NUNAVUT COASTAL RESOURCE INVENTORY

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Department of Environment
Avatiliqiyikkut
Ministère de l'Environnement

NCRI

Nunavut Coastal Resource Inventory – Kimmirut
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EXECUTIVE SUMMARY

This report is derived from the Hamlet of Kimmirut, and represents one component of the second phase of the Nunavut Coastal Resource Inventory (NCRI). The term "coastal inventory", as used here, refers to the collection of information on coastal resources and activities, gained from community interviews, research, reports, maps, and any other available resources, presented in map format.

Coastal resource inventories have been conducted in many jurisdictions throughout Canada, notably along our Atlantic and Pacific coasts. These inventories have been used as a means of gathering reliable information on coastal resources to permit their strategic assessment, leading to the promotion of economic development, coastal management, and conservation opportunities. In Nunavut, the coastal resource inventory has two additional applications: the preservation of traditional knowledge (Inuit Qaujimajatuqangit, or IQ), and the anticipation of forthcoming environmental changes, particularly those driven by climate change.

The Fisheries and Sealing Division of the Department of the Environment, initiated this inventory by conducting a feasibility study, followed by a pilot project, in Iglulik, Nunavut. Upon completion of the pilot (Phase I), four additional communities (Kugluktuk, Chesterfield Inlet, Arctic Bay, and Kimmirut) were approached to assess their interest in participating in the inventory (Phase II). All four agreed, and interviews for Kimmirut were completed in February 2009.

Inventory deliverables include the:

- provision of a final report that provides coastal resource data in a GIS database;
- provision of resource inventory maps for each community;
- provision of all documents used and methodology employed throughout the coastal inventory process; and
- thorough evaluation of the methodology and supporting materials that were used to carry out the entire inventory process.

The interview team was made up of five individuals: the interviewer, a translator, a recorder, an oceanographer, and a student observer. The interviews lasted between two to six hours, depending on the amount of detail elicited in the responses and the amount of clarification required during the interview. The entire interview followed a predefined survey, where the first round of questions elicited information on the interviewee's early life history. These questions were followed by resource-based topics, in a specific order, that were directly tied to photographs of species. Responses were documented in real-time, with data amenable to mapping drawn on the charts provided and all proceedings were recorded using audio and video equipment. Upon completion of the interviews, data was compiled into spreadsheets and the map information was scanned, digitized, and prepared for analysis.

An array of maps, aggregated into categories (Archaeological Sites, Mammals, Fish, Birds, Invertebrates, Marine Plants, Areas of High Diversity, and Other), are provided in this report. Additional maps illustrate Nunavut, the extent of the interview area, a reproduction of the study area extracted from the Nunavut Atlas, and the survey area with place names in Inuktitut (both syllabics and transliteration). The map format was chosen, given the broad geographic reach of the interviewee's responses, to provide a synoptic view of the collected data. Every effort was made to keep the scale of the maps the same and with the same extent in order to permit convenient comparisons from one map to another. In addition, the maps are complemented by extensive tabular information.

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INTRODUCTION

This document is one in a series of reports produced by the Nunavut Coastal Resource Inventory (NCRI). The overall goal of this initiative is to conduct inventories in all 26 of Nunavut's coastal communities. Even though interviews with elders have become commonplace throughout the Territory, community differences are sufficiently important to warrant a focused approach in the manner in which this information is elicited. Each community is unique in terms of its physical environment, oceanographic setting, the organisms present, and the interests and approaches of its hunters and trappers. One might even suggest that each community has been treated as one in a series of "pilot projects". This approach significantly limits those things that can be taken for granted and simultaneously encourages a continuous process of refinement in interview materials and methodologies.

THE COASTAL RESOURCE INVENTORY

"Coastal Resource Inventory", as used in this report, is an information compendium on coastal resources and activities, gained principally from interviews with elders in each community. Coastal resources are defined as the animals and plants that live near the coast, on the beaches, on and around islands, above and below the surface of the ocean, above and below sea ice, and on the sea floor. Consequently, the extent of the survey varied by community, and "near the coast" can include species and activities up to 50 and sometimes 100 miles inland (mainly lakes and river systems).

The information obtained was then augmented with additional data obtained from scientific articles, unpublished reports, government documents, environmental assessments, maps, etc. All of the community-specific data was then digitized and spatially mapped using a Geographic Information System (GIS). This approach can be an effective tool to assist with management, development, and conservation of coastal areas.

Resource inventories have been conducted along Canada's margins, notably on our Atlantic and western coasts, where the information gained from this approach provided: the foundation for integrated coastal management plans; essential insights to protect important coastal areas; and information facilitating environmental impact assessments, sensitivity mapping, and community planning. Coastal resource inventories have also provided different levels of government with the tools to engage in strategic assessments, informed development, and enlightened stewardship.

The principle source of information for community-based coastal inventories is traditional knowledge (Inuit Qaujimajatuqangit in Inuktitut, or IQ) gathered through interviews. Over the past fifty years, the Inuit have gone from a resource-based nomadic life style to a wage-based economy. Nevertheless, coastal and land-based activities are still extremely important, contributing to Inuit quality of life, providing income and food, and as a significant part of Inuit culture. To ensure that we retain this traditional understanding and the above associated benefits, knowledgeable individuals (usually community elders) were engaged using a defined survey that addresses the presence, distribution, and characteristics of various coastal resources. In addition, visual surveys of the coastline and the community provide diverse information on important coastal features, including the types and condition of infrastructure such as wharves and fish plants, as well as the location of different coastal activities or impacts, such as town dumps or sewage sites.

Such information may provide insights regarding the potential for future fisheries development. Given the high unemployment rates in many of Nunavut's communities, it is increasingly important to identify areas for potential economic development. Establishing a new fishery requires reliable species-specific information on the size and location of fish stocks, to determine the feasibility of the initiative as well as its long-term sustainability. Having community resource information gathered in one central location could be an important first step towards fishery commercialization. Resource inventory informartion could also lead to the identification and eventual development of coastal parks and tourism opportunities, related to sensitive coastal areas, breeding grounds, species locations and populations, and unique habitats.

Fundamental to this process is the recognition that traditional knowledge (IQ) embodies both historical and contemporary information that might help with future decision-making, as well as having importance in its own right. Some communities have expressed interest in exploring development options using an information database that has its origins in the living memories, experience, history, and skills of the people who live there. Other communities have opted for a continuation of existing practices: the gathering of extant knowledge into a form that could assist informed decision-making. There is thus an increasing urgency throughout the Territory to identify, record, and conserve traditional biological, cultural, and ecological knowledge about Nunavut's coastal areas.

Another factor is the growing concern over the potential impacts of climate change on the Arctic environment. From February to November 2007, the Intergovernmental Panel on Climate Change released four reports, in which they reinforced and extended all of their earlier predictions regarding both the potential for change and the impacts expected when those changes occur (IPCC 2007 a, b, c, and d). Conclusions drawn from these documents indicate that the Inuit can expect significant environmental changes in sea ice, fast ice, coastal erosion, animal behaviour, and population abundances, to mention but a few. For instance, apparent changes in polar bear health and abundance have been linked to shifts in sea ice formation and movement, which in turn have been tied to global warming.

ORIGIN OF THE COASTAL INVENTORY

The Fisheries and Sealing Division of the Nunavut Department of Environment initiated the development and implementation of a community-based coastal zone inventory for Nunavut. In their April 2007 report, "Nunavut Coastal Resource Inventory: Assessment and Planning", a consulting team from Dalhousie University recommended that the Nunavut Coastal Resource Inventory Project begin with a pilot project in order to define, test, and document methodologies, primarily those dealing with the critical process of documenting IQ.

During community consultations in Iglulik in February 2007, community members, including the local Hunters and Trappers Organization, met with the NCRI staff and consultants to discuss the potential of this initiative for the community. The outcome of that meeting, supported by additional later communications, was keen interest in, and support for, the pilot project.

Iglulik was chosen as the pilot community as it possesses resources that supported the project's success, including the satellite office of the Nunavut Research Institute (NRI) that runs the IQ and Oral History project, which has been underway for more than two decades. The staff in this remarkable unit has extensive experience in the collection of Inuit Qaujimajatuqangit, which is stored in an extensive computer-accessible database. Collaboration with NRI, especially the opportunity to learn from their extensive experience, was an important initial benefit. In addition, officials of the Hamlet of Iglulik were very positive about the potential benefits to their community, as well as providing important administrative support.

The pilot project was an intense learning process that had the dual goals of a database with depth and breadth and a well-vetted process for the interviews, data recording, topic choice, data reduction, digitization, analysis, GIS integration, and presentation. Although the pilot project was successful, Phase II inventories have demonstrated

the need for continuous adjustment and adaptation of the process, in order to improve its efficiency and better adhere to the project's goals. The four communities interviewed during Phase II were Kugluktuk (Kitikmeot region) in October 2008, Chesterfield Inlet (Kivalliq region) in November 2008, Arctic Bay (Qikiqtaaluk region) in February 2009, and Kimmirut (Qikiqtaaluk region) in March 2009.

FUNDING, PERSONNEL AND PROJECT DELIVERABLES

The second phase of the Nunavut Coastal Resource Inventory received primary financial support from Indian and Northern Affairs (Government of Canada), the Departments of Environment (DoE) and Economic Development and Transportation (EDT) (Government of Nunavut), and secondary funding from the Department of Fisheries and Oceans (Government of Canada). The Nunavut Research Institute generously gave in-kind GIS support services to the project team.

Overall project leadership was provided by Wayne Lynch, Director, Fisheries and Sealing Division, and his staff, Janelle Kennedy, Project Coordinator, and Corenna Nuyalia Community Liaison. Consulting on the project, and participating in all interviews, was Dr. Robert Fournier, Marine Affairs Program and Department of Oceanography, Dalhousie University.

