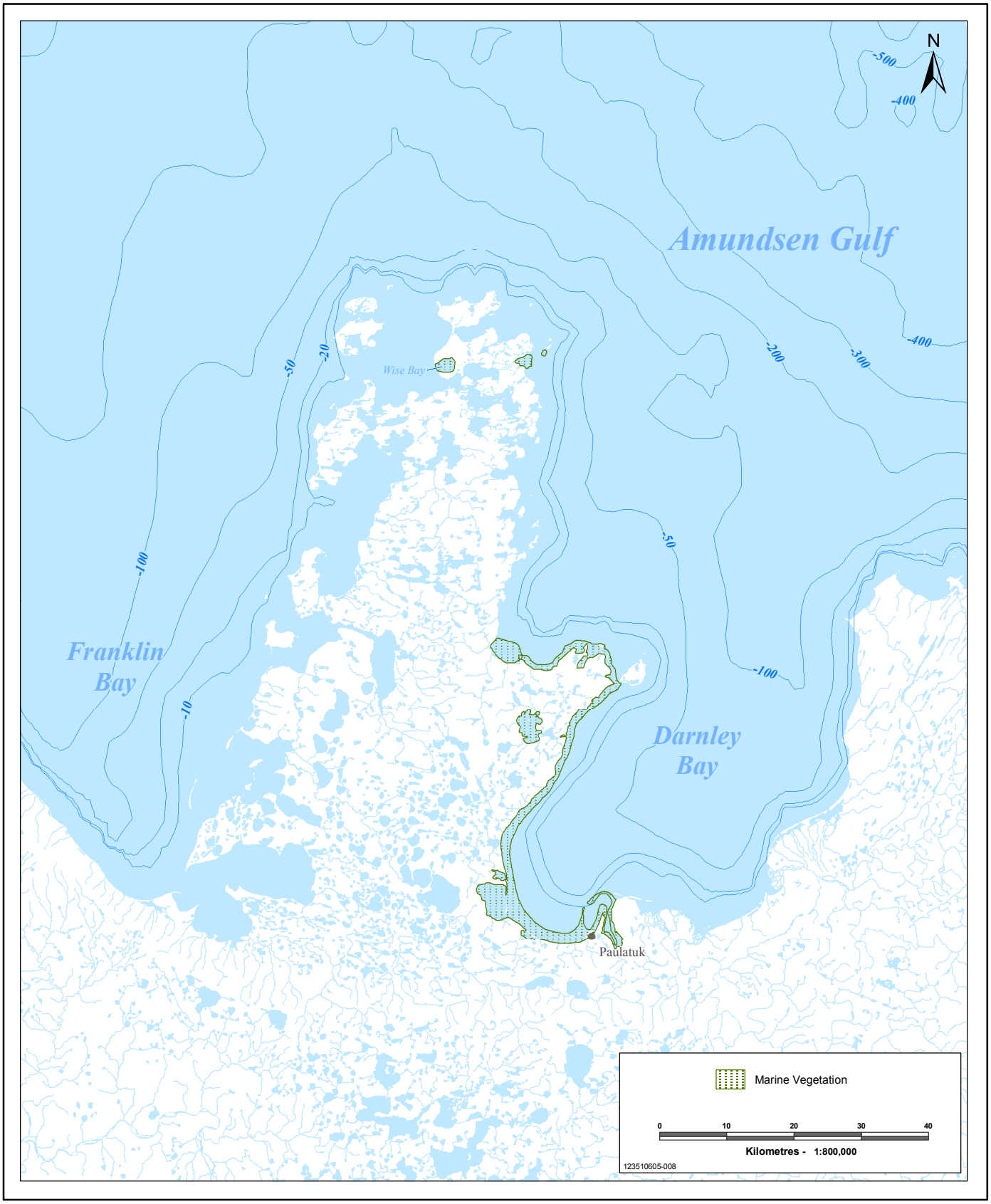
Seaweed was often observed washing ashore or found tangled in gillnets. It was brown in colour and frequently associated with mussels. Areas identified where marine vegetation is known to occur are shown in Figure 3-2.

3.2.2 Marine Invertebrates

Marine invertebrates include animals such as jellyfish, sea urchins, clams, mussels, crabs, shrimp and other crustaceans.

Green sea urchins have been observed around the top of Parry Peninsula (Figure 3-2). No explanation was given why only one type of sea urchin is found at Cape Parry. Other workshop participants noted that sea urchins are widespread throughout the AOI but they did not describe their colour.

Small crabs and shrimp were said to be seen washed up on beaches along the whole coast after the ice moves out, possibly being crushed by the moving ice. It was mentioned that sometimes crabs will be accidentally captured in nets. One workshop participant noted catching a live crab about the size of a note book with the dimensions 7½ by 9½ inches, which had long legs. Crab parts and small shrimp are often found in the feces and nests of seagulls and eider ducks. It was noted that crabs are observed more commonly now. Although crabs were mentioned to be found all along the coast, specific locations were identified as having crabs and included; Tipititiuyak, Argo Bay, the area east on the east side of Paulatuk Peninsula and Fish Camp. Large shrimp were said to be found in deep water. In particular shrimp were said to be found in deeper waters off kamakaq and Johnny Green Bay (Figure 3-2). Shrimp have been observed in the stomachs of char and bearded seals.



Areas with Marine Vegetation

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FIGURE NO.
3-2

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Photo 3-1 Crab

Photo by Frances Wolki

Photo 3-2 Shrimp

Photo by Frances Wolki

Clams and mussels are found throughout the AOI. Mussels were most often referred to in association with kelp-like plants or marine grass beds and seen washed onto the beach (Figure 3-3). One participant noted that they have not seen mussels for a long time. Workshop participants noted that they do not generally dig for clams. One workshop participant noted finding pearls in clams. Most clams found are small, being only a couple of inches across. Argo Bay was said to be a good spot to collect clams to eat.

Pink coloured jelly fish with long tentacles are sometimes noted washing up on beaches. One workshop participant noticed seeing fewer jelly fish now then 30 years ago and speculated that this may be a cyclic occurrence. One workshop participant noted that in 1947 he saw a large jelly fish in Letty Harbour. When travelling at night in August in Brown's Harbour a workshop participant noted seeing organisms in the water which were bioluminescent in the wake of the boat [2].

Other marine invertebrates mentioned were squid which were said to be found occasionally in bearded seal stomachs. Isopods, a crustacean, were said to be sometimes found caught-up in nets where they were feeding on fish captured in the net. Isopods were observed swimming upside down when coming-up through the water column. Brown tape worm looking organisms were seen in the waters in Brown's Harbour while a workshop participant was whaling.

3.2.3 Fish

Fish species identified and discussed during the workshop included, arctic char, whitefish, herring[3], bullheads (sculpins), arctic cod, rock cod, tom cod, flounders, Pacific herring, Coney (inconnu) and other unidentified fish.

One type of char discussed by some workshop participants was referred to as ocean run char or blue char. Some workshop participants thought these may be Pacific salmon. This form of char is much larger than arctic char, and its caudal fin is not forked like an arctic char fin but almost straight as in a salmon. The colour is blue and the scales are easily visible. The meat is bright red, rich tasting, and greasier than arctic char. The head was said to be small. These ocean or blue char can get quite large with one workshop participant saying they were thick and could get up to five feet long. One person mentioned they had to cut the fish in half to be able to put it in a cooler. These fish started being caught 20 years ago when more fishing was occurring along the coast. These ocean char can be caught at Tipititiuyak from early to late July. Some workshop participants thought they may be moving up rivers such as the Hornaday and Brock Rivers and into Brock Lake.

[2] Observing bioluminence at night is common in marine waters, especially on calm, clear nights. Cnidarians and chaetognaths are some of the animals which show bioluminescence in the Beaufort Sea.

[3] Herring is often used to refer to Arctic, least or lake ciscoes as opposed to Pacific herring.

Whitefish can be captured along the coast to Bennett Point. People refer to them as Argo Bay whitefish and they are quite large. As soon as the ice moves out around the middle of June they start showing up in catches. The colour of the whitefish at this time is blackish[4] and they have large scales. The whitefish are about 2-3 ft in length and very wide. There can be plenty of whitefish at Tipititiuyak and they can be caught as late as September. Lake herring, a species of whitefish were said to becoming more abundant and larger.

During hot summers workshop participants described small herring like fish that would roll onto the beaches with the waves. Black clouds of these fish could be seen along the shore around Paulatuk and Egg Island, and could easily be scooped up. Workshop participants thought these fish were coming into near shore areas to spawn. This type of event has not been seen for 4-5 years. Char will feed on these small herring-like fish when available. Some workshop participants mentioned that the char became deformed when eating these herring-like fish, it is not clear what was meant by this. Around Cape Parry large Pacific herring are known to occur.

