

INTRODUCTION

The beluga whale (*Delphinapterus leucas*) populations in Ungava Bay and eastern Hudson Bay have been respectively designated as Endangered and Threatened. However, the Inuit of Nunavik still depend on beluga whales for subsistence. As part of the co-management agreement with Fisheries and Oceans Canada (DFO), Inuit knowledge is being used in management decisions. Since previous data had been gathered during the 1980s, more recent data which included changes in beluga ecology, was needed for management decisions. To this end, DFO funded the present study which incorporates traditional ecological knowledge which has been derived from the traditional way of life of the Inuit people.

This study is a local ecological knowledge study since it addresses specific geographical areas and a knowledge base of beluga whales that is traditional, but also has to some extent been affected by industrial technology and western science. Its purpose is to interview and document individual Inuit traditional ecological knowledge of beluga whales in the geographical areas of Kangirsuk, Salluit, and Inukjuak. These communities are the first of a multi-community study and were chosen as the initial representatives of the areas frequented by beluga in Nunavik: Ungava Bay, Hudson Strait and eastern Hudson Bay.

Organizational notes

The report is organized by community and their response to questions concerning seasonal movements, distribution, natural history and harvesting of beluga whales. Following this is a section that discusses concerns shared by the respondents in general. In the Results section the information is presented in text and graphical form (maps). The maps in Appendix II are not sequentially numbered, but are designated by the same reference number as the section they are referenced from. Some discrepancies may be found between the text and maps regarding season since only four seasons are used. Winter may represent early Spring, depending on the respondent's definition of the seasons. Hunters tend to define the season by natural events, break-up of the ice etc, rather than calendar date.

METHODS

Inuit hunters from the communities of Kangirsuk, Salluit, and Inukjuak were interviewed between February 11 and March 15, 2001. These hunters were selected based on reputation: the Hunters and Trappers and Fishing Association (HFTA) and members of Makivik Corporation were asked to identify hunters and elders that were considered to be the most knowledgeable about beluga whales in their community. A local resident and the principal investigator (D. Lee) then interviewed these individuals. The HFTA and Makivik Corporation recommended the local interpreter.

A questionnaire was used to gather information on the distribution, biology and hunting of the whales (Appendix 1). The information collected includes:

- Areas of concentration of beluga
- Change in abundance of beluga
- Use of estuaries of beluga
- Migration patterns of beluga
- Importance of habitat of beluga
- Sustainable hunting practices of Inuit (which animals – selection, where, when and how)
- Community needs versus access to resources

The questionnaire was accompanied by 1:250, 000 scale maps of the region on which each respondent was asked to mark specific information regarding his life history and the information pertaining to beluga whales onto acetates fixed upon these maps. Each respondent was provided with separate acetate. The responses from the respondents from each community are presented as communities such that individual responses cannot be identified securing confidentiality. The names of people interviewed are separated from the interviews to ensure that individual responses remain anonymous.

The Inuit of Nunavik possess at least a six-season calendar (ukiu, upingaksak, upinga, auja, ukiaksak, and ukia) that does not translate readily into the English Canadian four seasons of winter, spring, summer, and fall. However, to remain consistent with the land use and traditional ecological studies that have and are currently being conducted by Makivik Corporation, this study will implement the four season system and whenever possible specify months and days.

RESULTS

1. KANGIRSUK

The community of Kangirsuk is located on the northwest coast of Ungava Bay, along the north bank of the Payne (or Arnaud) River, 230 km north of Kuujjuaq. Nineteen hunters from Kangirsuk were interviewed for information on beluga whales. All respondents had been born outside of the present centralized community and had lived for some time in the region of Kangirsuk before moving to the community in the late 1950s or early 1960s. The respondents were elders who no longer hunt beluga whales but have provided historical information and younger elders in their 50s and 60s who continue to hunt beluga whales.

1.1 Seasonal Movements

The seasonal movements of Kangirsuk hunters and their observations of beluga distribution and movement are illustrated on maps in Appendix I. A general northwards movement of beluga is seen in Spring. This occurs closer to the coast than the corresponding southwards migration in the Fall. Historically, whales were seen closer to the coast, in both Spring and Fall, but now travel further offshore.

1.1.1 Spring: All respondents mentioned spring as the first major appearance of beluga whales migrating through the Kangirsuk region. Beginning in June, beluga would move along the floe edge, feeding and making their way north to Quaqtaq and Hudson Strait. Historically, several Inuit families would travel by dog team to several locations north of Kangirsuk such as Immilik (Map 1.1.1) to wait for beluga whales. This particular locality was also very well known for its abundance of other types of wildlife including walrus, eider ducks, and several species of seals. One respondent mentioned June 1 as the traditional date when his family would attempt to arrive at this location because the beluga whales would be passing through the area at this time.

1.1.2 Summer: During summer, some beluga whales were known to travel to the waterfalls and other areas of Payne River to moult, but use of these areas by beluga has steadily declined. When present, the beluga whales did not remain in the river for extended periods of time. They were continuously moving and migrating north.

1.1.3 Fall: Most hunters responded that observations of beluga whales were much lower in Fall since they did not actively hunt beluga at this time due to rough water conditions. Whales were observed migrating southwards at a distance away from the coast and were readily accessible (Map 1.1.3)

1.1.4 Winter: Few respondents had observed beluga whales during winter - many families did not spend extended periods of time at the floe edge hunting beluga since beluga abundance would presumably have been too low to support such a hunting cycle.

1.2 Changes in seasonal distribution and population

Most respondents from Kangirsuk indicated that, since the early 1970s, the number of beluga whales observed utilizing Payne River and the bays and rivers of the Ungava coast has decreased. The hunters attribute these changes in distribution and abundance to the disturbance by noise from outboard motors. Almost all respondents discussed the sensitivity of the beluga's hearing and mentioned the nature of acoustic disturbance that affects beluga behavior as told to them by their parents and elders. Thus, noise from outboards, sea-lift, helicopters and coast guard vessels are all considered to have changed the historical beluga migration routes in the Kangirsuk region.

1.3 Reproduction

None of the hunters from Kangirsuk had observed beluga whales mating, but a few commented that beluga whales may be mating offshore rather than in bays and rivers. A small area, in the northwest of Ungava Bay, was identified as a calving area (Map 1.3.0).

1.4 Food and feeding

Kangirsuk hunters noted that the stomach contents of beluga whales harvested during spring contained mostly a species of sculpin and seaweed. One respondent mentioned that he found empty stomachs in many of the migrating whales.

1.5 Group composition

Hunters recognized different types of beluga whales based on size and colour, but noted that it is not easy to identify the sex of a whale except when they are accompanied by calves. Respondents said that the pods that passed through the Kangirsuk region was made up of females with calves, and young to mid-sized males. The females always accompanied their calves. There were some old yellow males that would be observed to be traveling alone.

1.6 Harvesting

Historical and current beluga hunting activity takes place in several locations near Kangirsuk. In Spring and Summer, hunting occurs in the Payne River and northwards along the coast, almost to Quaqtac (Maps 1.6.1,1.6.2). The greatest hunting effort was expended during the spring when beluga first migrated through the area. However, hunting effort is currently distributed among the seasons of spring, summer and fall. Fall hunts were identified to occur just south of the entrance to the Payne River (Map 1.6.3)

Spring hunts were conducted over an extended period that could last for weeks. Currently, the hunts based out of the community are conducted the same day, but more distant hunts could take as much as one week depending upon the site utilized.

All hunters today use rifles and harpoons when hunting beluga whales. Whales are usually shot first and then harpooned. Whale nets were not mentioned as a major means of exploitation.

1.7 Management

All respondents from Kangirsuk expressed concern over the current management system that is being implemented in Nunavik and its effects on the community. Hunters noted major changes in the hunting of beluga and sharing of beluga products among individual hunters. They attribute this change in human behaviour to the implementation of the quota system. Most advocated an increase in the quota allocated to Kangirsuk, but emphasized the need for a system that was fair to all Inuit in every community that harvests beluga.

2. SALLUIT

Salluit sits on the east bank of the Saglouc Fjord on Hudson Strait, 120 km east of Ivujivik and 600 kilometers northwest of Kuujjuaq. Sixteen hunters were interviewed from the community. The composition of the sample group consisted of elders and elderly hunters that were born outside of the present community as well as some young hunters that had been raised for the most part in the centralized community.

2.1 Seasonal distribution and movements

The seasonal movements of Salluit hunter and their observations of seasonal beluga distributions and movements are shown on maps in Appendix I.

2.1.1 Spring: In March and April, Inuit respondents have not observed beluga within the vicinity of Salluit (with the exception of the wintering group noted below). However, some migratory beluga first appear from the east to the west during June, but only when ice conditions permit travel through open water. As Summer approaches, this followed by a general movement of beluga whales westwards (Map 2.1.1)

2.1.2 Summer: Migratory beluga whales were most frequently observed to arrive from the direction of Quaqtq (east) at the beginning of July and to be present throughout August. The whales tended to follow the shoreline during migration. Most hunters mentioned July as the first month to observe beluga whales migrating in large numbers near Salluit. This migrating population was recognized to be distinct from the whales observed wintering in Hudson Strait. However, both populations of whales migrate westward at the beginning of spring and were thought to summer in Hudson Bay - although no respondents could say with certainty the whales' ultimate destination. Most hunters thought the migratory beluga traveled close to shore to utilize the local rivers and bays to moult. The summering areas in Hudson Bay, such as the Nastapoka River, Richmond Gulf and Little Whale River were used to feed, moult and bear young. Beluga whales were not observed after July once major migration westward had occurred.

2.1.3 Fall: Beginning in September and continuing through October, the whales would initiate their return migration, from west to west (Map 2.1.3).

2.1.4 Winter: Some respondents mentioned that a sub-population of beluga whales wintered in Hudson Strait. This sub-population consisted of small mixed (male and female) groups (size less than 20 per group) that were observed feeding in the open water throughout January to June. Historically, some of these whales were harvested if hunters could reach the floe edge. This depended upon local environmental conditions that included weather, sea ice, current, wind and snow conditions on the ground.