Project deliverables include the:

- provision of a final report;
- provision of the coastal resource inventory in a GIS database;
- provision of a series of resource-inventory maps for each community;
- provision of all documents used in the interviews, along with the methodology employed throughout the coastal inventory process; and
- thorough evaluation of the methodology and supporting materials used to carry out the entire inventory process.

Figure 1: Map of Nunavut

METHODOLOGY

This section is composed of two parts: a broad introductory overview of the philosophy, approach, and execution of the interview process, followed by a more detailed examination of the methodology as implemented in Kimmirut. An in-depth field guide for all methods employed is available upon request.

AN OVERVIEW OF THE PROCESS

The process began with the selection of a community that would be prepared to participate in the interview process. Criteria to assist in this selection were devised early in the development of the project and, as one might expect, have since undergone continuous revision. Once a provisional choice was made each community was visited with the purpose of determining whether it wished to participate in the inventory, and if so, then who were the individuals that would be most appropriate for the interviews. The above questions were directed principally at the local Hunter-Trapper Organization (HTO), where agreement was quickly reached and an annotated list of potential candidates was provided. Further, queries were made and discussions held with individuals who might serve as interpreters and translators, in conjunction with the interview process. Suitable dates and venues were then selected for the interviews.

The interview team was made up of five individuals: the interviewer, a translator, a recorder, a science consultant, and a student observer. The process varied from 2-6 hours, depending on the amount of detail elicited in the response and the amount of clarification required during the interview. Each interview followed the same format (refer to Survey in Appendix 5). The first round of questions requested information about the interviewee's early life history and general knowledge and familiarity of the local area. These were followed by questions that referred to specific animals in a set order. Responses were documented using maps prepared in advance that could be annotated by the interviewee. The entire proceedings, with permission, were recorded using audio and video equipment. Upon completion of all the interviews planned for the community, data was compiled into spreadsheets, and the map information was scanned, digitized, and prepared for data analysis.

DETAILS OF THE PROCESS

COMMUNITY SELECTION

Criteria to guide community selection were established prior to the start of the interview process and were based on a series of interviews with a broad range of individuals, all of whom had some prior experience working with traditional knowledge and/or communities. Criteria underwent continuous refinement as knowledge and insights improved. Community selection did not depend on a suitable response to every single criterion, but rather on the general picture conveyed by the responses to these queries. The present criteria are as follows:

- Is the selected community willing to participate in the project?
- Is the community considered to be an important source of data on coastal resources?
- Are any other projects underway in the community that might be considered to be complementary to the coastal inventory?
- Does the community possess an existing repository of oral history that could be made available to the project?
- Does the community have a strong but under-utilized or under-managed connection with a particular resource animal, such that inventory data could prove to be useful?
- Does the community wish to acquire or use any of the coastal inventory data produced by the project?
- Is the community presently involved in a commercial fishery?
- Is the community currently seeking infrastructure for which the coastal inventory study might prove supportive?
- Does the community have a strong and broadly acceptable leadership available to the project?
- Does the community have a close association with a park or a protected area?

INITIAL COMMUNITY VISIT

Communities are visited on three occasions; an initial scoping/consultation meeting, followed by a visit of 7-10 days during which interviews are conducted, and finally a follow-up trip to present the finished report and support materials to the community. The scoping session was designed to put in place the elements that would be required to conduct the planned interviews. This process depended on the support and participation of the Hunter-Trapper Organizations (HTOs) and the Hamlet office. Both the HTO and the Hamlet were asked at the outset to formally support this initiative through the provision of names of potential interviewees. They provided annotated lists of local Inuit hunters and trappers which, in their opinion, were among the most knowledgeable and accomplished members of the community and could best satisfy the requirements of the interview process. The final selection was made by NCRI project personnel. These individuals were contacted and tentative interview schedules were established. In addition, HTO and Hamlet personnel also provided the names of individuals who could act as student observers or as translators. The final order of business was to select a venue that would accommodate the interview process.

INTERVIEW PREPARATION

Preparations for the planned interviews were focused on the definition and acquisition of all the information that was necessary to compile the resource inventory. This ranged from digital voice and video recorders to coloured pencils. The latter would be used by both interviewees and project personnel to draw and code information directly on prepared maps. It also involved the definition of the subject matter that would be addressed in the interviews, including: contextual material such as early life history or the location of camp sites, the geographic extent of the maps, the species of interest (animal and plant), and supporting environmental information such as time of occurrence, condition on occurrence (breeding, migrating, feeding etc). Once these decisions were made the results were translated into maps that covered the area normally used by hunters and fishers (Fig. 2), into photos of the target species, and into questions that would later be posed (refer to appendices for photos and species list).

INTERVIEW STRATEGY

The manner in which the interviews were to be conducted was repeatedly discussed over a considerable period, and ultimately reflected the advice that NCRI personnel received from many different sources. The goal of this process is to allow Inuit hunters to speak in comfortable surroundings on the subject of living coastal resources, based on their life experiences. Recording this information recognizes the finite nature of human life, the wealth of information that is contained within individuals, and the importance of that information from both cultural and management standpoints. With this in mind considerable attention was devoted to the realization of these goals. Two related issues are worthy of some comment: Inuit hunters have often been interviewed over the years but they were pleased to learn that for the first time the process would comprehensively embrace a broad range of living marine resources; and, in addition, a promise by NCRI staff to provide each HTO with a copy of all data collected from the interviews in its community was viewed as a very positive contribution.

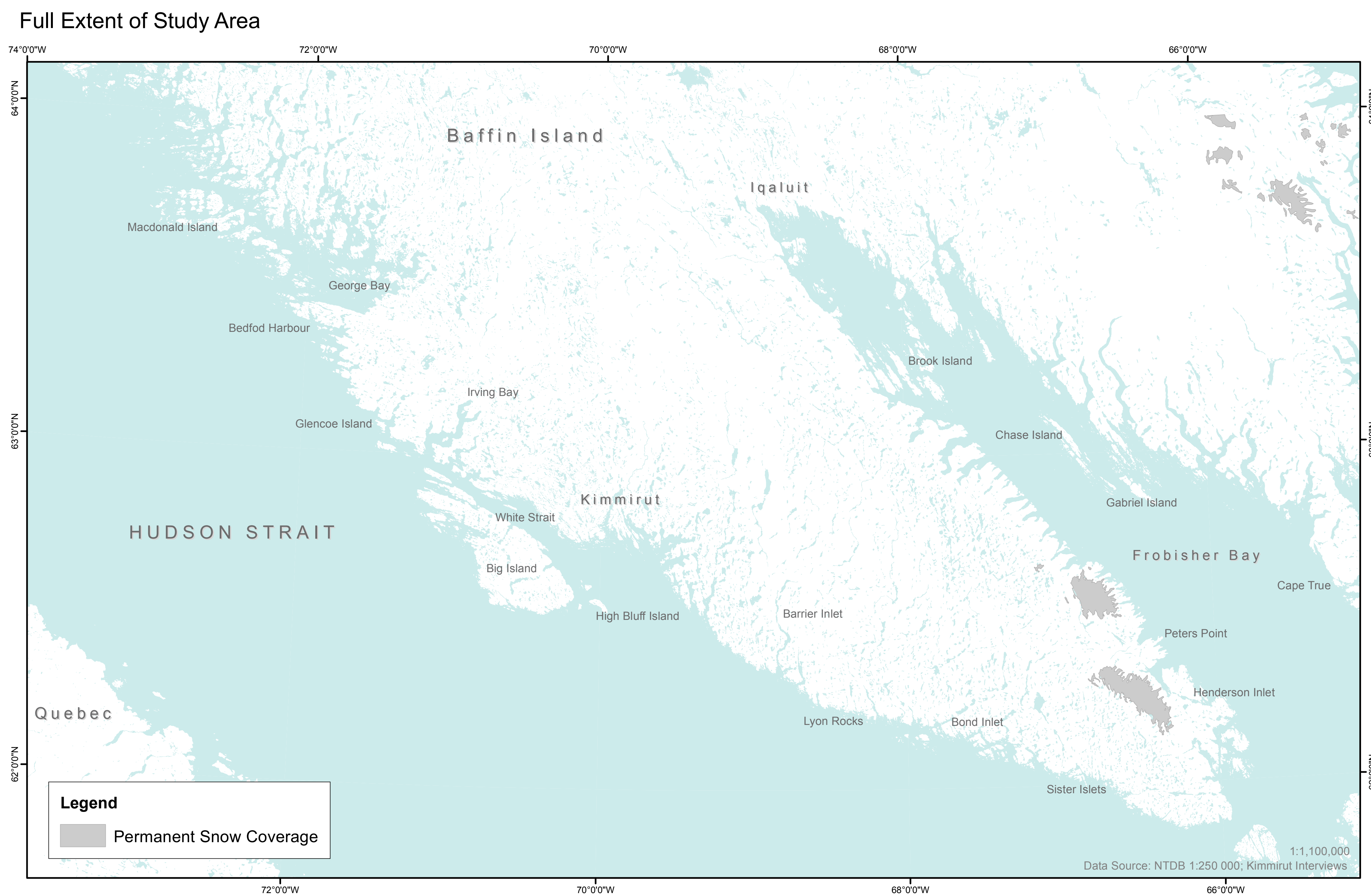
THE INTERVIEWS

Six individuals were present during each interview: the interviewee, interviewer, translator, recorder, science consultant, and student observer. The interviewer followed a defined protocol that placed a strong emphasis on a series of predetermined questions and photographs of various living resources known to occur in the area. Maps, covering the area of interest, were provided in order to allow

the interviewees to write directly on them and thereby to annotate their verbal remarks. Questions were asked and the interviewees responded both verbally and by drawing on the maps before them. Specific categories addressed in the interviews included: interviewee life-history information; location of outpost camps; archaeological sites; travel routes; hunting/fishing areas frequented; the geographic occurrence of mammals, fish, birds, invertebrates, and plants; and finally, some discussion about the linkages between coastal resources, present and future environmental changes, and potential economic development (e.g. the possibility of an emergent fishery).