Different cod species can be found throughout the AOI. Arctic cod are sometimes referred to as rock cod while saffron cod are often known as tom cod. Greenland cod are also known throughout the area but it is unclear whether they are also referred to as tom cod. In general all three species of cod can be found throughout the AOI. Tom cod were known to be abundant in Summers Harbour but it is unknown if this is still the case. Rock cod can be captured around Cape Parry. Jiggling for cod through the ice was sometimes conducted in Argo Bay.

Bullheads (sculpins) can be caught throughout the AOI. Bullheads appear now to be less abundant. People capture bullheads accidentally while fishing for other species such as char, whitefish and cod. Bullheads are not used by community residents.

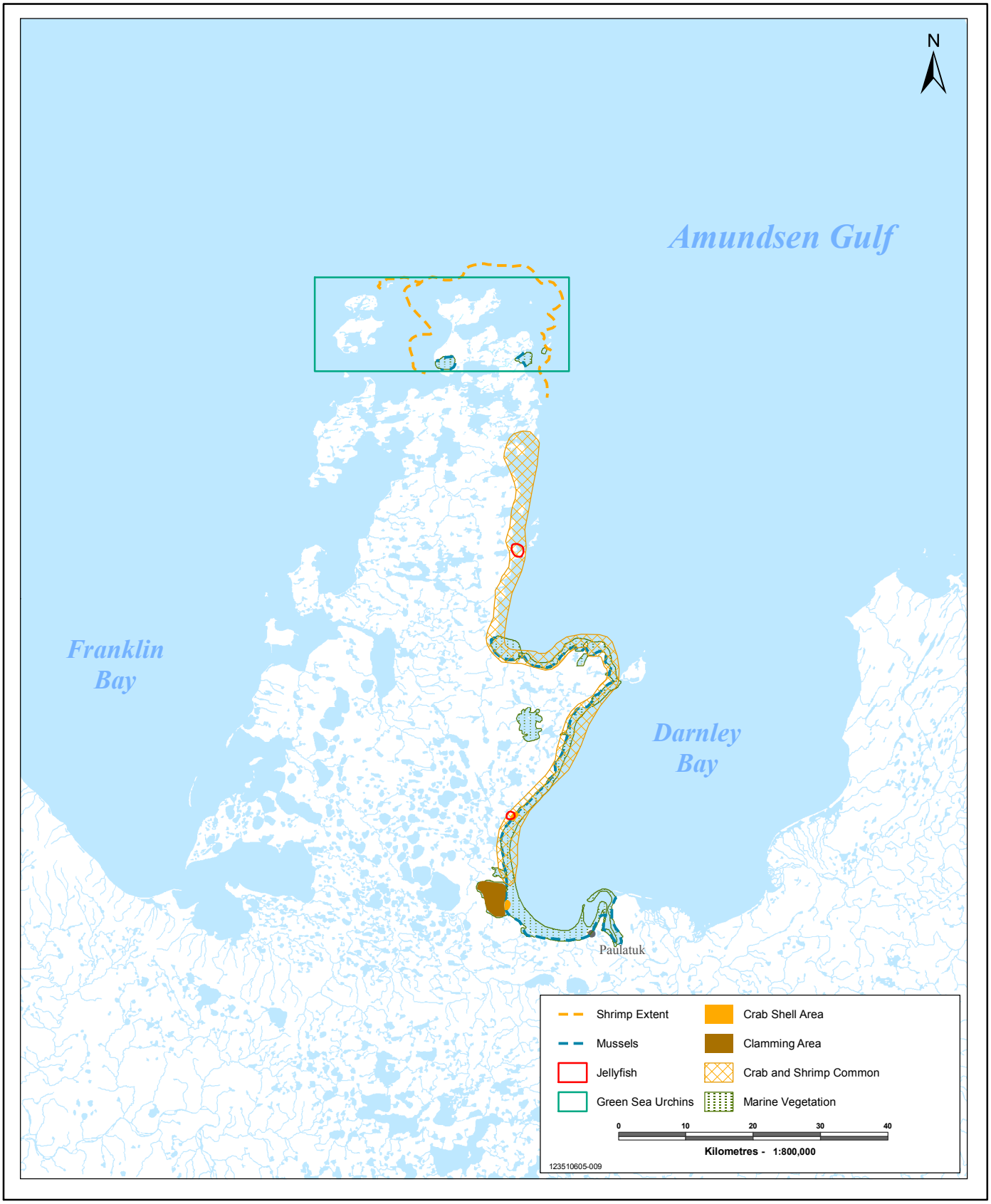
Several unknown species were described. One species described was an eel-like fish which has occasionally been observed at Pearce Point and Letty Harbour. At Brown's Harbour a fish somewhat resembling an eel was observed. It was said to look like an eel but with a fish head. The dorsal and anal fins were long and the fish had a bluish body colour. They thought it might be a sand lance. One workshop participant mentioned that when he was a teenager of about 14 or 15 years of age he thought he saw a fish which he described as an ocean loche, 16 ft in length and blackish in colour[5].

Flounder can be found all along the coast of the AOI. They were said to be smaller than halibut and there is no shortage of this species in the area. In Argo Bay they can be captured in the middle of the bay and in the shallows. They are also found just beyond the Paulatuk Peninsula and at the mouth of the Hornaday River.

Coney have been caught in the Hornaday River. The locations of key species and fish harvesting areas are identified in Figure 3-4.

[4] Whitefish which spend a lot of time in freshwater lakes sometimes develop much darker backs, almost blackish, than whitefish who travel to the coast.

[5] There have been no fish species which reaches 16 ft reported in the Beaufort Sea; however, Greenland shark which occur in the Eastern Arctic do reach 16 ft in length. There is anecdotal evidence of large sharks being seen in the Beaufort Sea by some residents in the outlying communities of the Inuvialuit Settlement Region (ISR).



Marine Invertebrate Locations

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FIGURE NO.
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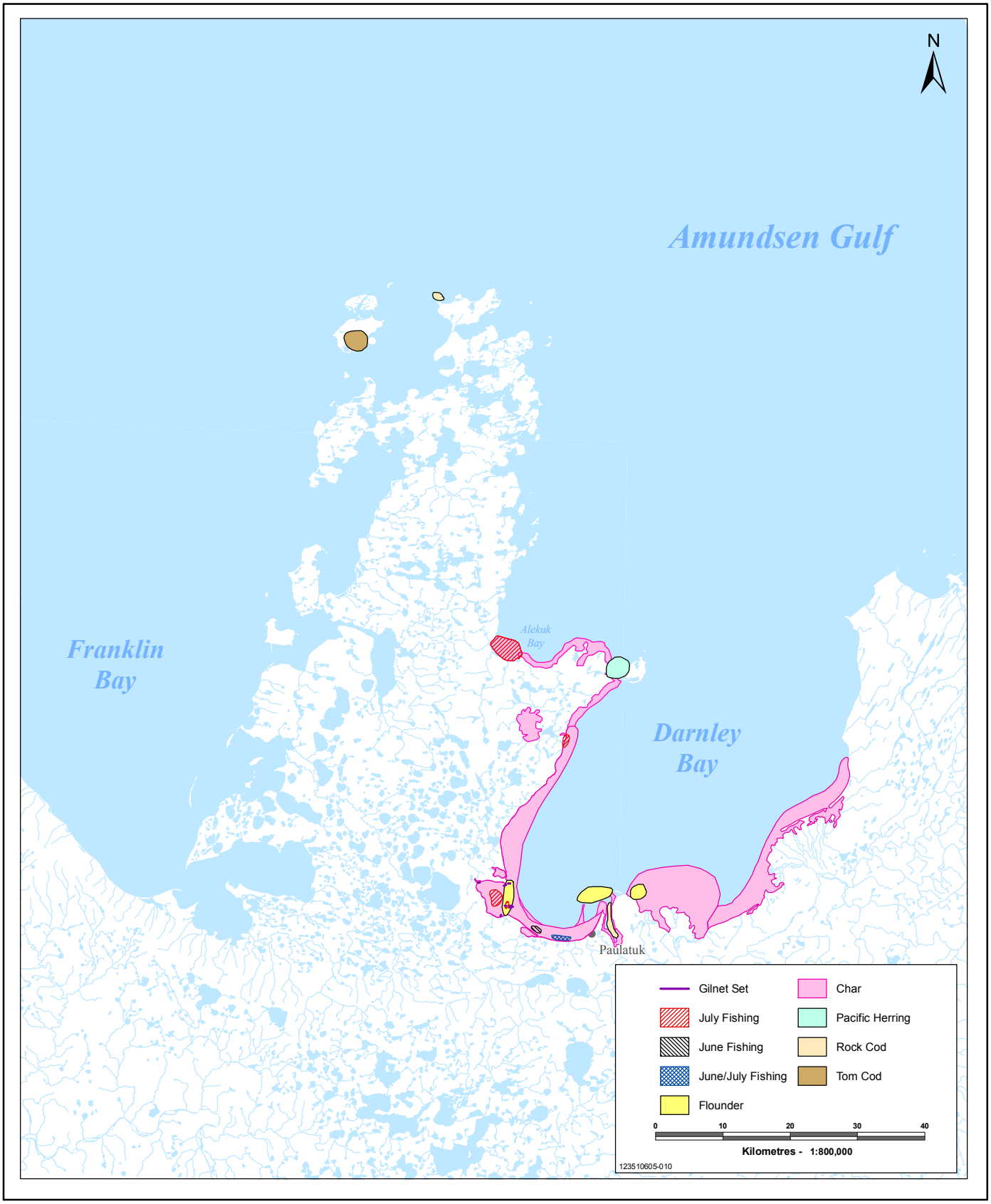