2.2. Changes in seasonal distribution and population

Most hunters have observed a general decrease in the number of beluga whales that utilize the bay of Salluit and the several rivers in this region (Maps 4.1 and 4.2). Several respondents mentioned that up to the 1980s, beluga whales would rest, and feed in most of the bays and rivers along the Hudson Strait coast of Nunavik. The hunters attribute the change in distribution and abundance principally to outboard motor noise which affects the migratory behavior of beluga whales. Hunters also mentioned the importance and significance of local ice conditions that would affect beluga spring and summer migration routes. If there was heavy pack ice along the shore of the Nunavik Hudson Strait coast, the beluga whales would bypass these shores, traveling through any available open water to the area of Ivujivik.

2.3 Reproduction

None of the hunters from Salluit had observed beluga whales mating. However, several respondents provided information on the location where newborns had been seen (Map 2.3/2.4).

2.4 Food and feeding

Several hunters mentioned that beluga whales feed upon a species of sculpin. Some hunters also indicated arctic cod and sculpin as the major beluga prey. Locations near the coast were identified as feeding areas (Map 2.3/2.4).

2.5 Group composition

As at Kangirsuk, hunters recognized different types of beluga whales based principally on color and size, but also behavior and presence or absence of a calf.

These designations include:

- Qaluittut - Big white male
- Isayanguk - Younger than this one
- Issoktok - young one (dark grey)

2.6 Harvesting

By using modern outboard motors and snowmobiles for hunting and the range that they afford, the hunting season of beluga has been widened from past times to include all seasons. In Spring, hunting is limited to a few bays along the coast of Hudson Strait (Map 2.6.1). The greatest hunting effort, currently and in the past, is during the summer migration season. Hunters emphasized that this was their major window of opportunity to hunt beluga. The most concentrated effort currently occurs within a two-week time period during July when beluga whales migrate past Salluit. During these times hunters can travel as far as Ivujivik to the west and Quaqaq to the east to hunt beluga whales (Map 2.6.2). Thus Salluit hunters today take beluga whales from a much wider area in a relatively shorter hunting period than before. Hunts which do occur in the fall (Map 2.6.3) occur over similar areas used for harvesting in summer.

In Fall, whales would be harvested if they were accessible. Since the current in this area is relatively strong during this period, hunters usually utilize covered or protected areas to hunt beluga whales. However, since beluga generally did not travel as close to the shore as they would during spring migration historically, their harvest during this period was much more limited.

One hunter mentioned that beluga whales had been harvested during winter along the floe edge, but that this is not the practice today. This hunt had been conducted by dog team or by foot and could only be done when the ice, sea, snow, and wind conditions permitted. Other respondents identified areas along the coast where hunts in winter currently occur (Map 2.6.4).

Currently, hunts from Salluit usually take one day, but can last longer depending upon the location of the beluga whales and the motivation of the hunters. Salluit hunters also go as far as Nottingham Island to hunt beluga whales.

Hunters use rifles and harpoons to hunt beluga whales. Whales are usually shot first and then harpooned. Whale nets were not a major means of exploitation and have not been utilized in the past.

2.7. Population assessment

All respondents from Salluit mentioned that they could not assess any major changes in the population because they have not monitored it continuously and also because they had no accurate means to assess population size to identify significant increases or decreases. However, several respondents stated that they certainly observed less beluga, but attribute this to changes in migration behavior of beluga in response to noise, as opposed to a decrease in the overall number of beluga.

2.8. Management

All respondents expressed concern over the current management system in Nunavik and the effects it has had upon Nunavik Inuit and the community of Salluit. However, some respondents acknowledged the intention of the quota system and simply desired an equal and fair management protocol for all Nunavik Inuit, particularly one that considered the relative population sizes of the communities. Most advocated an increase in the quota for Salluit, but emphasized the need for a system that was fair to all communities.

As in Kangirsuk, respondents from Salluit noted major changes in the sharing of beluga products as well as changes in the hunting and sharing behavior of individual hunters due to the implemented quota system. One interesting comment was that the implementation of the quota system appeared to have affected some hunters' behavior by increasing their desire to hunt as many

beluga whales as possible because of the limitation or restriction placed upon them. The concept of taking as many as you can for yourself because there is an overall limit appears to run contrary to historic practices when individuals were not rushed to hunt beluga and did not have such a strong emphasis on hunting them. It is likely that because of the quota system, hunters are more likely to take greater risks to hunt them, as well as hunt them in more unlikely retrieval situations because of the possibility of not getting another opportunity.

3. INUKJUAK

Inukjuak is located at the mouth of the Innuksuac River, facing the Hopewell Islands of eastern Hudson Bay, 360 kilometers north of Kuujjuaraapik. Fifteen elder and current hunters were interviewed from the community of Inukjuak.

3.1 Seasonal distribution and movements of beluga whales

A southward movement of beluga whales occurs in the Spring with a corresponding northwards migration in the Fall.

3.1.1 Spring: From March to April, Inuit respondents did not observe beluga whales in the region of Inukjuak. Several respondents qualified this statement by mentioning that their families did not reside close to the floe edge where such observations could be made. The first beluga whales migrating south through the area immediately north of Inukjuak are currently observed during June (Map 3.1.1).

3.1.2 Summer: Historically, several elder respondents noted that beluga whales, before the presence of outboard motors, navigated along the shoreline traveling into each bay and river that was accessible. Beluga whales continue migrating past Inukjuak through the months July and August. However, no beluga whales are currently observed to summer in any areas in close proximity (100 km or less) to Inukjuak. With the exception of one sub-population that was known to summer in the area north of Inukjuak, all other beluga whales were observed and believed to continue to the south to the Nastapoka River, Richmond Gulf and Little Whale River.

3.1.3 Fall: Beginning in September and continuing through October, the beluga whales would begin their return migration north far from shore and with a sense of urgency to avoid freeze-up and being caught during this time period. Inuit would harvest the migrating whales if they were accessible, but in most cases the beluga whales traveled far from the shoreline and were not readily observed (Map 3.1.3).

3.1.4 Winter: All respondents stated that beluga whales were not observed during winter with the exception of one hunter who had once heard of a beluga that was opportunistically hunted during the winter.

3.2. Changes in seasonal distribution and population

As was the case in Kangirsuk and Salluit, most respondents from Inukjuak indicated a decrease in the observations of beluga that utilize the Inukjuak River as well as the bays and rivers along the eastern Hudson Bay coast which were utilized in the past. Most hunters attribute the change in distribution and abundance principally to man-made noise which in turn influences beluga spring and summer migration routes.

Two elders also mentioned the decimation of a stock of beluga whale that summered north of Inukjuak. They recognized this as a separate population of beluga that would migrate to this area and summer there. However, these beluga whales were exploited to the point that their numbers have significantly decreased in this area so that very few are currently observed in this area and most are considered to be migrating through to areas south of this region. The Inuit explained that this population was possibly over-exploited, but this happened because the survival of several Inuit families at that time required the meat for their dog teams and the fat (oil) for heat. Thus, one elder did not make excuses or express regret over the loss of this stock because of the Inuit's necessity for survival. However, he did mention that this experience could be used as an example for management; perhaps suggesting that the current beluga stock or some sub-populations could disappear in certain localities and these would not necessarily recover. He also emphasized the point that because beluga whales are not now as critical for the survival of the Inuit as they were in the past - however it would be prudent to manage the current stocks to conserve them for future generations. As with Salluit, Inukjuak hunters mentioned the importance and significance of local ice conditions that affects beluga spring and summer migration routes.

3.3 Reproduction

None of the hunters from Inukjuak have observed beluga whales mating. However, several respondents provided information on beluga whales that had recently been born (Map 3.3).

3.4 Food and feeding

Several hunters mentioned that beluga whales feed upon a species of sculpin.

3.5 Group composition

Hunters from Inukjuak recognized different types of beluga whales based principally on color and size, but also behavior and presence or absence of a calf. These include:

- Angusuluk - Male
- Angnaluk - Female
- Kilalugaga - Calf
- Isutaq -Grey
- Kuqsutaq -Yellow

3.6 Harvesting

The greatest hunting effort historically and currently is expended during the summer season from July through August (Map 3.6.1). Beluga whales are also hunted opportunistically during early-spring (Map 3.6.2) and fall (Map 3.6.3) as they migrate along the coast. Historically, beluga hunts were conducted along the entire eastern Hudson Bay coast in an opportunistic manner, but more concerted efforts were made at the Nastapoka River where the concentration of beluga whales was known to be high. Currently, the most hunting occurs during July usually with trips to the Nastapoka River, Richmond Gulf or Little Whale River. The Nastapoka River is the main area for beluga hunting for most Innujamiut.

The hunting period for the Nastapoka River is at least one week and can extend to two to three weeks depending upon the disturbance effected upon the whales and the patience of the hunters.

All current hunters use rifles and harpoons when hunting beluga whales. Whales are usually shot first and then harpooned. Whale nets were not mentioned as a major means of exploitation.

3.7 Population assessment

As mentioned earlier, one elder mentioned the decimation of the stock that summered north of Inukjuak. This population was distinct from the migrating beluga whales that summered in the areas of the Nastapoka River, Richmond Gulf, and Little Whale River.

Several hunters mentioned a decrease in the number of beluga whales observed at the Nastapoka River during the past twenty years. However, they were uncertain as to whether the cause was due to population decrease or from disturbance by man-made noises.

Lastly, some respondents said that that they could not honestly assess any major changes in the population because as they did not monitor them continuously and also because they had no accurate means of assessing beluga population on a long-term basis. However, several respondents stated that they certainly observed less beluga and attribute this change (up to 25 % decrease in beluga population at Nastapoka River in the past 20 years) was caused by a shift in the migration behavior of the beluga again in a response to anthropogenic noise.

3.8 Management

All respondents from Inukjuak expressed concern over the current management system in Nunavik and the effects that it has had upon Nunavik Inuit and the community of Inukjuak. However some respondents acknowledged the positive intention of the quota system and simply desired a fair management protocol for all Nunavik Inuit and suggest that this should reflect the population size of each respective community.

As in the other communities, all respondents noted major changes in the sharing of beluga products, as well as changes in the hunting and sharing behavior of individual hunters due to the implemented quota system. Most advocated an increase in quota for Inukjuak, but emphasized the need for a system that was fair to all Inuit communities.

4.0 GENERAL COMMENTS (not specific to one community)

The following topics were comments that arose during the interviews which echo the concerns of elders and current hunters regarding beluga hunting and management.

4.1 Generation Gap

Currently, several generations of Inuit are harvesting beluga whales. However, there is a lack of communication between younger and older hunters and hence the younger generation of hunters appears to be less prepared for hunting beluga

whales. There is a general lack of information about the best method to hunt and how to utilize the entire contents of the beluga whale as was practiced traditionally in the past.