Because of the fundamental importance to the interview process of the annotated maps every annotation to those documents was accompanied by the immediate application of a code that would enable future identification and reference. Follow-up questions were asked of the interviewee, clarifications were elicited and, if appropriate, discussion ensued about the information presented. The entire process was recorded using audio and video equipment, while selective portions were immediately recorded manually. Manual recording was used to maintain a running record of all map annotations and codes. This permitted work to proceed with the maps without the need for transcription of the audio tapes. The interview process varied from 2-6 hours, depending on the individual being interviewed.

Figure 2: Extent of study area with selected place names.



POST-INTERVIEW METHODOLOGY

During and immediately following each interview rigorous file management protocols were employed. All recording modes (audio, video, and manual) were carefully synchronized with the information noted on the maps. All of the manually recorded data was entered on a spreadsheet which was updated as information became available. The maps used in the interviews were scanned and the hand-drawn data was digitized. The end result was the creation of a coherent and workable database, which when used with the maps provides a complementary visualization of that data. The maps were planned from the outset as the cornerstone of the interview process and the resulting community reports.

NON-INTERVIEW DATA ACQUISITION

Data on marine resources can be found scattered throughout many different sources that range from scientific papers, government reports, environmental impact assessments, and maps. However, three surveys, with similar geographic breadth and goals, have proven to be especially useful. There is the three-volume "Inuit Land Use and Occupancy Study", which was undertaken in the early 70's and published in 1976 by Indian and Northern Affairs. It grew out of the documentation required by the land claim process and was used to substantiate Inuit claims as to residency and land use. The resulting study contains detailed information on traditional land use up to that time. It focused on hunting, trapping, and fishing and used topographic maps to outline fishing, hunting, and trap line regions associated with each community in Nunavut over three periods: pre-contact, the trading period up to the 1950s, and the present (early 1970s). One of the volumes is an atlas that maps the results based on interviews with Inuit in each community. The original research is available in Ottawa at the National Archives. A copy of the three volume report is also available in the Legislative Library in Iqaluit.

A second document is the one volume Nunavut Atlas co-published in 1992 by the Canadian Circumpolar Institute and the Tungavik Federation of Nunavut. This atlas relies largely on data collected for the Inuit Land Use and Occupancy Study and although the presentation of resource data and maps is reasonably accessible the information provided is approximately 35 years old. Relevant maps from this volume are presented in this report (refer to the Reource Inventory – end of this section).

The third document is the Nunavut Wildlife Harvest Study produced by the Nunavut Wildlife Management Board in August 2004. This study was mandated by the Nunavut Land Claim Agreement. Harvest data was collected monthly from Inuit hunters for a total of five years from 1996 to 2001. The purpose of the study was "to determine (the then) current harvesting levels and patterns of Inuit use of wildlife resources." Once completed this information was to be used to manage wildlife resources in Nunavut.

DATA MANAGEMENT AND ANALYSIS

Data collected through interviews and research were plotted, when appropriate, on working maps, while the final representations occur on all inventory maps. The scale is large, in keeping with the size of the geographic area under discussion. Keeping a scale common to all maps was done to permit relatively easy inter-comparability. The inventory maps information was separated according to resource categories and all information associated with a specific geographic location was entered into a tabular database. The development, care, and maintenance of this tabular database are extremely important, not only as a storage facility for information, but as an active repository that will be effectively accessed by users with diverse interests.

Data management also includes protecting the confidentiality of the data. Each interviewee provided their consent to be interviewed, as well as audio and video taped (see Appendix 10 – for consent form used). Post interview, if any person or organization wishes to access the data collected they must provide written justification to the NCRI Steering Committee and agree to the terms outlined in the Data Release Form (see Appendix 11 – for sample of data release form).

GIS INTERFACE

Once the inventory maps and database are complete they are entered into a Geographic Information System (GIS), leading to the creation of computer-generated maps. It also links information to the geographic locations contained in the database. Attributes associated with each piece of data include information such as species name, source, population level, etc. Mapped data are linked to additional information in the corresponding database. Photos accompany the data where applicable.

INTERACTIVE ATLAS

The NCRI results are published in community-specific reports that are shared with project partners (community HTOs, Hamlets, high schools, and all interviewees) and that are publicly available in hard-copy and PDF formats.

Reports are currently produced in English and Inuktitut. The results from all communities are also displayed online in an interactive atlas, with this information available within a year of interviews in a community. The reports can take up to two years to produce. Links to access the Atlas: ncriatlas.ca and http://www.gov.nu.ca/environment/information/nunavut-coastal-resource-inventory

MARINE RESOURCES IN AN OCEANOGRAPHIC CONTEXT

INTRODUCTION

The coastal communities of Nunavut are diverse. They extend over 27° of latitude and 60° of longitude. In addition to different geomorphologies, climates, and wildlife they also experience widely different ocean environments. These include significant differences in residual circulation, tidal range, tidal currents, tidal mixing, shore-fast leads, ice-edge upwelling, topographic upwelling, and polynyas, all of which influence abundance, diversity, and concentration of marine animals and plants. The oceanographic context in which these organisms occur, especially the causal mechanisms that contribute to population dynamics, are essential to understanding changes that occur over time. One of the stated goals of this initiative is to develop the capacity to monitor Nunavut's marine resources within the context of impending climate change. Organisms will experience the impact of global warming directly through changes in their physiology, as well as indirectly from their surrounding physical and biological environments. Responsible monitoring of marine resources will require more than just a quantitative assessment of certain species; it will require an ecosystem approach that, by definition, includes the physical factors at play in that system.

RECURRENT OPEN WATER AND ARCTIC BIOLOGY

The presence of open water in winter can be a chance occurrence that reflects ephemeral conditions. Sites formed in this manner are largely unpredictable and are of limited use to animals and humans. On the other hand, recurrent open water sites are the physical manifestation of one or several predictable physical processes that result in spatial and temporal reliability. These processes are reviewed below.

The formation of recurring open water (including large polynyas, pack ice edges, shore-fast leads, and smaller polynyas) in ice-covered seas reflects local geography and ice conditions, as well as water movements such as upwelling and tidal mixing. There is a positive correlation between open water in ice covered seas and abundance of marine organisms. In fact, Stirling (1980, 1997) has specifically identified increases in the abundance of birds, seals, and whales with proximity to ice edges, polynyas, and pack ice. Animals are drawn to these sites for practical reasons such as the availability of breathing holes, a platform to haul out and rest, predator avoidance, pupping, and moulting (Stirling 1997). The reasons for this observed correlation are many, varied, and not mutually exclusive; however, they encourage a non-homogeneous distribution of animals that is ultimately linked to greater biological productivity.

The availability of food, the product of primary production by phytoplankton, ice algae, or marine plants, is a major contributing factor to the abundance of marine species observed at recurrent open water sites. Algal groups are important although their relative contributions can vary depending on ice conditions and available light. Ice algae can represent 5 to 30% of the total primary production (Alexander 1974, Harrisson and Cota 1991, Legendre et al 1992). Bradstreet and Cross (1982) believe that the aggregation of food items available to invertebrates and vertebrates, on the two-dimensional ice undersurface is also a factor of some significance. Plant material is grazed and enters the food web where it becomes available to invertebrates (e.g., copepods, amphipods, or shellfish), fish (arctic cod), mammals (seals, narwhal, walrus, or polar bears) and birds (thick billed murres, northern fulmars, black legged kittiwakes, or black guillemots). This results in a form of oasis or hotspot in an otherwise ice-covered area. With the thinning of ice in the spring, sunlight sufficient to drive photosynthesis, especially ice algae, is available sooner, thereby extending both the growing and grazing seasons, in some cases by as much as two months.

In addition, these open water sites appear to have been of great importance to native peoples who have occupied the Arctic for several thousand years. Zooarchaeological data obtained from historic Inuit habitation sites, coupled with modern sea-ice extremes, have been used to infer a strong causal relationship between polynyas and historic Inuit settlement patterns (Henshaw 2003). Schledermann (1980) drew attention to the fact that the early settlers of present-day Nunavut did not create settlements in random fashion. As settlers depended almost entirely on food resources obtained through hunting, a close association usually existed between the location of settlements and the reasonable proximity of game, which often meant areas of recurrent open water. Schledermann (1980) also drew a close correlation between the distribution of recurring polynyas in the eastern Canadian High Arctic and the abundance of archaeological sites from the Thule culture, which specialized in hunting marine mammals.

OCEANOGRAPHIC FACTORS THAT CONTRIBUTE TO OPEN WATER

HUDSON STRAIT

Kimmirut is located on Baffin Island's Meta Incognita Peninsula approximately 100 km south of Frobisher Bay on the northern extremity of Glasgow Inlet, an extension of North Bay that faces directly onto Hudson Strait. The marine environment adjacent to Kimmirut is unique largely due to its proximity to Hudson Strait with its complex and dynamic physical oceanographic environment.

Hudson Strait is a steep-sided, U-shaped channel, 700 to 800 km long, an average of 150 km wide, and 300 to 400 m deep, that connects Hudson Bay and Foxe Basin in the west with the Labrador Sea and Davis Strait in the east. Ungava Bay is a large open embayment along the southern boundary of the Hudson Strait.