Location of Key Fish Species and Fish Harvesting Areas

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FIGURE NO.
3-4

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Photo 3-3 Four horned sculpin (bullheads)

Photo by Frances Wolki

3.2.4 Seals

Ringed and bearded seals both occur within and adjacent to the AOI. Ringed seals are the most common and abundant seal within the AOI while bearded seals are observed less frequently and in fewer numbers. It was noted that occasionally a harp seal is taken and is mixed in with the ringed seals. It was noted that walruses were observed in Brown's Harbour in the 1960's and 1970's.

Ringed seals can be found everywhere within the AOI and adjacent areas but some report the population appears to be declining. It was mentioned that there does not seem to be as many seals around now as there was in the 1970s. It was speculated that this decline in numbers maybe due to reduced hunting of seals which led to the seal population becoming too large for its food supply which then resulted in a drop in the seal population, or some seals moving to other areas for food, or both. It was also noted that two older studies may have affected seal populations locally. These studies occurred in Browns Harbour; one in the late 1960's and another in the 1970's. The study in the late 1960's tried branding seals as a form of tagging, however it was thought branding may have harmed the seals and in some cases caused infections where they were branded, potentially resulting in death. The 1970's study was said to have harvested hundreds of seals for study purposes.

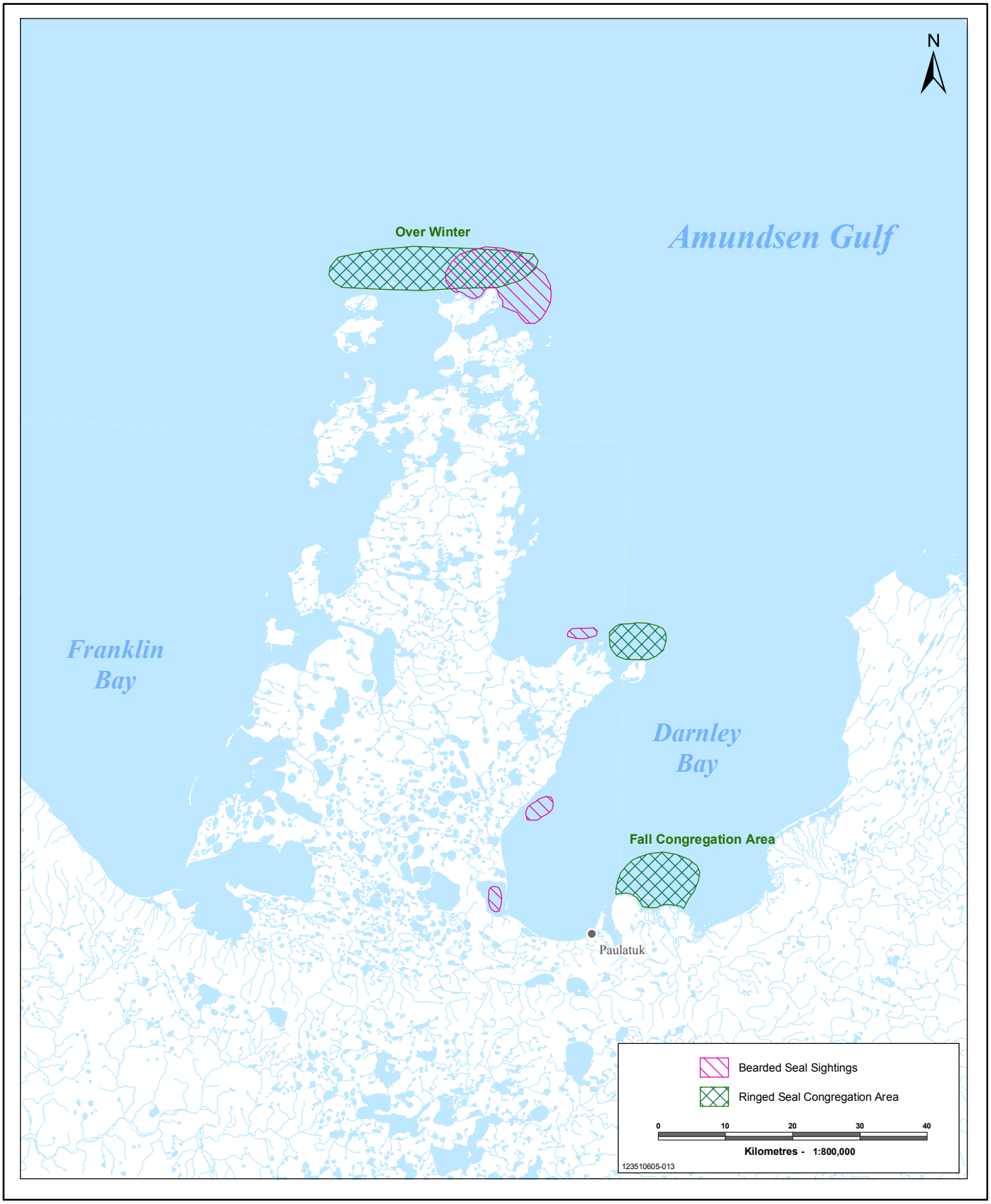
Ringed seals are reported to be hauled out on the ice in mid-April. Seals move with the leads in the ice. In June and early July the ice begins moving out. Ringed seals pup in April-May along the coast where char are seen large numbers. Individual female adults are seen with their pups in spring. In Argo Bay large numbers of adult seals and pups used to be seen in the springtime during the 1970s and 1980s but now you only see adult seals and not seal pups. In the spring, one can see many ringed seals on top of the ice outside the fish camp near the Brock River. Last year (2010) there was an early spring and the snow melted early resulting in no shelter for the seal pups. It was mentioned that this early melt may have killed a lot of seal pups. From June to August ringed seals are often seen alone. In late August and September the seals begin forming into groups. One area identified where fall aggregations of seals occur is around Bennett Point on the north side of Clapperton Island. It was reported that seals can be seen feeding in groups near river mouths (e.g., mouth of Hornaday River) and channels (e.g., channel to Fish Lake) as they follow the char returning to the rivers or other fish species in fall time. Some workshops participants said if wind conditions are good, September is the best time to harvest seals. In winter seals are observed in the Cape Parry area as evidenced by polar bear hunting of seals in this area.

A workshop participant noted that last year there were a few stunted seals that did not appear to be growing. These seals were only two feet in length.

Ugyuks (also known as bearded seals) are less common than ringed seals. They like to stay close to bays which have creeks draining into them, possibly for feeding purposes. Squid and shrimp are sometimes found in the stomachs of bearded seals. Ugyuks were said to be larger in the northern area of the Parry Peninsula then in the southern areas. One caught near Tipititiuyak had tape worms in its stomach.

Photo 3-4 A youth with a bearded seal

Photo by Frances Wolki



Seal Areas of Importance

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FIGURE NO.
3-5

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3.2.5 Beluga Whales

Beluga whales are the most abundant and common whale observed in and adjacent to the AOI. The movement of beluga whales are affected by ice conditions. When there is a lot of ice in the Amundsen Gulf more beluga will enter Darnley Bay where there generally is less ice. Ice conditions will also affect whether beluga whales will enter a coastal bay or not. For example it was reported that whales did not enter Argo Bay in years where there was no south wind to blow the ice out of the bay.

Several groups of whales were identified in the workshop based on migration patterns. There is a large group of beluga whales which stay offshore from the Parry Peninsula and do not enter into the coastal waters of Darnley Bay (Figure 3-6). The offshore group of beluga whales appear to be mostly older, adult whales. These pods are generally larger than those that follow the coastline of the Parry Peninsula.