4.2 Hunting Practices

The desire to hunt whales by younger generations certainly has not diminished. However, elders have stressed the importance of the behavior of the hunter in the utilization and sharing of the harvested whale. Most elderly respondents expressed deep concern over waste of beluga products as well as loss of beluga whales that had been shot and not properly retrieved or have been shot at an extreme range.

4.3 Hunter Support Program

There is a major concern regarding the influence of money on information and people, especially with regard to the situation surrounding the hunter support program. Mention was made that community freezers are not always full and that only for the two weeks when there is money do hunters actually go out hunting, as opposed to historically when they would go out hunting to share food with the community.

4.4 Equal Enforcement

With respect to the management system, several respondents indicated that the management system is not respected because the regulations are not enforced equally across all communities. Once disparity in the treatment of any of the communities is identified, Inuit begin to question the overall management system. There are also other confounding issues such as Inuit traveling to different communities to hunt beluga whale – essentially in areas that they historically did not travel to and use.

5. SUMMARY and CONCLUSIONS

5.1 Man-made disturbance: Most Inuit respondents hold the belief that the principal change in the distribution and abundance of beluga whales is due to noise disturbance, principally from outboard motors. People are traveling in boats along the same routes and at the same time that beluga utilize them. Some hunters commented that modern day Inuit are taking modern technology for granted because it allows them to hunt beluga in places that were not as readily accessible in the past. Thus the whaling season and timing of beluga hunting are both much longer and frequent. Essentially, the nature of beluga hunting in terms of Inuit behavior and philosophy has been significantly influenced by the use of modern technology.

5.2 Need for Research: Inuit refer to the observations of Inuit from Quaqtuq and Ivujivik who report numerous sightings of beluga as an indication of the healthiness of beluga population size. However, the effect of noise disturbance on the summering behavior of beluga is not well known or documented and clearly more studies need to be conducted to establish whether beluga whales are capable of changing their summering grounds. Furthermore, the differences between stocks of beluga that frequent certain localities and the home ranges of these beluga need to be investigated.

5.3 Population status: Most respondents contend that the overall population has not changed significantly as has been suggested by the Department of Fisheries and Oceans (DFO). The major historical changes and effects have been the increase in noise through the use of outboard motors, the increase in sea-lifts and other influences that were not historically part of the environment. These factors coupled with changes in Inuit hunting behavior, increases population size and anthropogenic disturbance are seen as effecting migration behavior, pushing beluga whales farther from the shorelines that were historically utilized.

5.4 Changes in habitat use: In general, less beluga whales are observed during migration compared to a time when they utilized bays and rivers. The reasons for these changes are not well known and there are many confounding factors such as killer whale presence and population size that need to be resolved before any conclusions are drawn.

5.5 Generation Gap: The elders and hunters who were born and lived off the land have a tremendous respect for the land that is not necessarily engrained in younger hunters who were born and raised in communities. Therefore, the value of the beluga to younger generations of hunters does not appear to be the same as it was and is to the older generation of hunters that have experienced harsher living conditions where food, and heat were not always readily available.

5.6 Loss of knowledge: Individuals mentioned that the very good elders are no longer with us. A major portion of the information collected in this study is based on more modern hunters who, though growing up on the land, lack the depth of knowledge of the elders. The traditional knowledge that is sought by surveys such as ours is not as easy to attain because there are different grades of elders that provide different type and grades of information. There are current, older hunters in their fifties who are confident in their hunting skills, but who can only recall the time period from the 1950s onwards. The parents and elders of these individuals provide rich information regarding the beluga that in some cases may be controversial with regard to hunting out the beluga in certain areas. They also provide the most detailed information because of their extensive experience with the species. However, current hunters do provide recent and critical information, but their experience is considerably less because they have spent less of their lifetime directly on the land and in most cases they have spent at least half of their lifetime in centralized villages. Hence the nature of their knowledge regarding beluga is considerably different and more oriented towards hunting with modern technology rather than observing daily behavior or population changes over time

5.7 Beluga management versus human demand: How can beluga management respond to the demands of a growing Inuit population? A major issue expressed by most hunters is that the present quota is not sufficient in size to sustain the way of life for everyone in the communities who desires the country-food beluga provide. However, with a growing population, certainly difficult decisions will have to be made by management and interested parties. A critical issue of concern to the respondents was who manages the beluga currently and in the future with the changing political scenery. The elders also mention that the younger generation is being more acclimatized to southern foods so that traditional foods are not as necessary as they once were. However for those who grew up on a traditional food diet, muktuk is still considered an important part of their diet and culture and, if possible, this appreciation of the land and its resources should be passed on to the future generations.

5.8 Quotas and traditional sharing: Almost all respondents stated that the current management system and quota system is affecting their traditional system of hunting and sharing of beluga whales. The argument is that because there is less beluga whales available, people are less inclined to share their harvest with the others in the community and are more likely to keep it within their own extended family. This has had serious effects upon inter-family relationships as well as intra-family relationships as most of the Inuit in each community are distantly related to each other.

Acknowledgements

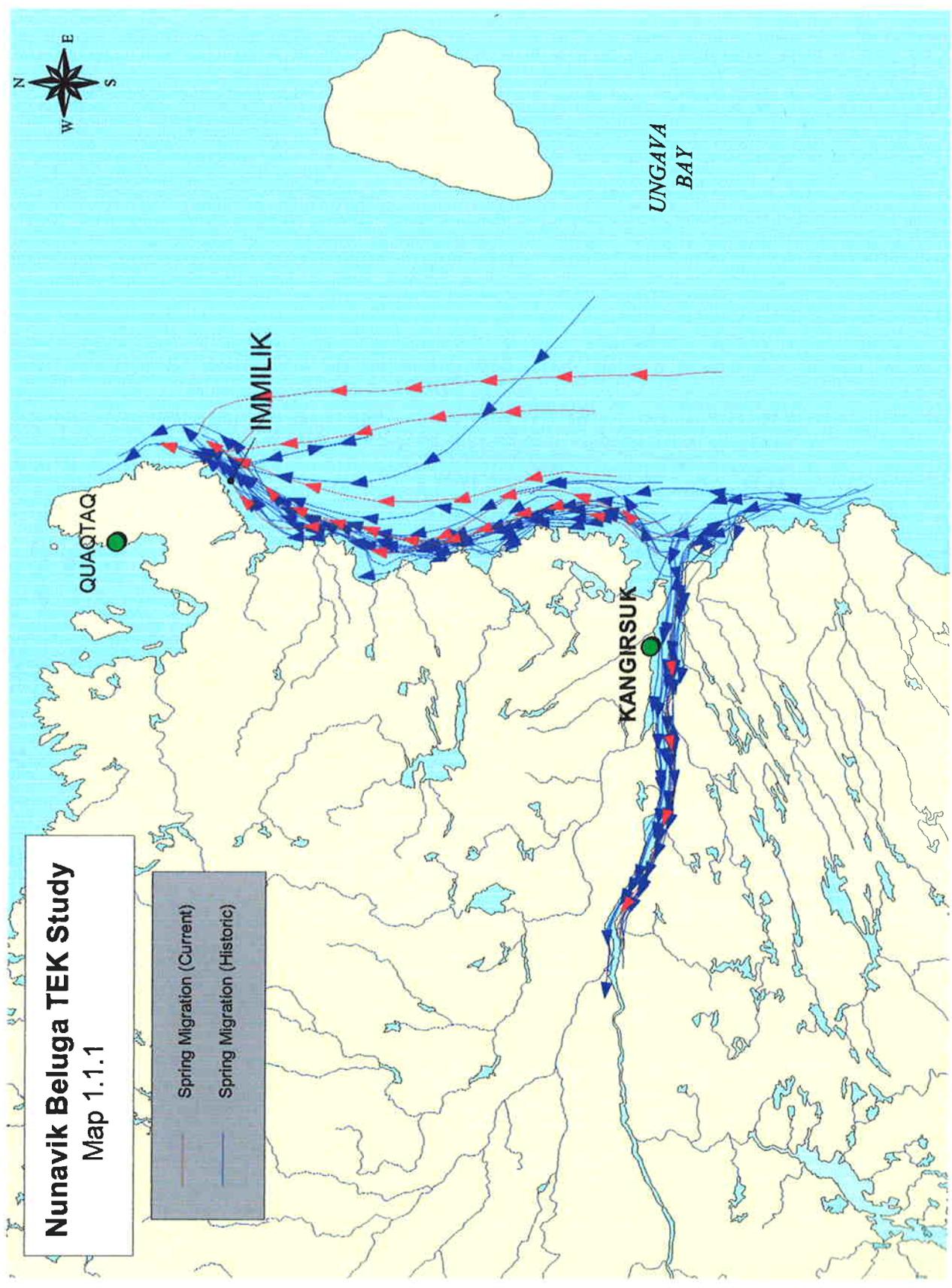
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Appendix I Maps

Community	Map	Subject
Kangirsuk	1.1.1	Spring migration
	1.1.3	Fall migration
	1.6.1	Spring hunting area
	1.6.2	Summer hunting area
	1.6.3	Fall hunting area
Salluit	2.1.1	Spring migration
	2.1.3	Fall migration
	2.3/2.4	Calving, moulting, resting, feeding
	2.6.1	Spring hunting area
	2.6.2	Summer hunting area
	2.6.3	Fall hunting area
Inukjuak	2.6.4	Winter hunting area
	3.1.1	Spring migration
	3.1.3	Fall migration
	3.3	Calving, moulting, resting, feeding
	3.6.1	Summer hunting area
3.6.2	Winter hunting area	
3.6.3	Fall hunting area	