Hudson Strait receives water from the Arctic Ocean via Foxe Basin: low salinity water from Hudson and Ungava Bays, and high salinity water from Baffin Bay, Davis Strait, and the eastern coast of Baffin Island. In addition, strong tidal currents, intense mixing, and sizable vertical tidal excursions make for a highly energetic and dynamic environment in both summer and during the 8 months of winter ice cover (Drinkwater 1986).

Ice forms in late October and early November, transported from Foxe Channel, while breakup begins in late May and early June. The timing of the advance and retreat of ice can vary from the average by approximately a month (Drinkwater 1986). By early December, the strait is ice covered, although much of it is unconsolidated. Extensive land-fast ice forms in bays, inlets, and along the coast and extends several kilometres offshore.

RESIDUAL CIRCULATION

The net flow of water through the Canadian Archipelago is from west to east from the Arctic Ocean to Baffin Bay and the Labrador Sea, which is the result of differences in sea level between the two oceans (Michel et al 2006). Actual flow rates are not well known because ice cover makes year round observations exceedingly difficult. In any case, the result is a strong outflow to the east, made up of a combined flow from Hudson Bay and Foxe Basin, through Hudson Strait along the Quebec coast, eventually exiting north of Cape Chidley.

In addition, a northwestward-directed flow enters Hudson Strait along the south coast of Baffin Island. This is a continuation of a current moving southward along the east coast of Baffin Island, some of which then passes through Gabriel and Annapolis Straits and some passes to the south of Resolution Island before flowing into the northern part of Hudson Strait. This inflowing current penetrates westward as far as Big Island, before turning south and crossing the Strait to join the out-flowing current (Drinkwater 1986).

TIDAL RANGE AND CURRENTS

Tidal range in Hudson Strait, south of the Meta Incognita Peninsula, averages approximately 3.5 m, while Frobisher Bay, only 100 km to the north, can experience 5-15 m tides. This twice-daily rise and fall of sea level along the coast is responsible for large tidal currents. At the eastern end of Hudson Strait, near Resolution Island, tidal currents of 3-4 knots occur and regularly reverse in response to a predictable semidiurnal flood and ebb cycle (Ingram and Prinsenberg 1998). Strong gradients in velocity can occur over very short distances, such as in central Hudson Strait where current speed falls to 0.5-1.0 knots (Drinkwater 1986). These tidal currents exert considerable pressure on pack ice movement, thereby influencing the presence and operation of polynyas and leads created between shore-fast ice and pack ice. These open water sites appear to be major contributors to the localization, abundance and diversity of biological activity along the southern coast of Baffin Island.

TIDAL MIXING

Tidal currents can produce sufficient turbulence to generate vertical mixing capable of forming and maintaining polynyas (Hannah et al 2009). A slow-moving tidal current that encounters a shallow and/or narrow strait increases in velocity, promoting vertical mixing. Warmer subsurface water moves to the surface, slowing or preventing the formation of ice. Tidal mixing also delivers nutrients, which promote plant growth when sufficient light is available. Examples of this phenomenon are the well-known polynyas in Fury and Hecla Strait at the head of Foxe Basin (Hannah et al 2009), the Roes Welcome polynya in Hudson Bay (Greenberg 2009), and the eastern end of Hudson Strait. This includes the area north of Resolution Island, Gabriel and Annapolis Straits, and Ungava Bay.

POLYNYAS

If the Arctic were covered with a thick, seamless layer of sea-ice, many of the organisms that currently exist there and contribute to the region's productivity would find it impossible to survive. Polynyas and leads provide the necessary breaks in the ice that: permit sunlight to penetrate and photosynthesis to proceed (in both planktonic and ice-based algae), allow mammals to breathe, and permit over-wintering birds to feed. Wind, water movement, and heat transfer are among the primary factors that contribute to the establishment and maintenance of these open water sites.

Polynyas have long been viewed as extraordinary because of the obvious contradiction of open water occurring in conditions that promote ice. The explanation for this phenomenon is twofold: in some cases, the introduction of heat forestalls ice formation, while in others newly formed ice is rapidly removed. These mechanisms are not mutually exclusive and sometimes work in concert. The first process involves a continuous transfer of warmer deeper waters to the surface, which slows or eliminates ice formation. The second process is controlled by wind and/or ocean currents, which remove ice formed at the site. During the process of ice formation some heat is given off that further slows subsequent ice development. Hannah et al (2009) review these mechanisms and point out several additional factors, such as: the role of turbulence from surface waves or currents that can inhibit ice formation; and adjacent coastlines, shore-fast ice, or ice bridges that may prevent ice from drifting into polynyas.

Recurring polynyas are present throughout the Canadian Arctic Archipelago (Fig. 3). One such polynya has been identified in White Strait, close to Kimmirut, between

Figure 3: Map of known polynas in the Canadian Arctic (Hannah et al 2009).

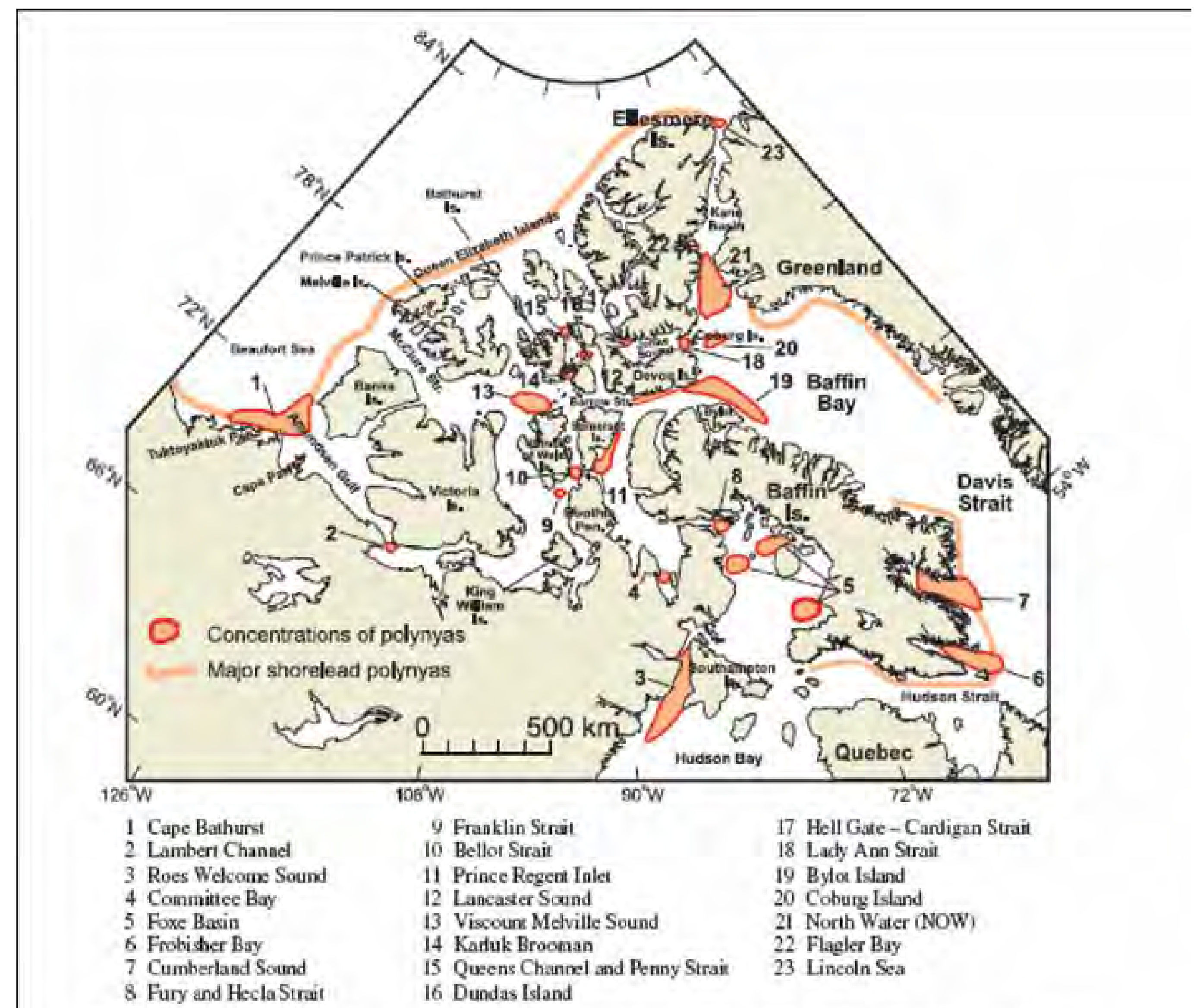


FIG. 1. A map of known polynyas in the Canadian Arctic, adapted from Barber and Massom (2007) and Stirling (1981). The Karluk Brooman polynyas were identified by Schledermann (1980) and Brown and Nettleship (1981).

Big Island and the southern coast of the Meta Incognita Peninsula, while another occurs at the southeastern end of Baffin Island just north of Resolution Island, extending into and occupying the outer two-thirds of Frobisher Bay.

LANDFAST LEADS (FLAW LEADS)

Extensive systems of landfast leads occur throughout the Arctic (Stirling 1981). Landfast ice is generally comprised of first-year ice, possibly mixed with multi-year remnants, and is fixed to the coast. This ice platform extends outward eventually merging with offshore pack ice. George (2004) suggests that the physical presence of this ice cover modifies tidal and wind energy, dramatically changing circulation. At some point, a fracture or crack may develop between the attached ice and the free-floating pack due to offshore winds or to a lesser extent the actions of coastal currents. These leads are normally linear in shape and run parallel to shorelines. They are recurrent and predictable in their location and are among the areas where open water is found most consistently during winter and early spring. Because of these factors, landfast leads are of enormous biological importance.