A second group of beluga whales move into near shore areas and enter various bays along the top portion of the Parry Peninsula. Part of this group of whales splits off and move into Franklin Bay while the other belugas move into Browns Harbour and then continue moving south down Parry Peninsula towards Argo Bay before returning northward up the peninsula again. It was said that by approximately July 22-23 the large pods of belugas would be not seen in Brown's Harbour rather they appear in Argo Bay further down the peninsula. The beluga whales found in the coastal areas of Darnley Bay appear to be younger males or females with calves. This group of belugas was said to be made-up of approximately 80% females and 20% males and it can vary from small pods of about 5 whales to larger ones into the hundreds. Workshop participants noted that beluga whales which follow the coastline and enter the different bays do not stay long nor mill around as beluga do in the Mackenzie estuary. It was said that these whales appear to be merely travelling through these areas.

A third group of whales, referred to as stragglers, enter Darnley Bay in late July and August and move along the coast.. Some of the stragglers will enter Argo Bay before continuing northward along the Parry Peninsula coastline. The straggler whales are said to be mostly larger males however some females with calves also make-up this group. A workshop participant noted that males and females travel in different pods and that hunters report the group composition based on what pods they have harvested from. It was said that unlike the coastal group the straggler group of beluga tend to stay longer and mill around.

Beluga are thought not to feed prior to entering coastal bays. Whale monitors who sample harvested beluga report them as having empty stomachs with the exception of an orange mushy substance. Once the beluga whales start following the coast and entering bays they may start feeding. Beluga whales were said to be often present in areas where large schools of fish 5-10 cm long are present. The species of this fish was not identified by workshop participants. A workshop participant shared information from someone who once worked at the DEW Line Site on the west side of Franklin Bay, who saw beluga whales chasing and feeding on schools of herring.

A workshop participant noted that belugas harvested in the Paulatuk area are smaller than those harvested in Tuktoyaktuk. It was also mentioned that people in Tuktoyaktuk could select which whale(s) they harvested but Paulatuk residents have to take whatever whale is available to them as the beluga are just travelling through and not staying around an area.

Female belugas already have their calves before entering Darnley Bay. Some of the calves seen are bluish in colour while others are gray in colour. The bluish calves are younger than the gray calves. Females with calves were mentioned as coming into shallower waters while the males tend to stay in deeper water. Whales in shallow water have been seen rubbing themselves on the bottom of Argo Bay and in the mouth of the Horton River. The substrate at these locations, are thought to consist of small pebbles. Rubbing along the bottom was said to help the beluga with the moulting of their skin. A workshop participant said that late in the season the only place to see female beluga with calves is in the Cape Parry area.

A workshop participant mentioned a genetic study which reported that the whales found in the Paulatuk (Darnley Bay) area are a different stock than those captured around Hendrickson Island in the Mackenzie River estuary. The Paulatuk whales were said to be the same stock as those which have been captured in Husky Lakes. It was mentioned that the Paulatuk stock was healthier than the Mackenzie River Estuary stock and this was said to be due to the whales staying in salt water as opposed to the brackish water of the Mackenzie River estuary and better feeding opportunities in the deeper marine waters.

It was mentioned by a workshop participant that some beluga whales have marks or scars on their skin made from bears.

Beluga stomachs were once used as containers the same way seal stomachs were used. The stomach is emptied, turned inside out, cleaned and then blown-up like a balloon. The stomach can then be used as a container for berries, muktuk, dried meat, dried fish or other foods.

3.2.6 Bowhead Whales

Bowhead whales can be found throughout Darnley Bay and are seen every year. They appear to enter Darnley Bay from the east. Bowhead whales feed in Darnley Bay in July and August. Sometimes up to twelve bowhead whales can observed at one time. Bowheads can sometimes be seen offshore off the mouth of the Hornaday River. Bowhead whales will pass close by the beach or shore but some workshop participants said the increasing air traffic is keeping the whales further out in the bay.

Bowheads are known to enter the AOI to feed. They have been observed feeding outside Kamakark and Browns Harbour. They are not known to enter Argo Bay. Another feeding area is northeast of Paulatuk offshore from the mouth of the Hornaday River. The number of bowhead whales observed was said to be increasing over the last five years. It was mentioned that sometimes beluga whales are seen travelling with the bowhead whales. A workshop participant described the beluga whales as travelling on the sides of bowhead whales like “out-riders”.

Occasionally dead whales wash up onto the beach and are referred to as beached whales. Beached whales have been seen near the mouth of the Hornaday River and Pearce Point. The beached whale near the mouth of the Hornaday River which occurred 5-6 years ago (approximately 2004-2005) had a number of bears feeding on it.

Known feeding areas and a general migration pattern for Bowhead whales are presented in Figure 3-7.

3.2.7 Polar Bears

Polar bears can be seen from Bennett Point northward along the Parry Peninsula to Cape Parry although they are also observed further south and occasionally around Paulatuk. Polar bears are generally hunted from December to early April. Sport hunts generally occur in the Cape Parry area. Bears are often hunted along leads in the ice.

Polar bears can den anywhere along the coast of Parry Peninsula. Workshop participants mentioned that coastal areas generally have more snow needed for bears to make dens than do offshore areas. Workshop participants thought there may not be enough snow anymore for polar bears to den in offshore areas. Around Bennett Point a den occupied by a large female polar bear was seen over a period of two denning seasons, it was thought it was the same bear occupying the den each year.

A workshop participant recounted the story of her husband who around March or April saw a polar bear following a lead west of Cape Parry. The bear had made four separate kills and did not eat the kills but left them there. Her husband thought that this bear was using the kills to attract female polar bears.

Large polar bears found around Brown’s Harbour and Cape Parry are often referred to as shovel bears due to their large paws, presumably for digging in snow.

A map depicting areas where polar bears are prevalent, polar bear harvesting takes place and sport hunting areas are located are presented in Figure 3-8.

3.2.8 Seabirds and other bird species

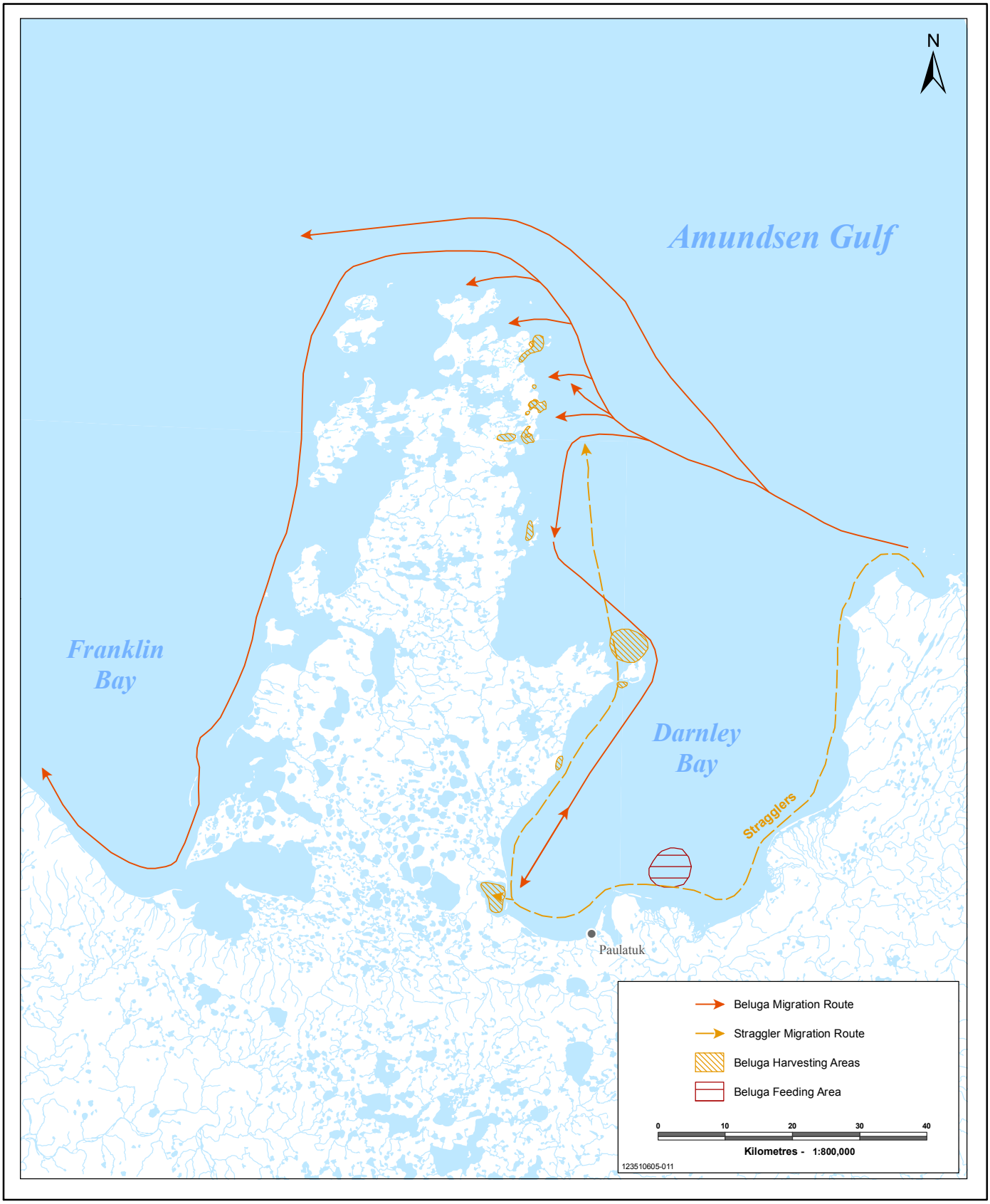
Workshop participants mainly talked about seagulls, eider ducks, long-tailed (old-squaw) ducks, geese, murres and terns. A variety of bird species nest in cliffs all along the east coast of the Parry Peninsula and the adjacent islands. In particular it was said that nesting occurs on any island between Letty Harbour and Browns Harbour (Figure 3-9). In June eggs of eiders, Canada geese, and long-tailed (old-squaw) ducks are gathered at Egg Island which is located between Argo Bay and Darnley Bay. Eider duck eggs are also harvested on the islands in the Clapperton area. In addition egg collections are carried out at the top end of Cape Parry for eiders, geese and murres. This activity is generally a side activity while whaling.