Nunavik Beluga TEK Study Map 1.1.1

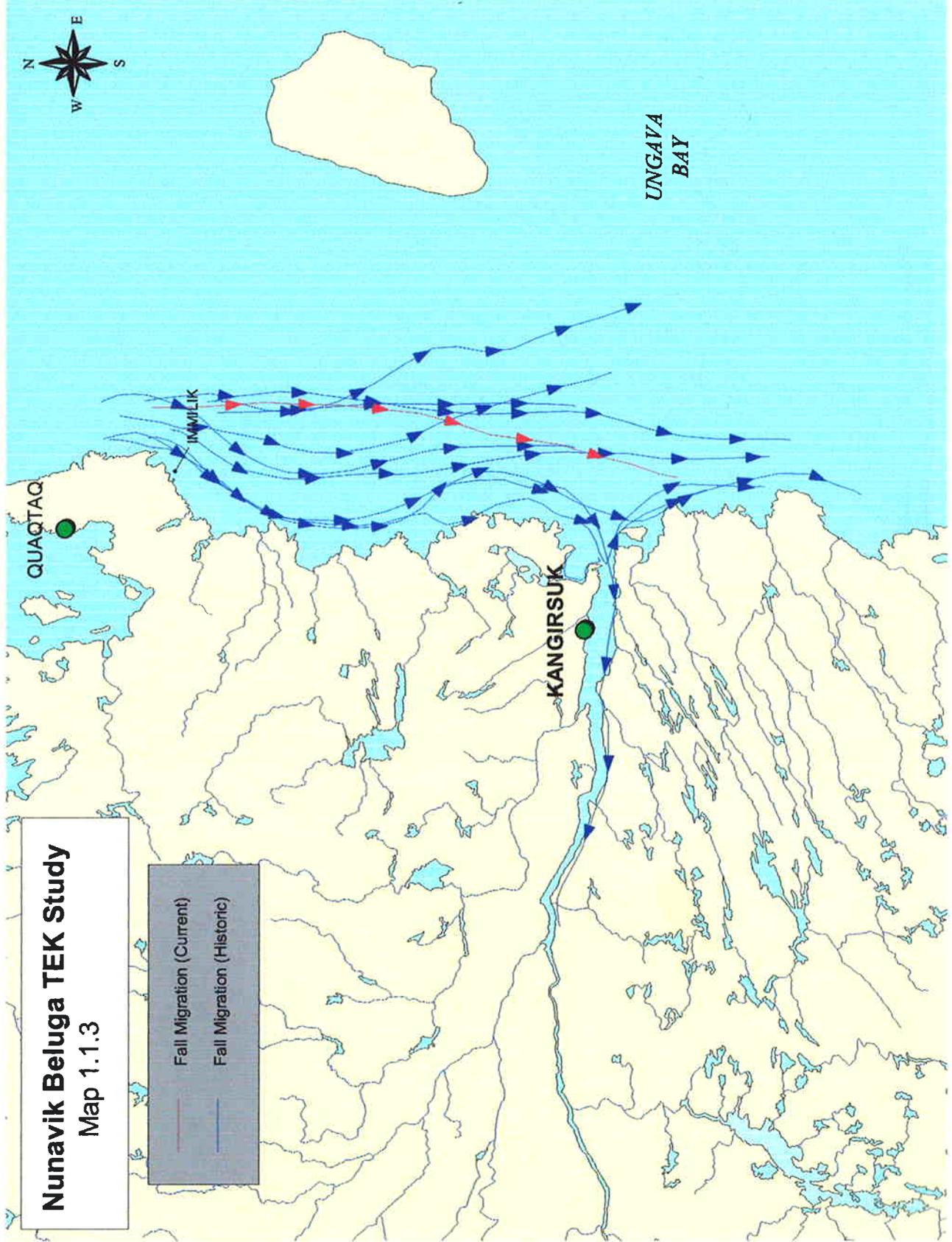
— Spring Migration (Current)
— Spring Migration (Historic)



50 0 50 100 Kilometers

Nunavik Beluga TEK Study Map 1.1.3

Fall Migration (Current)
Fall Migration (Historic)



100 Kilometers

50

0

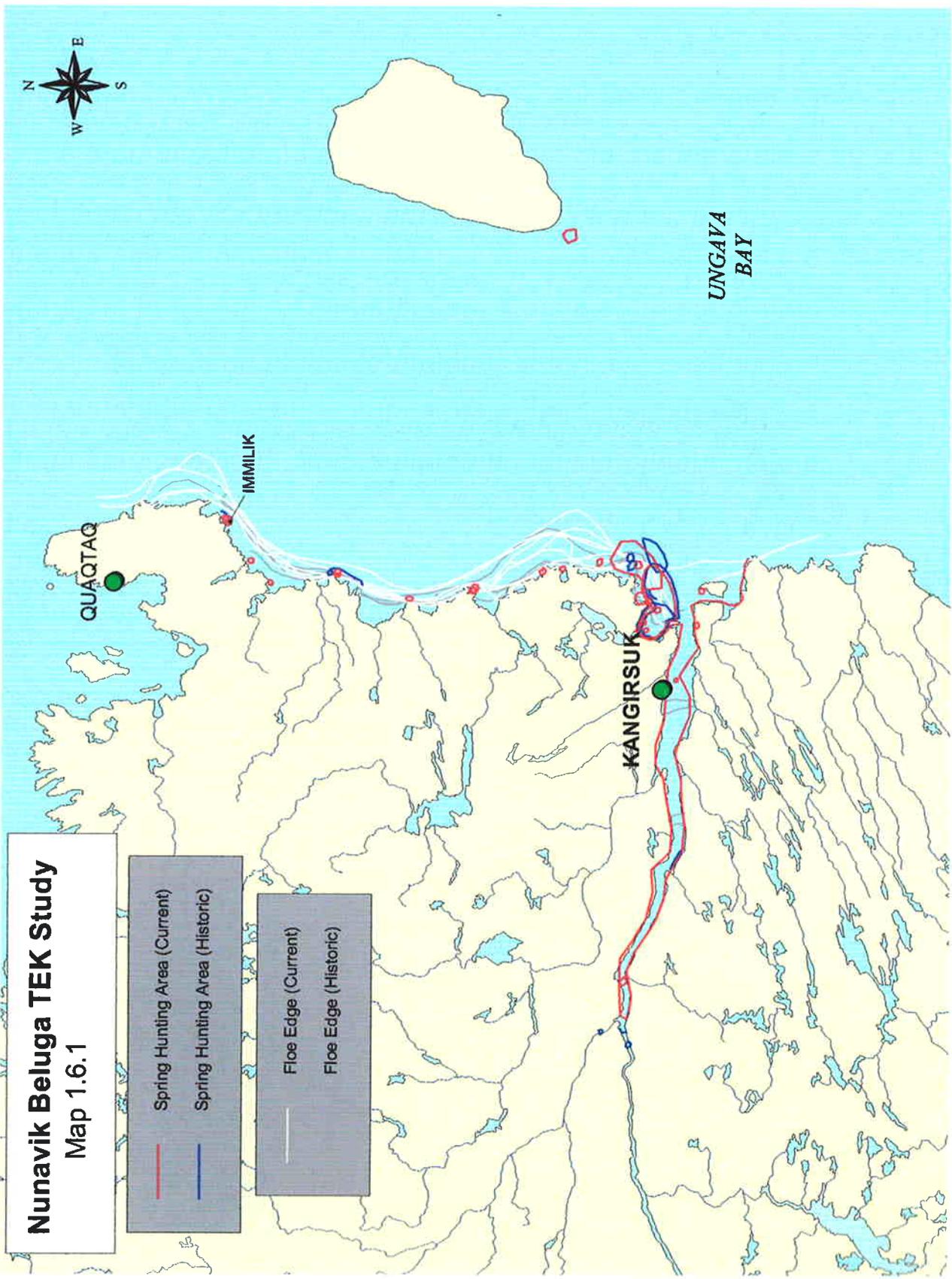
50



Nunavik Beluga TEK Study

Map 1.6.1

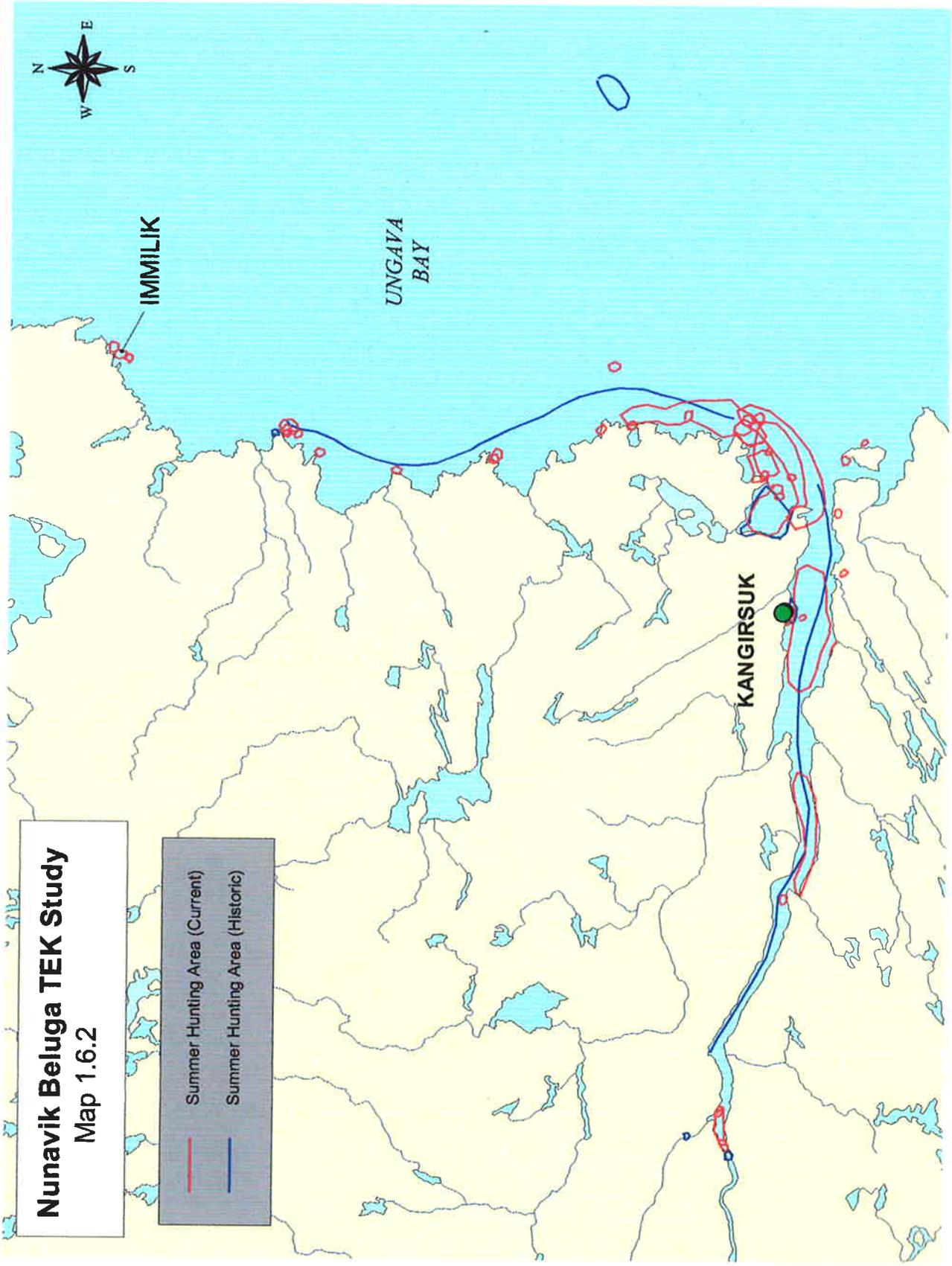
- Spring Hunting Area (Current) — Red line
- Spring Hunting Area (Historic) — Blue line
- Floe Edge (Current) — Solid grey line
- Floe Edge (Historic) — Dashed grey line