Throughout the winter landfast leads develop off Baffin Island, from Resolution Island to Cape Dorset, due to prevailing northwesterly winds. Constant shifting of ice by strong and variable currents at the eastern end of Baffin Strait causes leads to open and close continuously. The pack ice, south of Big Island and east of Resolution Island, is in constant motion throughout the winter, thereby preventing any excursions by Inuit beyond the floe edge in either direction. The extended shore lead passes to the south of Big Island and extends toward Cape Dorset. It also extends from Resolution Island northward along the east coast of Baffin Island to the vicinity of Qikiqtarjuaq (Broughton Island).

The boundary between the ice-edge and the beginning of the lead is an ecosystem that is very important and has been identified as biologically rich and diverse by many elders and previous research. For instance:

- The land-fast ice-edge is an important Inuit hunting site (Crawford and Jorgenson 1990)
- During late spring and early summer, large numbers of sea birds and marine mammals congregate at the edges of landfast ice (McLaughlin et al 2005)
- Ringed seals and polar bears are the only marine animals that regularly occupy extensive landfast coastal ice (Tynan and DeMaster 1997)
- Bearded seals prefer relatively shallow water (<150 m) with thin shifting ice and leads kept open by strong currents (Tynan and DeMaster 1997)
- Along with polynyas, shore-lead systems and ice edges play key roles influencing the abundance and distribution of marine mammals and sea birds (McLaughlin et al 2005)
- Near the ice edge the diet of adult ringed seals and narwhal was composed primarily of arctic cod while amphipods and copepods were consumed in smaller numbers (Bradstreet and Cross 1982)
- Satellite observations of polar bears show that when present in multi-year ice they are often associated with leads (Stirling 1997)
- In Admiralty Inlet, the highest densities of arctic cod are found below the edge of landfast sea ice, apparently due to the availability of high concentrations of copepod prey (Crawford and Jorgenson 1990)

The reasons for greater biological abundance and diversity associated with landfast leads and ice edges are largely the same as those outlined above when discussing recurrent open water. However, one additional mechanism, upwelling, appears to operate at landfast or pack ice edges.

UPWELLING

Upwelling moves warmer, deeper water to the surface, creating and/or maintaining ice-free open water. Topographic upwelling occurs when a current moving through warmer subsurface water is deflected (welled upward) by an undersea geographic feature. Water is redirected toward the surface, where it can contribute to melting of ice or the maintenance of an ice-free area (Tee et al 1993). Deflection may be caused by various bottom structures, such as a sill, bank, or ridge that alters the current's path.

Ice-edge upwelling has been observed in the Bering Sea (Alexander and Niebauer 1981), the Arctic Ocean (Buckley et al 1979; Johannessen et al 1983), and off the coast of Newfoundland (Tang and Ikeda 1989). This occurs when wind blows parallel to the ice edge and causes surface water to move away from the edge. This displaced surface water is replaced by water moving up from below (Tang and Ikeda 1989). The upwelling zone can be several kilometres wide and can draw subsurface water from depths of up to 100 m.

Upwelling carries warmer, nutrient-rich water to the surface where, with sufficient light, both phytoplankton and ice algae can grow and provide a strong stimulus to the local food web. This is one explanation for the high productivity observed in polynyas and shore-fast leads. Upwelling is likely an important factor in the White Strait polynya, between Big Island and the southern coast of the Meta Incognita Peninsula.

MARINE RESOURCES IN THE CONTEXT OF CLIMATE CHANGE

Many Arctic researchers over the past 20 years have commented on the impending probability of climate change, with its expected impact on the marine environment as well as the abundance, diversity, and health of marine organisms (Tynan and DeMaster 1997; Michel et al 2006; Moore and Huntington 2008). Many changes will occur, both positive and negative, that directly affect the role of recurrent open water sites in the overall success of marine coastal resources. Impacts can be expected on water stratification and its role in nutrient renewal, the balance between multi-year and annual ice, the relative importance of ice algae, the timing and magnitude of primary and secondary production, and the distribution of traditional species and hunting sites. Each of these changes could exert some influence on the food web and the state of the resources as they are presently defined. In other words, we can expect change to occur in our physical world that will in turn, alter the biological system, including the human component.

RESOURCE INVENTORY

GENERAL COMMENTS

The community interviews incorporate two types of information: that elicited from direct questions and that offered anecdotally for greater context, which provides additional depth or breadth, "colours" a response, or offers an interpretation of the species under discussion. The first type of information has specific geographic coordinates or involves quantitative estimates that lend themselves to eventual representation within a GIS format. The second, in the form of individual opinions, assumptions, and conclusions, offers qualitative information that helps to humanize the responses and mappings. These observations were generally made without any additional information or corroboration, but are sometimes correlated to some other environmental change. However, a correlation does not necessarily signify causality, despite the convictions of the interviewee. Nevertheless, the observations provide highly personal and sometimes very useful insights.

MARINE ENVIRONMENT/ AREAL EXTENT

- The open water along much of the south coast is a flaw lead that occurs at the edges of the landfast ice and the constantly-moving pack ice.
- The recurrent coastal flaw lead widens to a broader polynya between Big Island and the coast. This location has been identified as an area of high abundance of seals and Belugas.
- Travel is impossible in Hudson Strait and Davis Strait, due to rough waters in summer and dangerous moving ice in winter.
- Water movement associated with extraordinary tides contributes to considerable water turbulence, major changes in sea level in the warmer months, ice dynamics in winter, and strong reversible currents in all seasons. One elder suggested that access to some seaweeds along the coast only occurred during extreme bi-monthly low (neap) tides, while char in some coastal lakes were only accessible during extreme bi-monthly high (spring) tides.
- Virtually no hunting activity is conducted in Frobisher Bay, despite its close proximity to the Meta Incognita Peninsula.

ARCHAEOLOGICAL REMAINS

- Kimmirut was repeatedly identified as a long-term traditional gathering place for nomadic Inuit, usually just before or just after ice breakup.

HUNTING/FISHING

- Interviews with the Kimmirut elders, who have spent most of their adult lives hunting, fishing, and trapping in this area, produced annotated maps that clearly identified the kinds, abundances, and locations of organisms that are common to this area, and that they have pursued over the years. They point to biological activity that is highly localized and strongly congruent with the position of the coastal leads and polynyas.
- Elders report that Ring and Bearded Seals along with Belugas are routinely caught in shore leads directly in front of North Bay and in the polynya between Big Island and the coast. Seal stomachs are often filled with shrimp.

PRODUCTIVITY/DIVERSITY

- The open water areas demonstrate higher productivity and diversity relative to adjacent areas. This includes mammals, birds, invertebrates, and perhaps even algae, although collected information is limited in that area.
- The locations of greatest biological activity were identified as the eastern end of Big Island directly south of North Bay and the entrance to Glasgow Inlet and Kimmirut.
- Additional evidence for higher-than-normal biological activity, along with a complex and interconnected food web, in these open areas can be seen in an array of predator-prey relationships that include: seal stomachs often filled with shrimp or amphipods, walrus stomachs filled with clams, urchins feeding on algae, and polar bears hunting seals.

HEALTH, SIZE AND PRESENCE

- Harp Seals and Bearded Seals frequently occur together, often to the exclusion of Ring Seals.
- Bearded Seals are often found in regions of ongoing ice movement.
- Minke, Bowhead, and Sperm Whales have been sighted by Kimmirut hunters.
- In 2008 Polar Bears were considered to be skinny, but this year (2009) they are fatter.
- Interviewees expressed strong and often opposing views regarding the abundance of Polar Bears, often based on personal observations.
- Very few Narwhal were observed in the Kimmirut area.
- Bladder wracks are reported to "plump up" when hydrocarbons exist below the surface of the sea floor.
- Bowhead Whales were often observed in coastal inlets opposite Big Island.

CHANGES REPORTED/ANTICIPATED

- Some interviewees mentioned that global warming may be reducing annual snowfall and causing increased snow melt at high elevations.

GUIDE TO MAPS AND TABLES

The following group of maps brings together geographic context, species locations, and a brief look at some earlier studies (derived from the Nunavut Atlas). The following maps are numbered sequentially. Each map is accompanied by data in tabular form that provides additional detail as well as descriptive information, when available. Captions below each map provide a description as well. All historic data is presented at the end of this section. Use Table 1 to interpret Map Codes provided in the tables accompanying the maps.

Generally, maps comprise groupings of several species or a single species as reported in multiple interviews. Species and interviews are normally color-coded and both locations are accompanied by a numeric label. The first number in the label refers to a specific interview while the second is a location identifier. These labels can be used to look-up relevant information in the table associated with each map.

Locations reported by the interviewee as "unsure" have not been included in this report.

In some cases no locations were drawn on a map because one or more interviewees considered the distribution to be classified as "everywhere". The designation of "everywhere" was used when interviewees felt that the organism under discussion had been observed everywhere throughout their travels and places they are very familiar with. Giving a species an "everywhere" designation does not confer any information about abundance nor should it be presumed to be ubiquitous; it is only a measure of distribution relative to where the interviewee has been. "Everywhere only" data is not represented on the map, but is provided as a table of data following the map.

In addition to "everywhere only" designations, some species were described by interviewees as being "everywhere" and some interviewees provided locations for them. In these cases, where the species have been drawn on the map by some, but considered "everywhere" by others, an asterisk has been placed after the species name in the title of the map. For example; Arctic Char is written as "Arctic Char*" in the map title because it was reported in specific locations, as well as, being "everywhere". The asterisk simply provides a visual cue that the species has two designations.