Eiders ducks lay their eggs later than other birds in the area and can be collected during whaling season in July. The eiders will generally have between 5 to 8 eggs in a nest. Some reported that there are fewer eider ducks around now but are unsure as to why. It was mentioned that eider ducks have even been seen in January and February and some wonder whether they now spend the winter in the area.

Workshop participants commented on seeing crabs and shrimp parts in the feces found in eider and gull nests, indicating that they were feeding on these invertebrates. It was mentioned that three kinds of seagulls occur in the AOI but this was not elaborated on further. Arctic terns were not seen as often in the area as they once were.

A workshop participant noted possibly seeing an albatross one time. The bird had a wing-span of approximately 6 feet. It was speculated that the bird maybe feeding on smaller ducks.

It was noted that people now see the occasional robin and one person said that they had seen a hummingbird once. The appearance of the long-tailed jaegar means that spring is over.



Beluga Whale Migration Routes and Harvest Areas

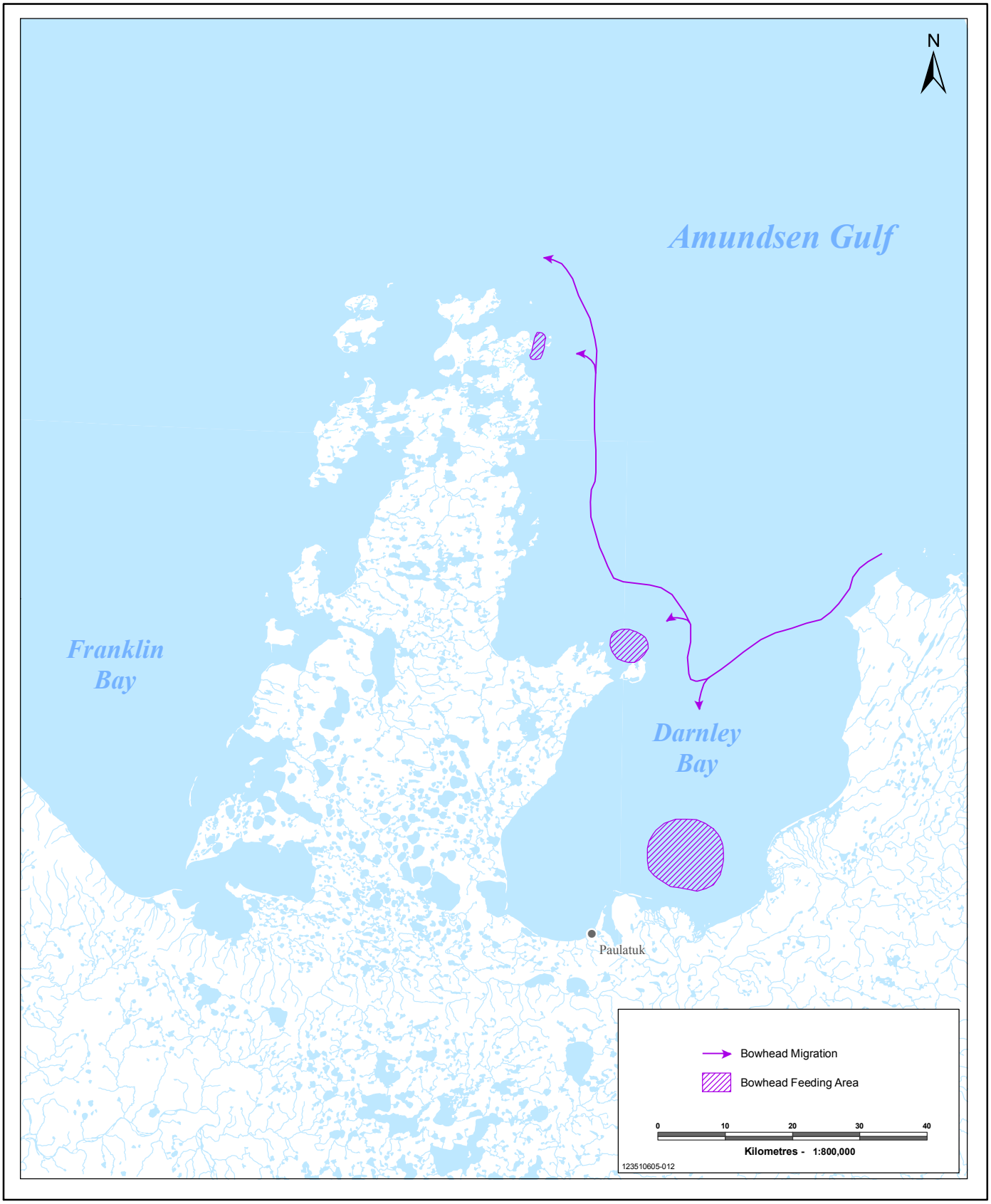
Data Provided By: Base Data provided by Government of Canada

PREPARED BY
KAVIK-AXYS Inc.

PREPARED FOR
DFO

FIGURE NO.
3-6

Last Modified: June 7, 2012 By pietro



Bowhead Whale Migration Routes and Feeding Areas

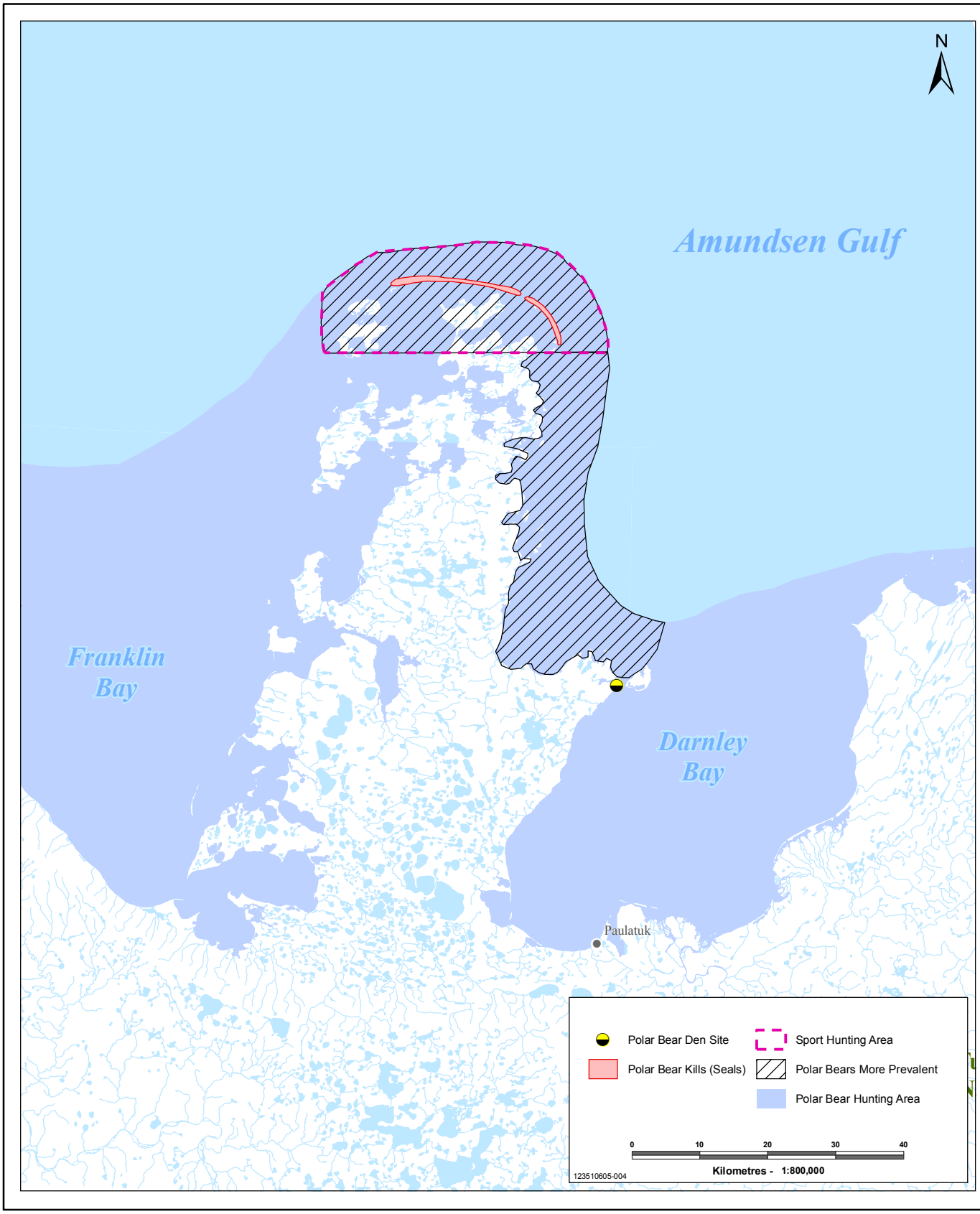
Data Provided By: Base Data provided by Government of Canada