Nunavik Beluga TEK Study

Map 1.6.2

- Summer Hunting Area (Current)
- Summer Hunting Area (Historic)



50 Kilometers
25
0
25

Nunavik Beluga TEK Study
Map 1.6.3

Fall Hunting Area (Current)

UNGAVA
BAY

KANGIRSUK

50 Kilometers

40

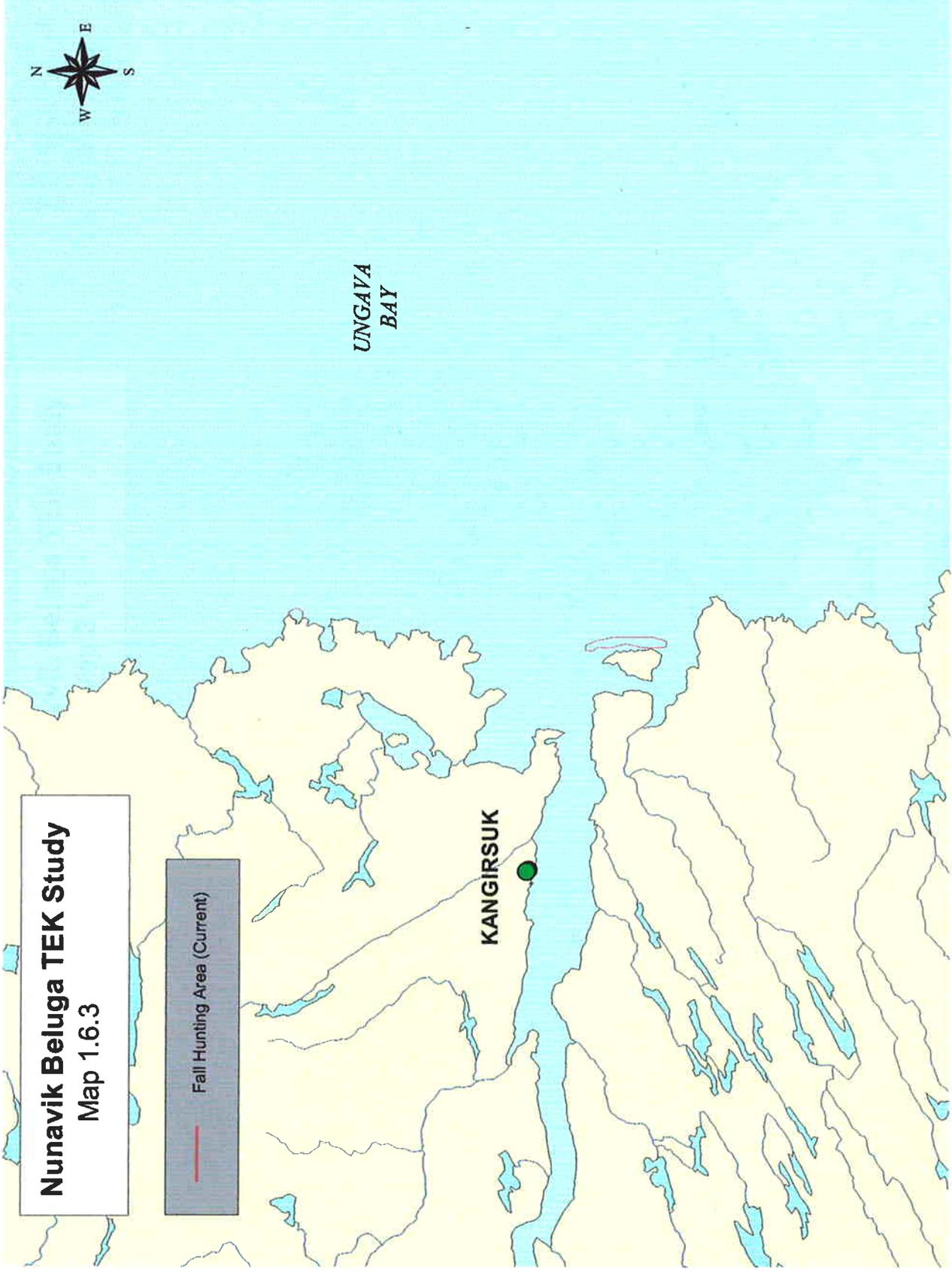
30

20

10

0

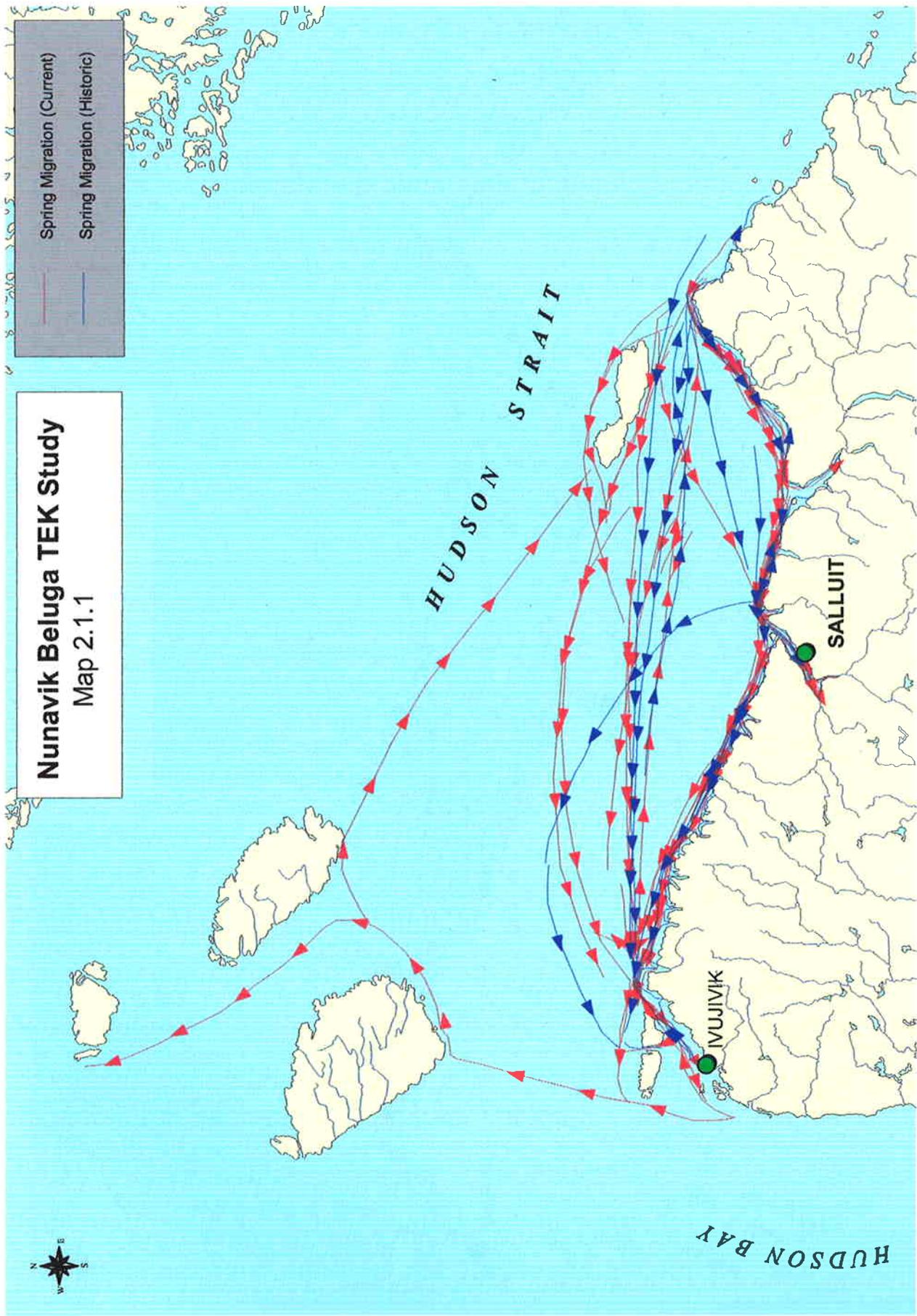
10



Nunavik Beluga TEK Study

Map 2.1.1

Spring Migration (Current)
Spring Migration (Historic)