Please note that the data presented on birds has been further qualified in Appendix 3. Of all species presented to an interviewee, those in the bird category present the greatest challenge in proper identification; a challenge often encountered by even the most keen observer of birds (e.g. sandpipers or gulls). To assist in the interpretation of the data the additional appendix compares observations recorded for the inventory with literature and sightings by other authors. In the future, inventory work will endeavor to qualify all species reported in a similar way.

Table 1: Guide to map codes

MAPPING CODES GUIDE	
Anything unsure or unreliable	Appended with a lower case 'u'
Changes from one spot to another (same group of animals)	Appended with lower case 'c'
Present {since year 2000}	Appended with 'P'
Historic {before year 2000}	Appended with an 'H'
Everywhere (seen all over/no specific place/ only where they go)	Appended with a lower case 'e' Note that an asterisk (*) has been placed after species names in map titles to indicate that the species is also seen 'everywhere'.
High Abundance	Appended with an 'A'
Migration (use arrows to indicate direction)	Appended with an 'M'
Spawning / Nesting / Denning / Calving / Pupping areas	Appended with an 'S'
Nursery Area	Appended with an 'N'
Feeding Areas	Appended with an 'F'
Significant Area of High Diversity	SADP
Significant Unique Area	SAUP
Significant Area for Other Reason	SAOP
Archeological / Historic / Camp Site (old and very old)	ARCH
Other	OTH
Area Known Best (area most familiar with or a travel route)	AKB
Camp / Cabin (typically modern)	CAMP
Example: CHAR_1_AP: First Arctic Char area drawn by interviewee that is also presently (after year 2000) an area of high abundance.	

Figure 4: Travel routes and areas of greatest familiarity.

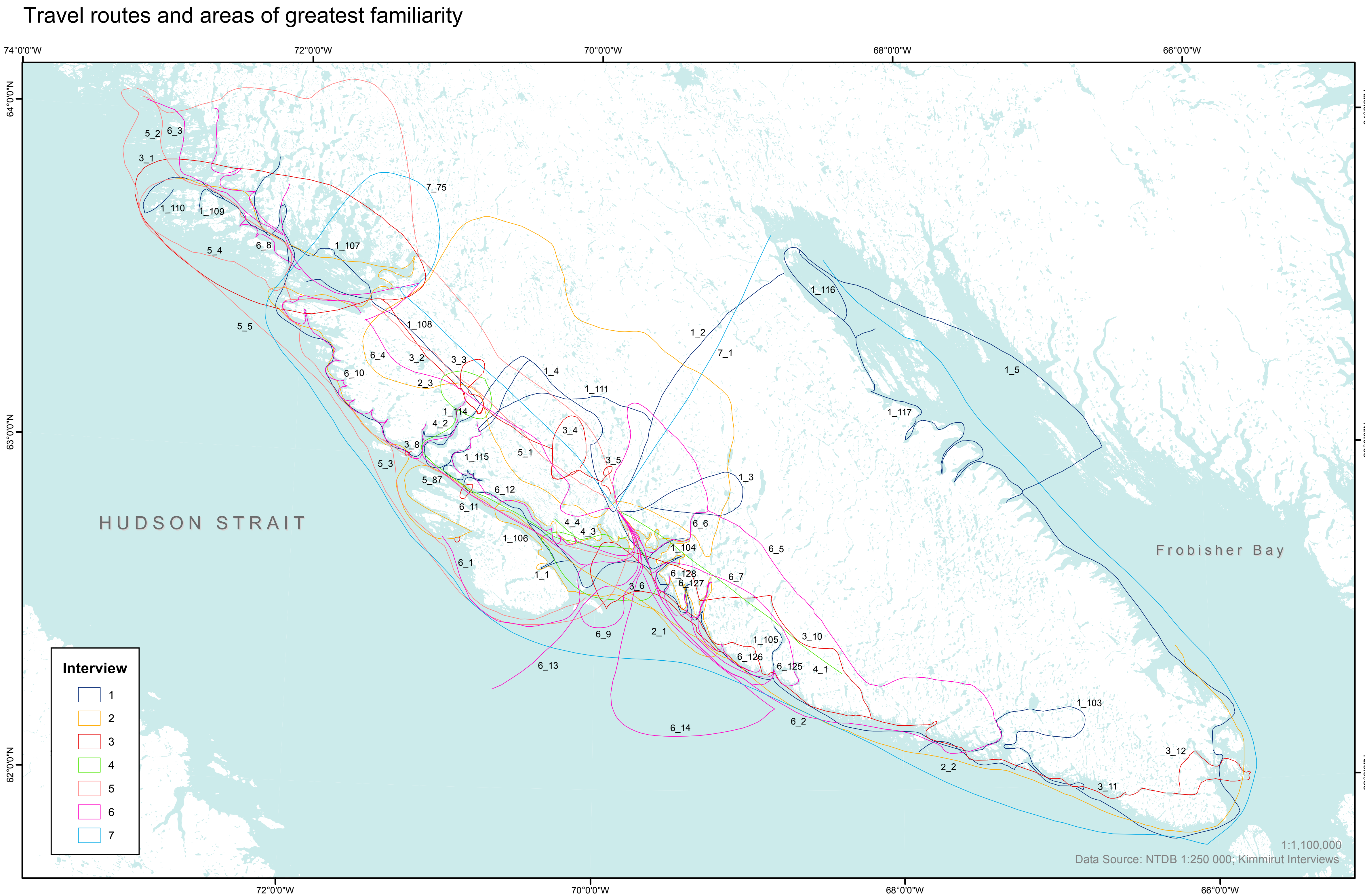


Table 2: Travel routes and areas of greatest familiarity.

MAP CODE	MAP LABEL	COMMENTS
AKB_1	1_1	Area most familiar with
AKB_6	1_103	Area most familiar with
AKB_7	1_104	Area most familiar with
AKB_8	1_105	Area most familiar with
AKB_9	1_106	Area most familiar with
AKB_10	1_107	Area most familiar with
AKB_11	1_108	Area most familiar with
AKB_12	1_109	Area most familiar with
AKB_13	1_110	Area most familiar with
AKB_14	1_111	Area most familiar with
AKB_15	1_114	Area most familiar with
AKB_16	1_115	Area most familiar with
AKB_17	1_116	Area most familiar with
AKB_18	1_117	Area most familiar with
AKB_2	1_2	Iqaluit travel route
AKB_3	1_3	Caribou hunting area
AKB_4	1_4	Caribou hunting travel route
AKB_5	1_5	Hunting area
AKB_1	2_1	marine mammal hunting area
AKB_2	2_2	Travel/hunting area
AKB_3	2_3	Caribou Hunting area
AKB_1	3_1	Seal hunting area
AKB_10	3_10	Travel route
AKB_11	3_11	Travel route
AKB_12	3_12	Polar bear hunting travel route
AKB_2	3_2	Travel route to seal hunting area
AKB_3	3_3	Caribou hunting
AKB_4	3_4	Caribou hunting
AKB_5	3_5	Caribou hunting
AKB_6	3_6	Seal hunting
AKB_7	3_7	Seal hunting
AKB_8	3_8	Seal hunting
AKB_9	3_9	Seal hunting
AKB_1	4_1	Fishing travel route
AKB_2	4_2	Caribou hunting travel route
AKB_3	4_3	Seal hunting travel area
AKB_4	4_4	Travel route
AKB_1	5_1	Travel route by skidoo/Caribou hunting area
AKB_2	5_2	Travel route by boat; has gone to Cape Dorset
AKB_3	5_3	Travel route by boat
AKB_4	5_4	Travel route
AKB_5	5_5	Areas travelled
AKB_6	5_87	Area most familiar with
AKB_1	6_1	Travel route during the spring by boat
AKB_10	6_10	Travel route
AKB_11	6_11	Travel route
AKB_12	6_12	Travel route
AKB_15	6_125	Area most familiar with
AKB_16	6_126	Area most familiar with
AKB_17	6_127	Area most familiar with
AKB_18	6_128	Area most familiar with
AKB_13	6_13	Travel route
AKB_14	6_14	Travel route by boat
AKB_2	6_2	Travel route by boat during the summer
AKB_3	6_3	Travel route
AKB_4	6_4	Travel route
AKB_5	6_5	Travel route
AKB_6	6_6	Travel route
AKB_7	6_7	Travel route
AKB_8	6_8	Travel route
AKB_9	6_9	Travel route
AKB_1	7_1	Hunting travel route
AKB_2	7_75	Area most familiar with

Figure 5: Archaeological sites and areas of cultural significance.