PREPARED BY
KAVIK-AXYS Inc.

PREPARED FOR
DFO

FIGURE NO.
3-7

Last Modified: June 7, 2012 By: jpetho



Polar Bear Harvest and Denning Area

Data Provided By: Base Data provided by Government of Canada

PREPARED BY
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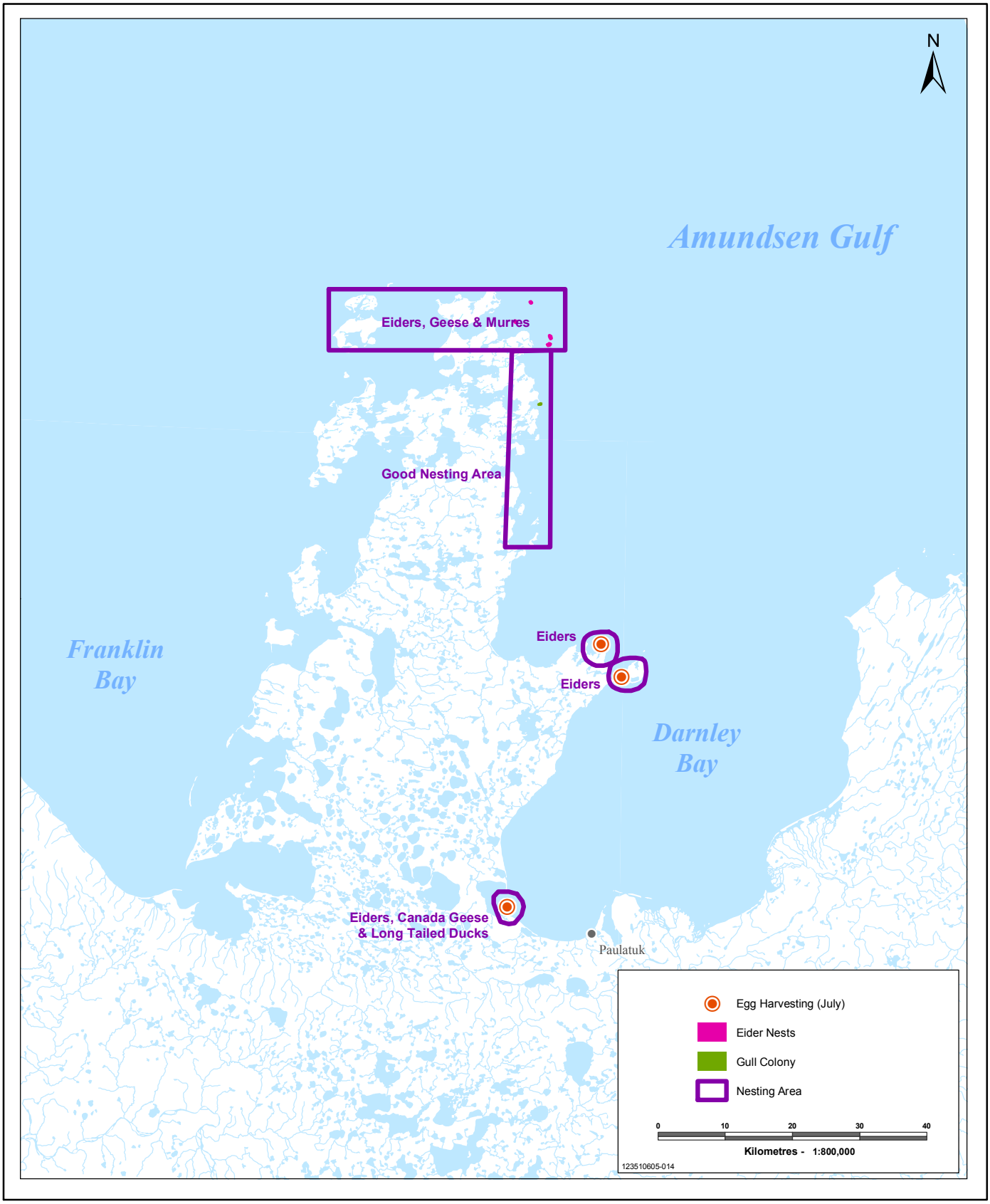
FIGURE NO.
3-8

Last Modified: June 7, 2012 By: jsetho



Seabird Nesting and Egg Harvesting Areas

Data Provided By: Base Data provided by Government of Canada

PREPARED BY
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DFO

FIGURE NO.
3-9

Last Modified: June 7, 2012 By: jpetho

3.2.9 Terrestrial Animals

A number of points were made about terrestrial animals during the workshop. Caribou was discussed several times. Caribou come down to the beaches along Parry Peninsula during the summer time and are often seen between Argo Bay and Bennett Point. A workshop participant noted seeing a stone trail and inukshuks around the Kamakark area. He suggested the trail and inukshuks may have been used for herding caribou, an indication that caribou were plentiful at that time. It was said that moose are moving closer to Paulatuk.

An animal resembling a sea otter or fisher was seen in the late 1950s between Pearce Point and Bennett Point. There was mention of wolverines and that there are ocean wolverines which were different than land wolverines but how they differed was not explained. White or albino wolverines have also been seen and were said to look like little polar bears. A muskrat was caught on Egg Island. A small beaver was caught in the Hornaday River area which is quite unusual.

It was noted that the population of foxes is declining. It was suggested that the reason for the decline is due to fewer traps being set, no further explanation was given.

Occasionally black bears are seen but their location was not provided. Between Argo Bay and Bennett Point grizzly bears are observed, and are thought to be feeding on fish in the area.

3.3 Key Areas within the AOI

3.3.1 Argo Bay

Argo Bay has both cultural and ecological importance. The Argo Bay area is used for fishing, whaling, hunting and trapping. The trail to Argo Bay is used all year round. The channel in Argo Bay has changed from having only one entrance to now having two entrances; one northern entrance and one southern entrance.

Egg Island which is located at the edge of Argo Bay, is used as a place where elders share their knowledge with students (youth) during the summer. Eiders, Canada geese and long-tailed ducks nest on the island making it a good location to collect eggs. It is also good place to make dry fish as there are no bears on the island.

Beluga whales will utilize Argo Bay but not necessarily every year. Sometimes there are no beluga whales for two years. A southern wind is necessary in June or July to push out the ice from the bay, if this does not occur, the beluga are unable to enter. Ringed and bearded seals also occur in Argo Bay with ringed seals being the most common seal seen. In the summer there are only small numbers of ringed seals which are often seen individually. In the fall ringed seals congregate but it was said that this does not happen anymore. Ringed seals will follow the fish and feed on them. People still eat seals but fewer are harvested now. In the past, there were a greater number of people with dog teams and they would harvest seals for dog food.

A variety of fish species utilize Argo Bay including arctic char, whitefish, cod, flounder and bullheads (sculpins). Salmon are occasionally captured in this area. Fishing was said to be poor during hot summers and fruitful when it was cool. It is likely that crab and shrimp occur in the Bay, as these are found washed up on the beaches. Seaweed and mussels attached to the seaweed can be found in Argo Bay. Clams can be collected here for eating.