100 Kilometers

50

0

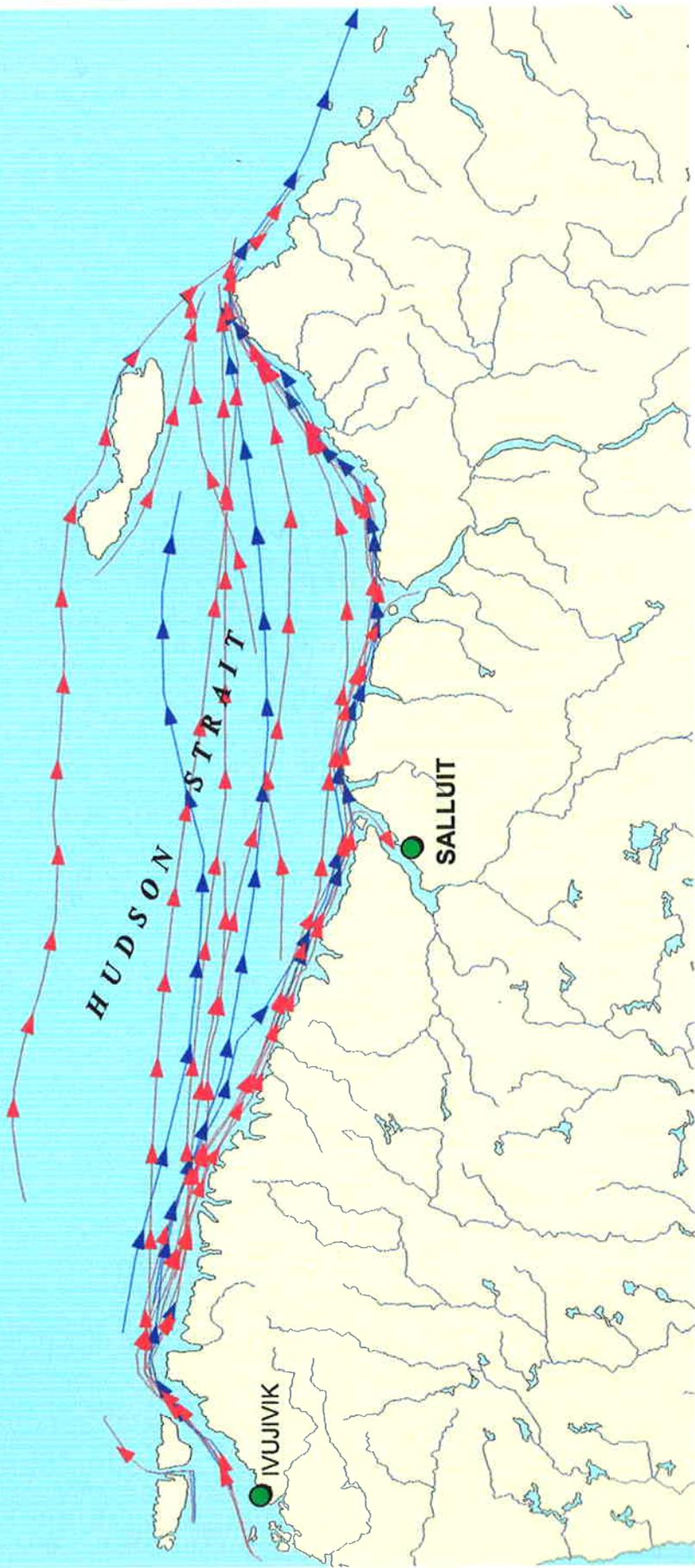
50



Nunavik Beluga TEK Study

Map 2.1.3

Fall Migration (Current) ————
Fall Migration (Historic) ————



Nunavik Beluga TEK Study

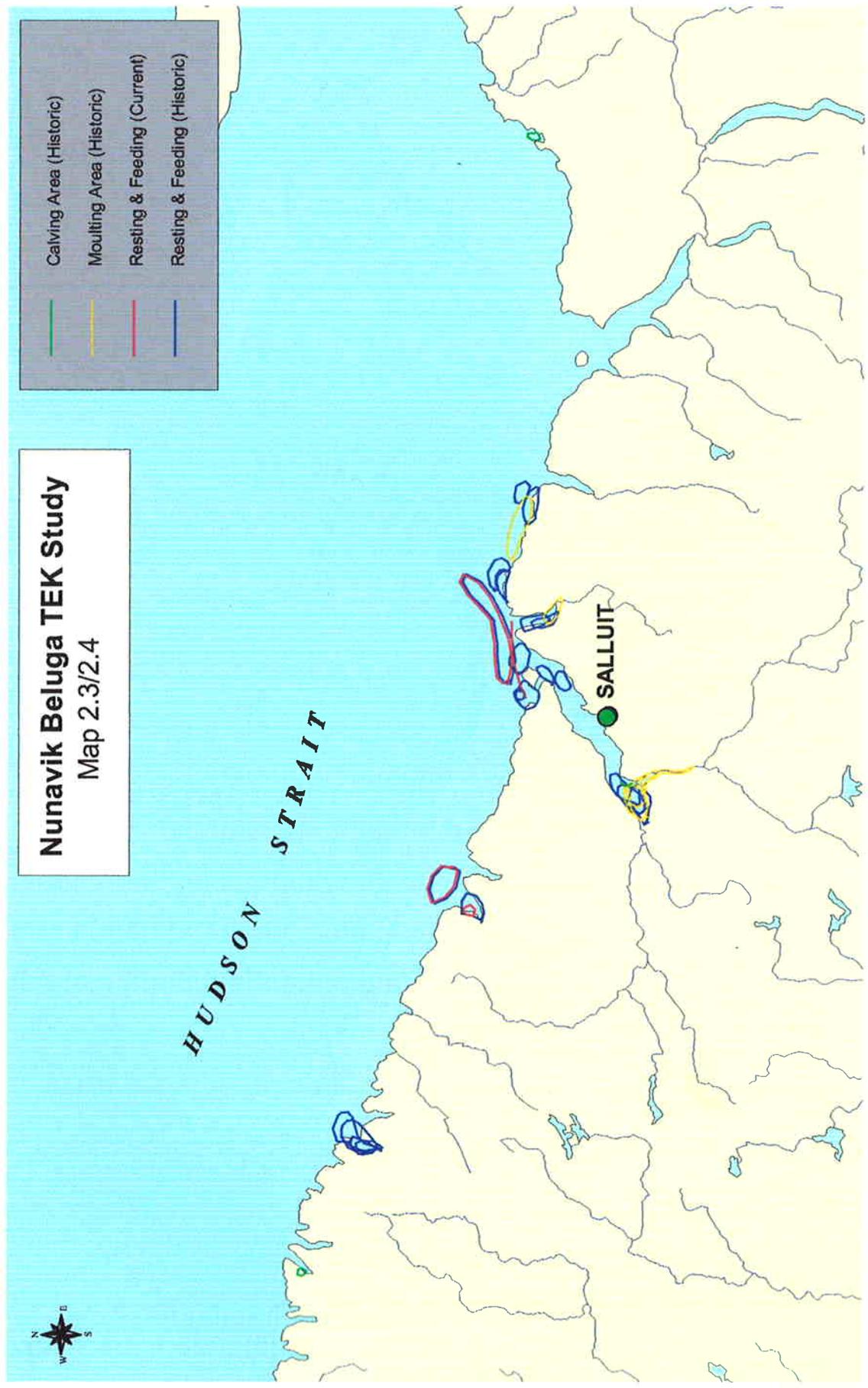
Map 2.3/2.4

	Calving Area (Historic)
	Moultling Area (Historic)
	Resting & Feeding (Current)
	Resting & Feeding (Historic)



HUDSON STRAIT

SALLUIT





Nunavik Beluga TEK Study
Map 2.6.1

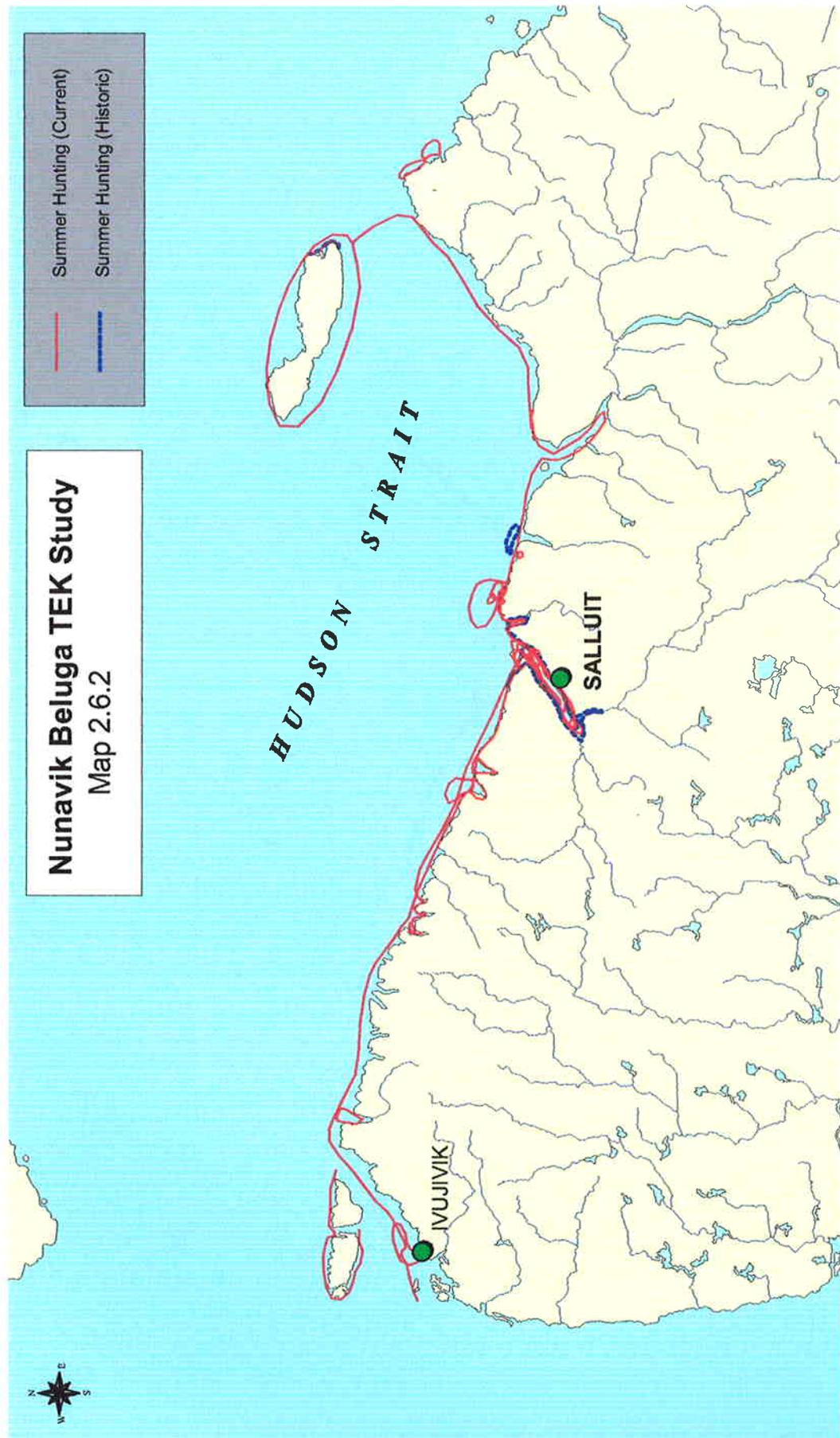
— Spring Hunting (Current)
— Floe Edge (Historic)