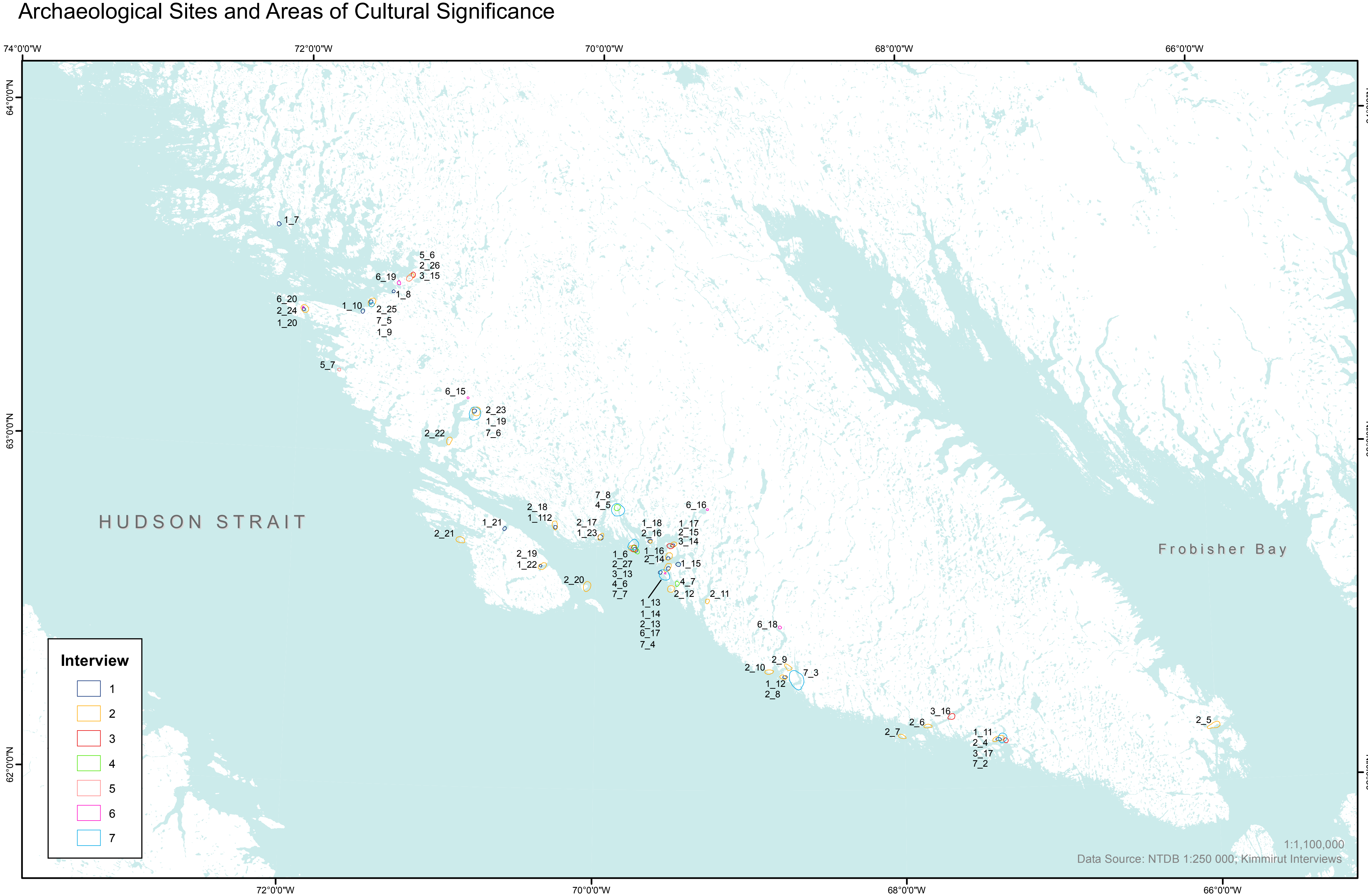


Table 3: Archaeological sites and areas of cultural significance.

MAP CODE	MAP LABEL	TYPE	COMMENTS
Arch_8	1_13	Camp ground at Imiligaaqjuq	
Arch_1	1_6	Gathering area at Aulatsivik in July before the ships came in with supplies	
Arch_7	7_8	Gathering site	
Arch_2	4_6	Gathering site in July when ships came in with supplies	
Arch_1	2_4	Old camp with Rock houses at Katuqaq	
Arch_3	3_15	Older sod houses at Qinngu	
Arch_3	1_8	Outpost camps at Qinguu	
Arch_5	1_10	Outpost camps at Sikutaqtulik	Some families still go and wait for the beluga to arrive in the area in July
Arch_2	1_7	Outpost camps at Tasituuq	
Arch_4	1_9	Outpost camps at Umiakkuvik	Some families still go and wait for the beluga to arrive in the area in July
Arch_11	2_14	Rock house and old camp at Atanikirruq	
Arch_19	2_22	Rock house at Atanikinninga Kangiqsuqjuaq	
Arch_7	2_10	Rock house at Inuksuit	
Arch_21	2_24	Rock house at Itinniq	
Arch_16	2_19	Rock house at Kaniqsuq	
Arch_20	2_23	Rock house at Kaniqsuqjuaq Qingua	
Arch_17	2_20	Rock house at Nunariaaqjuaq	
Arch_9	2_12	Rock house at Pamiujaq	
Arch_15	2_18	Rock house at Pituqqiq	
Arch_14	2_17	Rock house at Qairusuktalik	
Arch_6	2_9	Rock house at Qavarusiqtulaaq	
Arch_23	2_26	Rock house at Qinngu	
Arch_22	2_25	Rock house at Sikutaqtulliq	
Arch_12	2_15	Rock house at Taliruat	
Arch_2	2_5	Rock house at Tikiraaluq	Older and more recent rock houses
Arch_13	2_16	Rock house at Ukiallivialuk	
Arch_3	2_6	Rock house at Ukiallivikuluk	A wintering camp where Inuit were starving
Arch_5	2_8	Rock house at Ukialliviluut	
Arch_8	2_11	Rock house at Ukiallivitanga Iqaluit	Winter camp
Arch_18	2_21	Rock house at Upingiviarjuk	
Arch_1	7_2	Rock houses and tent rings	
Arch_3	7_4	Rock houses and tent rings	
Arch_5	7_6	Rock houses and tent rings	
Arch_4	2_7	Rock/Sod houses at Qammaqtalik	Spring Camp
Arch_1	5_6	Sod house	
Arch_2	5_7	Sod house	
Arch_2	6_16	Sod house at Ammaluqtuq	
Arch_3	6_17	Sod house at Imiligaaqjuq	
Arch_6	6_20	Sod house at Itinniq	
Arch_4	6_18	Sod house at Kangiqtualuqjuaq	
Arch_1	6_15	Sod house at Kangisualuqjuq	
Arch_10	2_13	Sod house at Qijuqjuaq	Also has cabin there
Arch_5	6_19	Sod house at Qinngu	
Arch_2	7_3	Sod houses and tent rings	
Arch_4	7_5	Sod houses and tent rings. Where she was born	
Arch_16	1_21	Sod houses at Anaulirvik	
Arch_11	1_16	Sod houses at Atanikirrutq	
Arch_15	1_20	Sod houses at Itinniq	
Arch_17	1_22	Sod houses at Kangiqsuq	
Arch_14	1_19	Sod houses at Kangittuqjuaq	
Arch_5	3_17	Sod houses at Katuqqaq	Paranormal activity in the area
Arch_4	3_16	Sod houses at Natsiaqtuuq	
Arch_18	1_23	Sod houses at Qairusuktalik	
Arch_6	1_11	Sod houses at Qatuqqaq	
Arch_9	1_14	Sod houses at Qijujjuaq	
Arch_12	1_17	Sod houses at Taliruaq	
Arch_2	3_14	Sod houses at Taliruaq	
Arch_13	1_18	Sod houses at Ukiallivialuk	
Arch_7	1_12	Sod houses at Ukiallivillu	
Arch_1	4_5	Traditional gather site during Christmas and a ship dock	
Arch_24	2_27	Traditional gathering area at Aulatsivik	
Arch_1	3_13	Traditional gathering area at Aulatsivik in July	
Arch_6	7_7	Traditional gathering site during spring and at Christmas	
Arch_10	1_15	Traditional hunting area	
Arch_3	4_7	Tuniit camping area	

Figure 6: Areas with significant diversity and areas important for other reasons.