3.3.2 Argo Bay to Bennett Point

The area between Argo Bay and Bennett Point was said to be used mostly as a travel route. People will camp at Tipititiuyak and Fish Lake along the way. Arctic char feed along the coast and are mainly harvested at Fish Lake or Tipititiuyak although in July and August it was also said that one could catch char anywhere along the coast to Bennett Point during the first week of August. It was said that lakes located further in land from Fish Lake were host to land locked char. Fish Lake drains into Darnley Bay and is mostly shallow with its deepest depth being approximately 30 ft (approx. 9 m). Fish Lake has char and whitefish and it was said there used to be herring (cisco). One year in the mid-1980s there was 7 feet of ice resulting in much of the lake freezing to the bottom which killed large numbers of whitefish and herring. Large Pacific herring can be found at Bennett Point. A workshop participant noted that loche are starting to be seen in the channel between Clapperton Island and the peninsula.

North of Bennett Point and Clapperton Island is said to be an important fall congregation area for ringed seals.

Seaweed can be found throughout this area and often seen washed up onshore, sometimes with mussels attached.

Eider ducks lay eggs on Clapperton and Egg Island and beluga are occasionally harvested along the coast.. A deep hole is located off the eastern side of the Parry Peninsula beginning near the northern portion of Argo Bay extending northwards and nearly reaching Tipititiuyak. Shrimp and crab are also found along this section of the coast.

Caribou can often be seen along the beaches between Argo Bay and Bennett Point. This area was used more frequently when people went trapping; it was particularly important for trapping foxes however, the cost of fuel does not make this economical anymore. Grizzly bears are prevalent in the area and said to feed on the fish in the creeks. Subsistence harvesting for polar bears starts around Bennett Point.

3.3.3 Aleekuk Bay

Aleekuk Bay is along a travel route used in both summer and winter by people coming or going to Brown's Harbour or the Cape Parry area. The coastline in this area is said to be a good place to wait out bad weather as there is driftwood and one can fish there. There used to be a camp at Aleekuk Bay where people could fish with nets for char and whitefish. The mouth of Aleekuk Creek was also said to be a good place to get fish such as char or Pacific herring. A workshop participant also mentioned that cod were present in the bay but did not know if anyone fished for them. Beluga whales have been seen passing by the bay. Seals are found in the bay although no species were mentioned. One workshop participant noted that when travelling between Aleekuk Bay and Letty Harbour between the months of February through April, polar bears were always seen.

3.3.4 Letty Harbour

Letty Harbour is a historic site where a Hudson Bay trading post used to be located. There are still abandoned buildings there. In the past, a schooner would stop at Letty Harbour to resupply the trading post. Letty Harbour is a common place to stop when travelling but it is also known for strange occurrences. People have reported rain without clouds and it is also known to be a place where snow machines are said to die. People stop, say a prayer and move on. Char can be caught here and beluga travel through this area. However, most people pass through this area on their way to Browns Harbour or other locations along the northern portion of Parry Peninsula. Rock cod and tom cod are said to both be found in the area.

Tide pools form at low tide and kelp-like vegetation can be observed in these pools. A workshop participant mentioned that when going to school in Letty Harbour back in 1947 he saw a giant jellyfish and something which looked like black sea snakes.

3.3.5 Johnny Green Bay, Kamakark and Brown's Harbour

Browns Harbour is named after the old trapper Browauluk that used to live there. The name Browauluk is Inuvialuktun for "brown".

Waves in the harbor seem larger than in the past sometimes reaching 5 feet in height. There is a small reef in the harbor which has aquatic vegetation.

Browns Harbour is mainly used in July and August for hunting beluga and is as far north as people from Paulatuk go to whale. Whales usually begin arriving into Browns Harbour around July 22-23. Browns Harbour is shallow enough to hook any sunken belugas. Arctic char are also present in Browns Harbour but workshop participants noted that the area is not good for fishing. Nets set in Browns Harbour may only capture one fish a day so fishing is generally conducted inland in some of the nearby lakes. It was stated that some of the lakes north of Browns Harbour have fish the same size as the lures that were being used to catch them. Polar bear hunting is conducted at Brown's Harbour as well. Polar bears found here can have very large paws and are referred to as shovel bears. It was said there are fewer seals now than in the 1970s. Eiders, murres and geese nest in cliffs and islands in the area. Crabs and shrimp remains have been found in eider nests. There is a lead that forms outside of Browns Harbor every winter.

Kamakark is another area used for whaling. One workshop participant mentioned that in one year 15 beluga whales were harvested there. Char can be caught here in July and August. Shrimp can also be found in this area. Like Browns Harbour, it was said that fewer seals are present now than in the past. Eiders and geese nest in the area. Crab and shrimp remains have been found in eider nests.

Johnny Green Island was once connected to the mainland and was then the preferred location to camp when harvesting beluga whales as it was closer than Browns Harbour and easier to hunt belugas in Johnny Green Harbour. The erosion of Johnny Green Peninsula created Johnny Green Island. Since then some people starting using Browns Harbour for whaling although some whaling still does continue from Johnny Green Island. Workshop participants identified the presence of a gull colony in this area. Eiders and geese also nest in the area. Crabs and shrimp remains have been found in eider and gull nests. Large shrimp are also found in deeper waters in this area.

3.3.6 Cape Parry including Wise Bay and Summers Harbour

The area of Cape Parry including Wise Bay and Summers Harbour is not used much anymore with the exception of sport polar bear hunting. The distance and high fuel costs are the main reasons for not travelling to this area. Summers Harbour and Wise Bay have been mostly used by industry to overwinter ships.

Workshop participants discussed that the ice is not as thick as it used to be. It was said that one use to be able to travel by snow machine from Cape Parry across Amundsen Gulf to Nelson Head on Banks Island. Now the ice is thinner and rarely does the area between Cape Parry and Nelson Head freeze over completely. A rubble field exists offshore of Cape Parry which represents the separation from landfast ice and pack-ice. The rubble field is created by strong west winds and strong currents. The currents off of Cape Parry are said to be getting stronger.

Beluga and bowhead whales both migrate past Cape Parry heading west. One workshop participant said that females with calves can be seen late in the season in the Cape Parry area. Ringed seals and bearded seals are both present here as well. Several workshop participants mentioned the presence of

seal kills by polar bears during the winter months. This area is important for overwintering seals; the type of seal was not mentioned.

Polar bears are abundant in the Cape Parry area. Some of them have large paws and are periodically referred to as shovel bears.

Arctic char can be found as far as Cape Parry. Tom cod were said to be plentiful at one time in Summers Harbour, it was unknown if this still holds true. Rock cod are also found in the Cape Parry area. Two types of herring were said to occur in the Cape Parry area but this was not elaborated on further.

3.4 AOI Boundaries

The boundaries of the AOI were discussed as to whether they should be changed to the 15 km off the shoreline currently proposed or remain the same (5km). Workshop participants said this has been discussed several times in the past. They thought the proposed boundary was good but were open to discussions of expanding the boundary further offshore to as much as 15 km northward (off Cape Parry) if the rationale could be supported by science. The participants raised the concern of having an MPA that was too large to properly manage.

4 Summary

Workshop participants from the community of Paulatuk provided information on traditional and local knowledge for the area within and adjacent to the Paulatuk AOI. Information provided ranged from ice conditions, species presence and use of an area, human use of areas and on the boundary extent of the AOI. At times information was provided on terrestrial animals such as caribou or on areas not adjacent to the AOI such as the mouth of the Horton River.

Ice conditions were reported to have changed over the years, with thinner ice during the winter periods than was found in the past. It was mentioned that permanent ice is no longer found in Darnley Bay and that it had not been seen since 1995. Workshop participants also noted that the area between Cape Parry and Nelson Head, Banks Island would regularly freeze over but this rarely occurs anymore. Amundsen Gulf was said to be a mixture of landfast ice and pack-ice. Ice rubble fields generally indicate where the landfast ice ends and pack-ice begin. Darnley Bay itself is all landfast ice. In the spring winds would normally blow the ice out of Darnley Bay but in the last two years ice has melted right in the bay instead of getting blown out.

Marine vegetation was most prevalent between Paulatuk and Bennett Point. Marine vegetation was also reported in Wise Bay. Two forms of marine vegetation were described; kelp-like plants and a type of marine grass. Although kelp-like plants and grass beds exist within the AOI they were said not to be as large as those areas found in the offshore regions of British Columbia.

Workshop participants discussed marine invertebrates briefly and mainly in the context of what types of invertebrates are washed-up on shore or are eaten by birds (e.g., eiders and gulls), seals or char. These included mainly shrimp and crabs. Mussels were often mentioned in association with kelp-like seaweed. Argo Bay was reported to be a good place to dig for clams.