Nunavik Beluga TEK Study
Map 2.6.2

Summer Hunting (Current)
Summer Hunting (Historic)

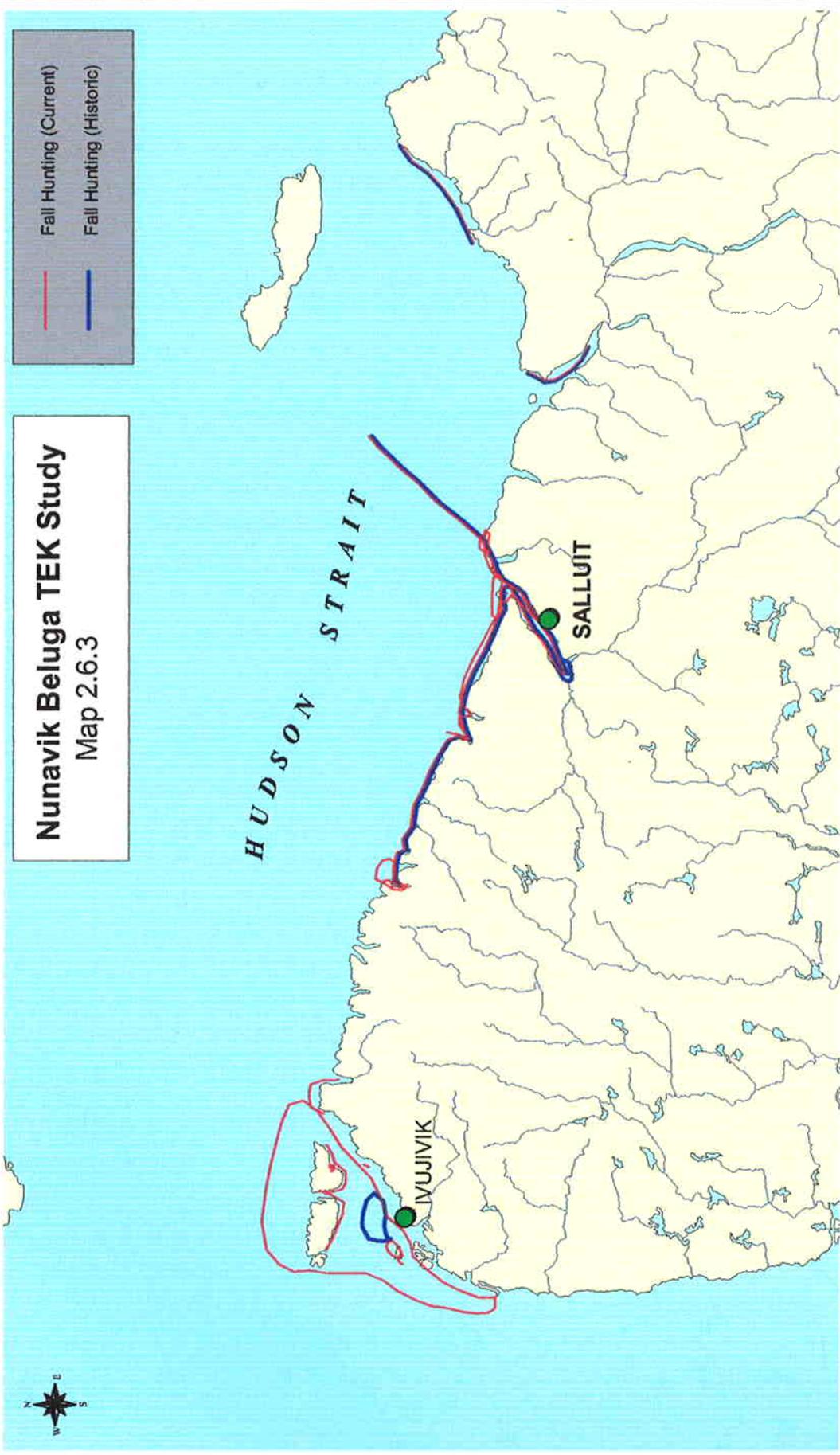


50 0 50 100 Kilometers

Nunavik Beluga TEK Study

Map 2.6.3

Fall Hunting (Current) ————
Fall Hunting (Historic) ————



Nunavik Beluga TEK Study

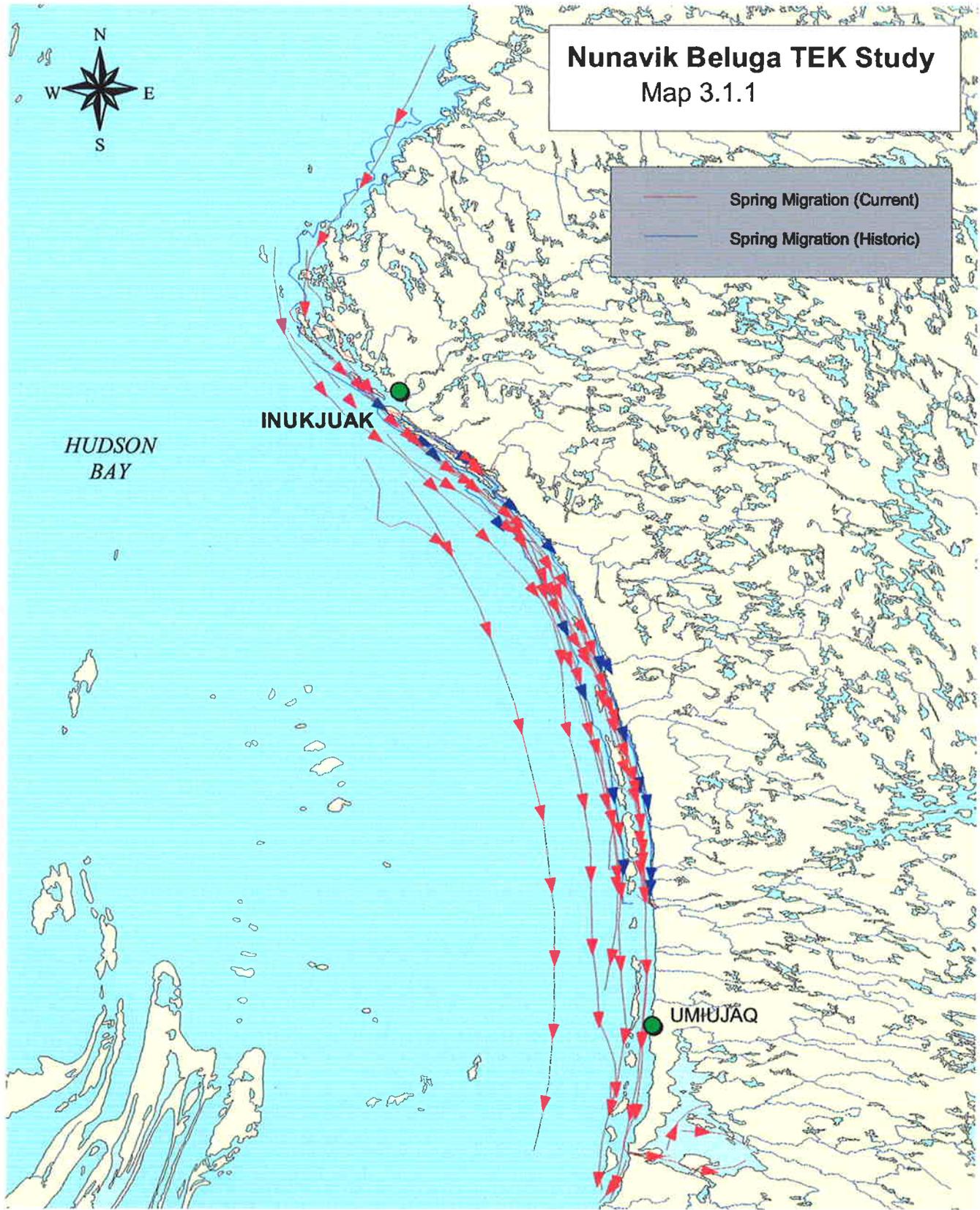
Map 2.6.4

	Winter Hunting (Current)
	Winter Hunting (Historic)
	Floe Edge (Historic)



Nunavik Beluga TEK Study

Map 3.1.1



HUDSON
BAY

INUKJUAK

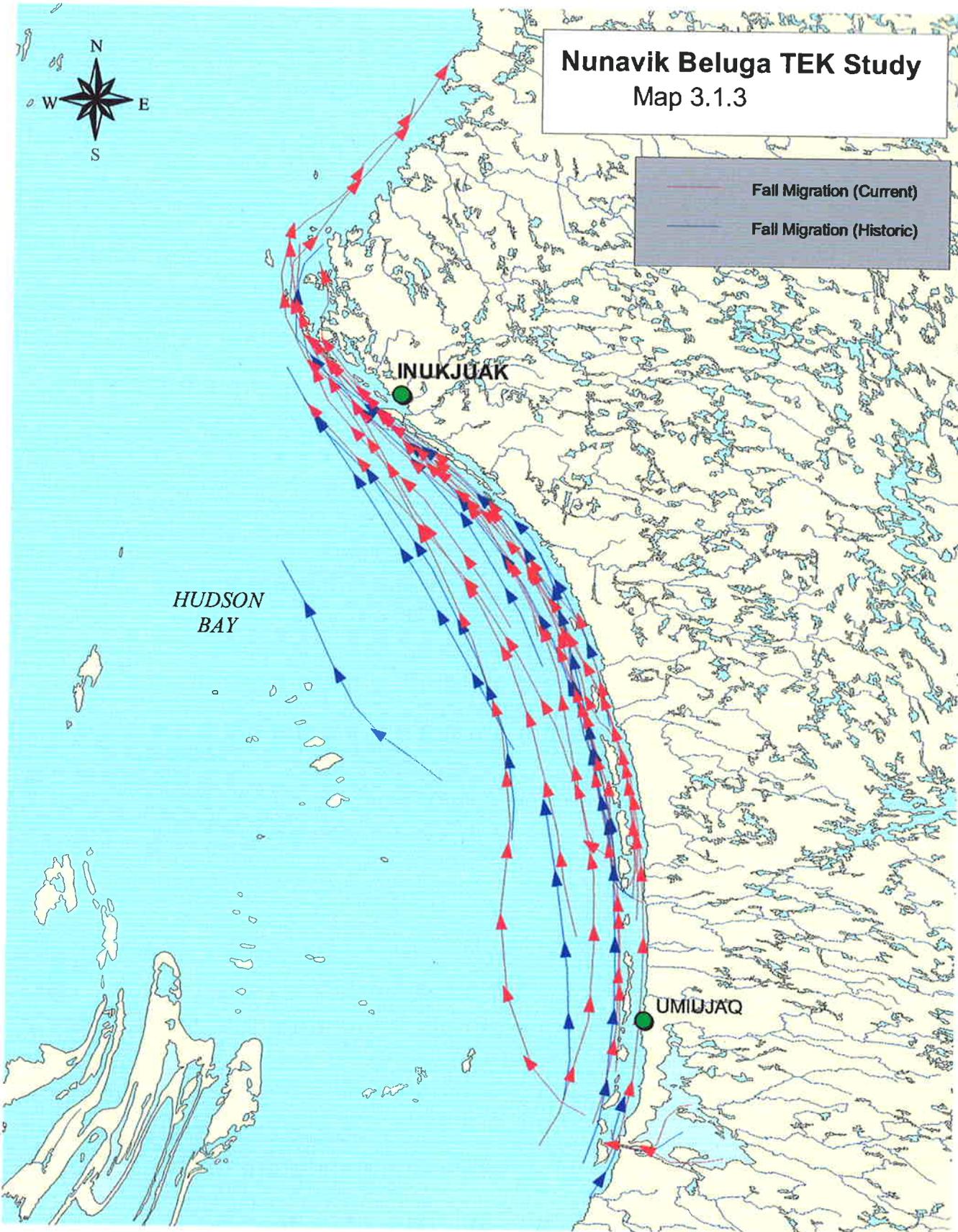
UMIUAQ

50 0 50 100 Kilometers

Nunavik Beluga TEK Study Map 3.1.3



— Fall Migration (Current)
— Fall Migration (Historic)



Nunavik Beluga TEK Study Map 3.3

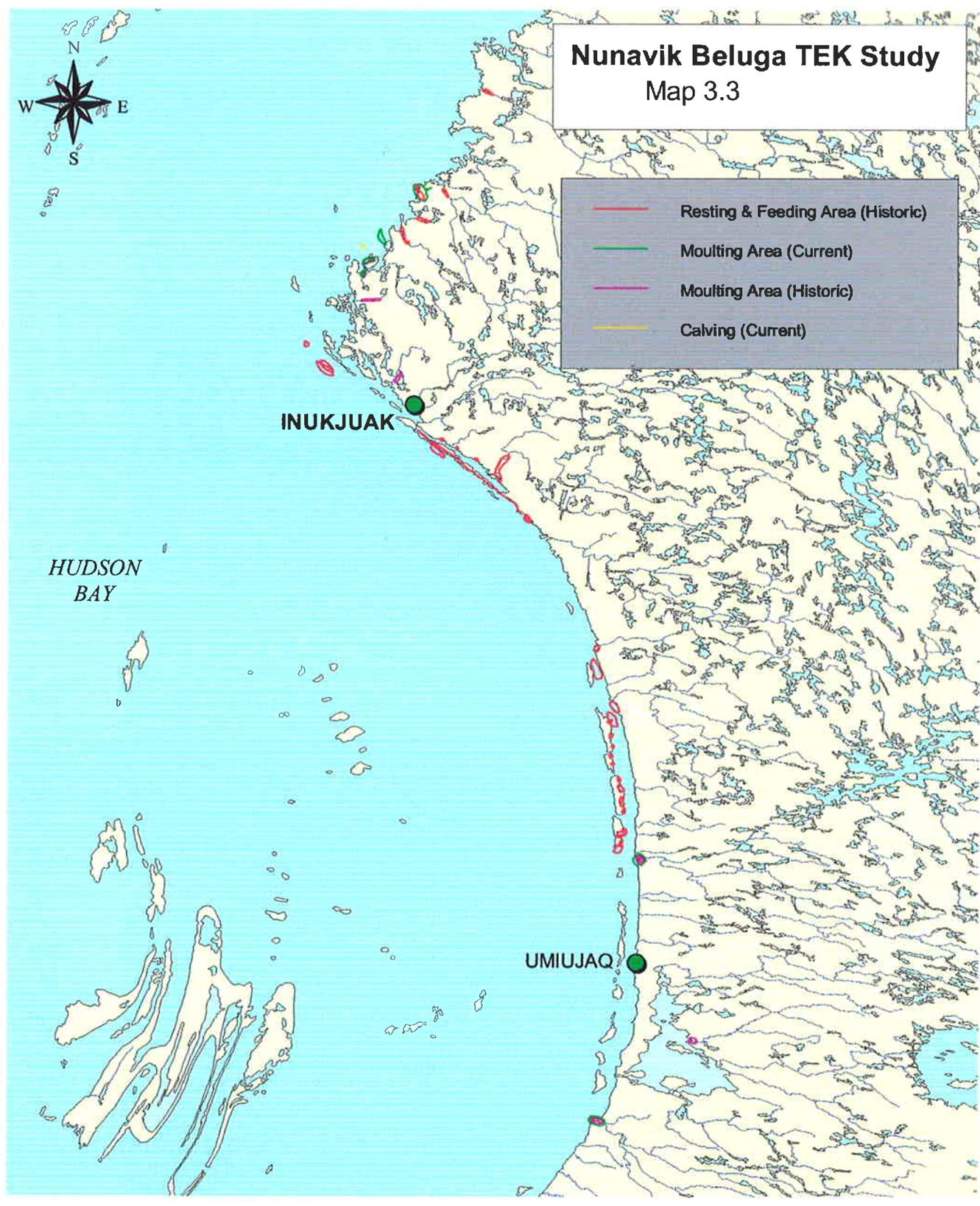
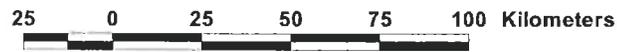


- Resting & Feeding Area (Historic)
- Moulting Area (Current)
- Moulting Area (Historic)
- Calving (Current)

INUKJUAK

HUDSON
BAY

UMIUJAQ



Nunavik Beluga TEK Study Map 3.6.1



INUKJUAK

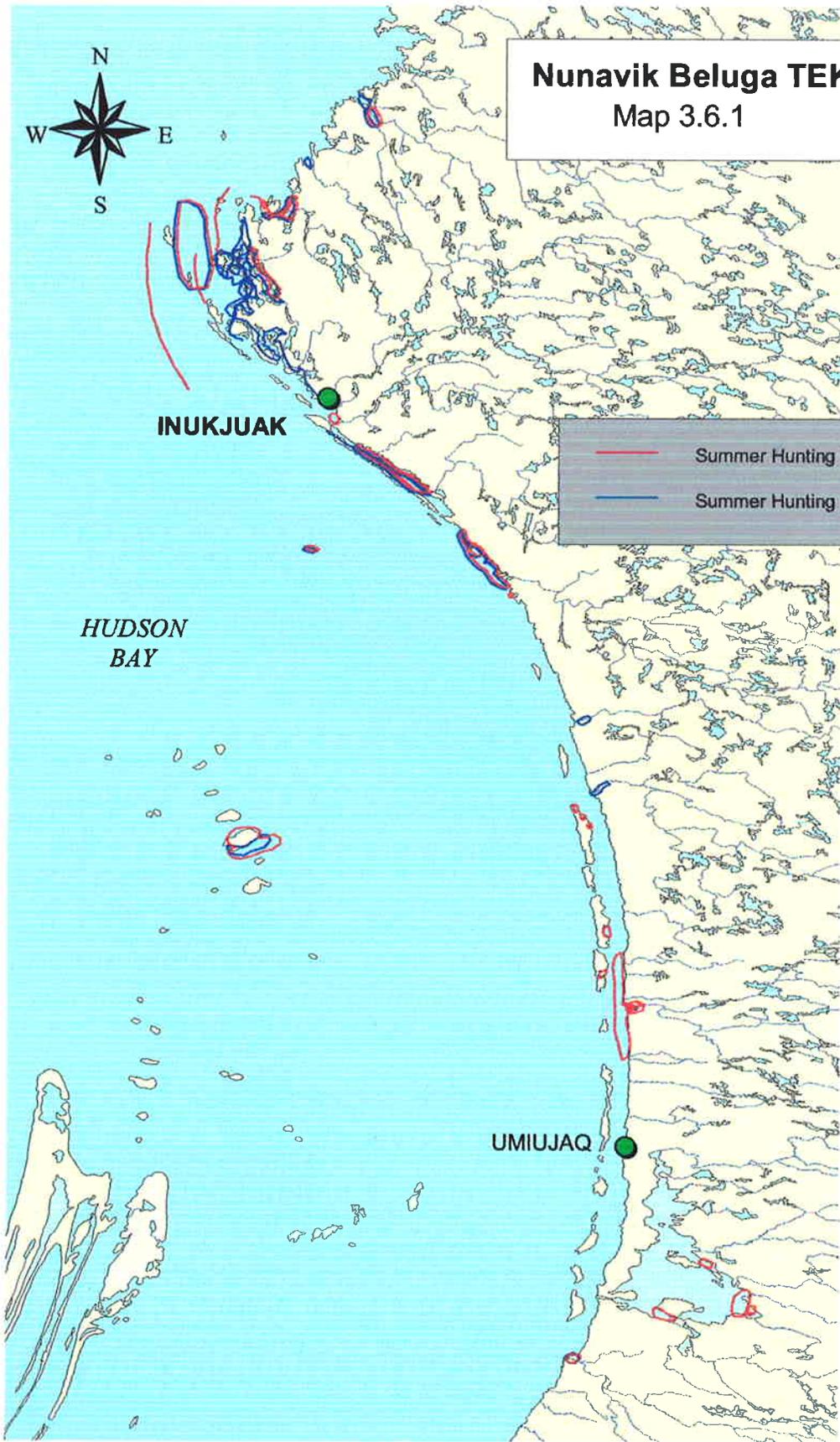
— Summer Hunting (Current)

— Summer Hunting (Historic)

*HUDSON
BAY*

UMIUJAQ

50 0 50 100 Kilometers



Nunavik Beluga TEK Study
Map 3.6.2



— Winter Hunting (Historic)

10 0 10 20 30 40 50 Kilometers

Nunavik Beluga TEK Study

Map 3.6.3



Fall Hunting (Current)
Fall Hunting (Historic)

25 0 25 50 Kilometers