Arctic char is an important fish species for the people of Paulatuk. Community resident's fish for char along the coast between July and August although fishing seasons tend to be extended longer now as freeze-up is occurring later. Arctic char are found all along the coast of Parry Peninsula but most prevalent between Bennett Point and Argo Bay. Workshop participants talked about ocean or blue char that maybe a type of Pacific salmon. Other fish species briefly discussed or mentioned were whitefish, herring, pacific herring, cod, flounders and sculpins.

Beluga whales and ringed seals are the two most common marine mammals found inside and adjacent to the AOI. A number of beluga harvesting areas were reported including Argo Bay and Browns Harbour. Different groups of belugas were discussed which included an offshore population of largely older males, an inshore group of primarily females and calves and then a group referred to as stragglers which appear to be mostly large males which occur later in the season and travel to the west side of Darnley Bay from Pearce Point by following the coastline instead of cutting straight across the northern portion of the Bay.

Bowhead whales and bearded seals are seen within the AOI but in fewer numbers. Two bowhead whale feeding areas were identified. One feeding area is northeast of Paulatuk, offshore from the mouth of the Hornaday River, and the second area is offshore from Clapperton Island. Bowhead whales migrate from eastern Amundsen Gulf passing by Pearce Point and then crossing across Darnley Bay. Several bowhead whale feeding areas where identified and included an area offshore of the mouth of the Hornaday River, north of Clapperton Island and offshore of Kamakark Island and Browns Harbour.

Polar bears can be found throughout the AOI but are most prevalent north of Bennett Point. One den site was identified at Bennett Point. Polar bears mainly den along the coast as it is thought that there is often not enough snow for dens in the offshore areas. Sport hunts for polar bears mainly occur off the northern tip of Parry Peninsula.

Eiders, geese, gulls, long-tailed ducks and murres were all discussed during the workshop. Egg harvesting areas were identified along the coast. Egg Island is used by eiders, long-tailed ducks and geese. Along the eastern coast and islands off the Parry Peninsula, nesting takes place. It is most prevalent between Letty and Browns Harbours. Murres were mentioned as occurring at Browns Harbour and in the Cape Parry area.

A number of important areas were identified by workshop participants and included Argo Bay, Bennett Point, Aleekuk Bay, Letty Harbour, and Browns Harbour. Wise Bay and Summers Harbour on the northern tip of Parry Peninsula were also mentioned but are not used as often by local residents anymore except for polar bear sport hunting due to their distance from Paulatuk. Argo Bay was a very important area both ecologically and culturally. This area is used to harvest a variety of different species. It is also used by elders and youth for cultural purposes. Much of the coast is used primarily as a travel route to points further north up the Peninsula such as Browns Harbour or Johnny Green Harbour. People will occasionally camp, fish or hunt along the way. Aleekuk Bay is good both for fishing and whaling while Browns Harbour is mainly used for harvesting beluga whales as char numbers are very low in this area.

Workshop participants were generally comfortable with the existing boundary of the AOI. However it was also suggested that extending the boundary to 15 km offshore of Cape Parry would be considered if there was the scientific evidence to support the boundary extension. Some workshop participants were concerned about taking the boundaries too far offshore as it may make it more difficult to manage.

A summary of species presence and human use for key sites within the AOI are presented in Table 4-1. Although general statements were made regarding some species or groups of species like cod and flounder indicating presence throughout the AOI, only the areas specifically identified are listed in the table. This was done as the naming of specific sites may suggest a greater relevance over and above the general statement made for the same species.

Table 4-1 Species Presence and Human Use for Key Areas within the AOI

Location	Kelp or seagrass	Invertebrates	Fish	Ringed Seals	Bearded Seals	Beluga	Bowhead	Polar Bear	Seabirds	Human Use
Argo Bay	P	Cr, Sh, Cl, Ms	Ch,Cd,Wh, Cd, Hr, Fl, H	C	O	C, H	N	O	Ei, Ge, LT, H	C, H
Argo Bay to Bennett Point	P	Cr, Sh, Jf, Ms	Ch, Wf, Ph, He, H	C	P	C, H	P	O, H	Ei	T, C, H
Aleekuk Bay			Ch, Wf, Cd, Ph, H	C		C, H		C		C, T, H
Letty Harbour		Cr, Sh, Jf	Ch, Rc, Tc, H	C		O, H		C	Ei, Gu	C, T
Johnny Green Bay		Cr, Sh	Ch	C		C, H		C	Ei, Gu	C, H
Brown's Harbour	P	Cr, Sh	Ch	C	P	C, H	O	C, H	Ei, Ge, Mu	C, H
Kamakark Island		Cr, Sh	Ch, H	C	P	C, H	O	C, H	Ei, Gu	C, H
Wise Bay	P	Sh, Jf, Ur, Ms		C	P			P, H	Ei, Ge, Mu	I, H
Summers Harbour		Ur	Tc, Rc	C	P			P, H	Ei, Ge, Mu	I, H
Cape Parry		Jf, Ur, Sh	Tc, Rc, Hr	C	P	P	O	C,H	Ei, Ge, Mu	I, H

NOTES:
P = Present; C = Common; O = Occasional, Not present – N,
Cr = crab; Sh = shrimp; Cl = clams; Jf = jellyfish, Ur = Sea urchins; Mussels = Ms
Ch = Arctic char, Cd = cod; Wh = whitefish; Ph = Pacific herring; He = herring; Hr = Herring like fish; Rc = rock cod; Tc = tom cod; Fl = flounder; Sc = sculpins
H = Harvest area C = Camp; T = travel route; I = Industry use (e.g., ship anchorage)
Ei =Eiders; Ge = Geese; LT = long-tailed ducks, Mu = Murres; Gu = gull colony
Blank space: indicates no information provided

5 References

5.1 Literature Cited

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Appendix A Workshop Participants

A.1 Paulatuk Community Members

- Lawrence Ruben
- Elizabeth Kuptana
- David Ruben
- John Sam Green
- Steve Illasiak
- Ray Ruben Sr.
- Jason Ruben
- Nelson Ruben
- Gilbert Thrasher
- Anny Illasiak
- Frances Wolki
- Tony Green

A.2 Facilitators

- Michael Fabijan – KAVIK-AXYS
- Blythe Browne – DFO

Back row left to right - Gilbert Thrasher, Nelson Ruben, Lawrence Ruben, Jason Ruben, Steve Illasiak, Tony Green, David Ruben, Michael Fabijan

Front Row left to right – Ray Ruben Sr., Blythe Browne, Liz Kuptana, Frances Wolki, John Sam Green, Annie Illasiak

Appendix B Workshop Questionaire

Paulatuk Area of Interest TK Questionnaire

The focus of discussion from these questions was on the area of interest for the proposed Paulatuk MPA. This included the western side of Darnley Bay from Argo Bay to Cape Parry

Paulatuk Area of Interest TK Questionnaire:

- Why is the south western part of Darnley Bay important to you from Argo Bay to Bennett Point?
  - What do you find in this area? (fish (species) seal (ringed and bearded), bowheads)
  - When do species use the area?
  - How do species use the area (spawning, pupping, moulting etc)?
  - Are there areas more important than the others?

- Why is Aleekuk Bay important?
  - What do you find in this area? (fish (species) seal (ringed and bearded), bowheads, beluga)
  - When do species use the area?
  - How do species use the area (spawning, pupping, moulting etc)?
  - Are there areas more important than the others?

- Why is Argo Bay important?
  - What do you find in this area? (fish (species) seal (bearded), bowheads)
  - When do species use the area?
  - How do species use the area (spawning, pupping, moulting etc.)?
  - Are there areas more important than the others?

Cape Parry

- Do you think this boundary will protect the species that are important to you or are they found further out?

- Kelp beds can be important areas of productivity, we know there are kelp beds in Wise bay and Argo Bay, but are there any other locations where they are found along the west coast of Darnley Bay?
  - How large are these areas?
  - Where are the kelps beds in each of the Bay's?
  - Does the vegetation reach the surface?
  - Do you see any special activity in terms of the types of animals (fish, invertebrates, birds, seals etc.) related to these kelp or areas of aquatic vegetation?

- Are there any areas which are especially important (point out on map)?
  - What makes this area important?
  - Which species use this area?
  - Where are the important feeding areas?
  - Where are the spawning/mating areas?
  - Are there important areas for pup rearing?

- What do the species use the area for (spawning, pupping, moulting etc.)?
  - How far out (in km) have you seen this activity occur?

- Have you ever caught or seen blue char? (If not, who catches blue char? Skilled fishermen or everyone)
  - Would you consider blue char to be common around Paulatuk?
  - When are blue char caught?
  - Where are blue char caught?
  - Do the blue char taste different than arctic char?
  - Is the flesh a different colour than arctic char?
  - What size are the blue char when you catch them?
  - If the blue char are caught late (fall) what size are they?
  - Do you have any pictures of the char that you can show us?