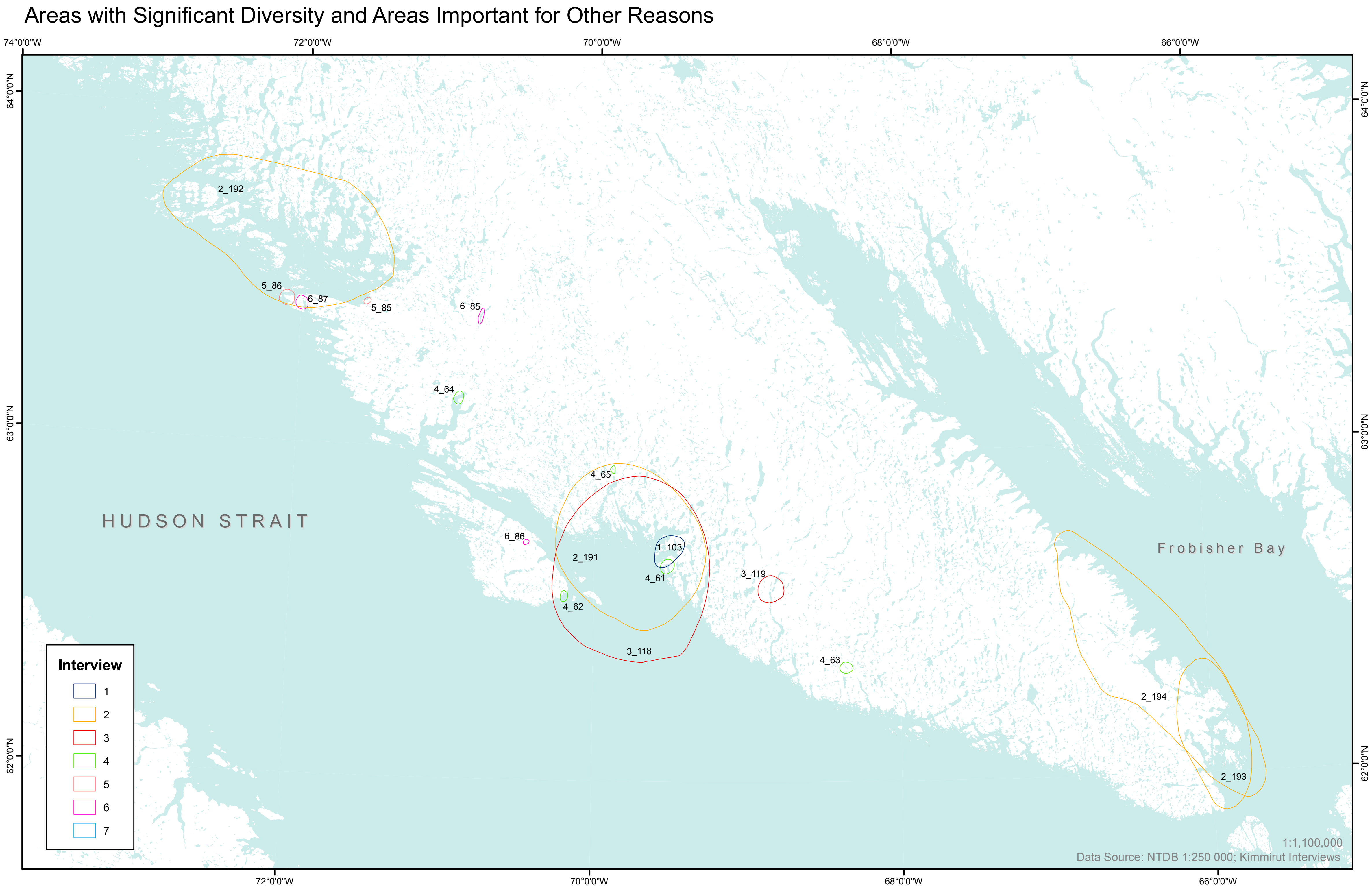


Table 4: Areas with significant diversity and areas important for other reasons.

MAP CODE	MAP LABEL	COMMENTS	CATEGORY	MONTHS
SADP_1	1_103	Ringed seals, Bearded Seals, Harp Seals, Beluga, Polar Bear, different birds	Diversity	6,7,8,9,10
SADP_1	2_191	All animals	Diversity	all year
SADP_2	2_192	All animals	Diversity	all year
SADP_3	2_193	All animals	Diversity	all year
SADP_1	3_118	All animals	Diversity	all year
SAOP_1	2_194	Glacier, Ice Bergs, Scenic,Fish, Polar bears and beluga; great tourist spot, talks about building a lodge there to take tourists; there is an air stip in the area	Other	
SAOP_1	3_119	Goes there to relax and fish; very scenic	Other	all year
SAOP_1	4_61	Family outpost camp, had first child there and lived with family; a healing place	Other	all year
SAOP_2	4_62	Lifts her spirit when she visits the area	Other	
SAOP_3	4_63	Very scenic; gains strength when visiting the area	Other	
SAOP_4	4_64	Very scenic; great berry picking area; also go caribou hunting here	Other	8
SAOP_5	4_65	Beautiful camping area; great berry picking area	Other	
SAOP_1	5_85	Finds it refershing and soothing to visit these areas; "Home" where he lived with his parents	Other	all year
SAOP_2	5_86	Finds it refershing and soothing to visit these areas; "Home" where he lived with his parents	Other	all year
SAOP_1	6_85	Scenic area, you can see everything from the top, reminds him of where he grew up	Other	all year
SAOP_2	6_86	Scenic area, you can see everything from the top of the hill	Other	all year
SAOP_3	6_87	Very scenic area, enjoys going there	Other	all year

Figure 7: Areas of occupation for Arctic Char and Atlantic Salmon.

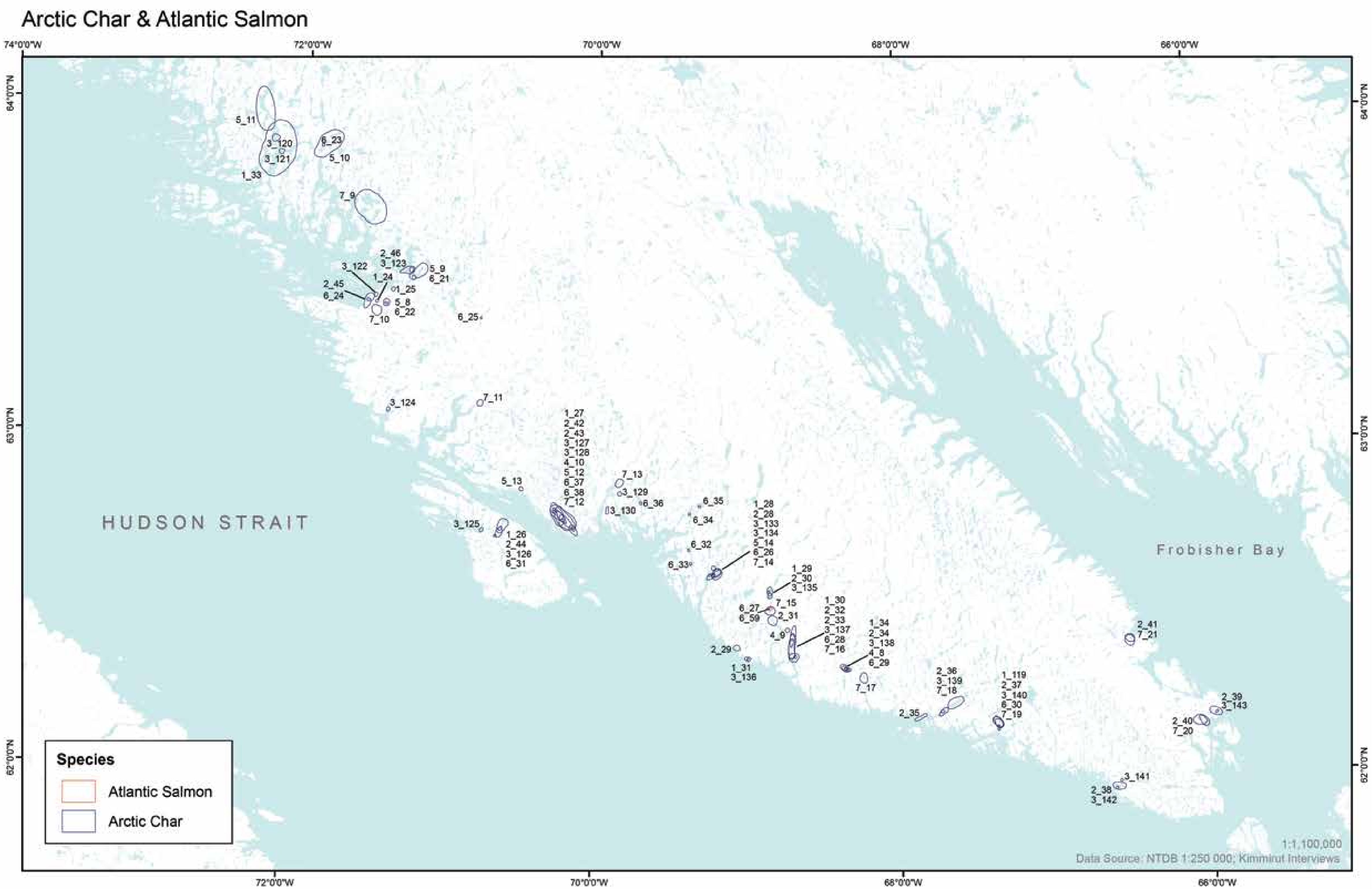


Table 5: Areas of occupation for Arctic Char and Atlantic Salmon.

MAP CODE	MAP LABEL	SPECIES	PRESENT – P HISTORIC – H	SPECIAL CODING	MONTHS	COMMENTS
Char_9_SH	1_119	Arctic Char	H	S	9,10	Seen around age 14.
Char_1	1_24	Arctic Char	P		12	
Char_2	1_25	Arctic Char	P		4,	
Char_3_H	1_26	Arctic Char	H		10	
Char_4_SP	1_27	Arctic Char	P	S	7,8,9,10	
Char_5_SP	1_28	Arctic Char	P	S	4,7	
Char_6	1_29	Arctic Char	P		all year	At Sikusuittuq
Char_7	1_30	Arctic Char	P		all year	Seen at Qavarudittuuq during a full moon
Char_8	1_31	Arctic Char	P		7,8	
Char_10_AP	1_33	Arctic Char	P	A	8	
Char_11_AP	1_34	Arctic Char	P	A	12	
Char_1_SP	2_28	Arctic Char	P	S	4,5,6,10,11,12	Spawining just after freeze up in November
Char_2	2_29	Arctic Char	P		7,8	
Char_3	2_30	Arctic Char	P		1,2,3,4,5,6,12	Fishes sometimes in June
Char_4	2_31	Arctic Char	P		7,8	
Char_5	2_32	Arctic Char	P		1,2,3,4,5,6,12	
Char_6	2_33	Arctic Char	P		7,8	
Char_7	2_34	Arctic Char	P		1,2,3,4,12	
Char_8	2_35	Arctic Char	P		7,8	
Char_9	2_36	Arctic Char	P		7,8	
Char_10_SP	2_37	Arctic Char	P	S	7,8,10,11,12	Spawining just after freeze up in November
Char_11	2_38	Arctic Char	P		7,8	
Char_12	2_39	Arctic Char	P		7,8	
Char_13	2_40	Arctic Char	P		7,8	
Char_14	2_41	Arctic Char	P		7,8	
Char_15_SP	2_42	Arctic Char	P	S	11,12	Spawining just after freeze up in November
Char_16	2_43	Arctic Char	P		7,8	
Char_17	2_44	Arctic Char	P		7,8	
Char_18	2_45	Arctic Char	P		7,8	
Char_19_SP	2_46	Arctic Char	P	S	all year	Spawning from October to December
Char_19_SP	3_120	Arctic Char	P	S	7,8	
Char_20_SP	3_121	Arctic Char	P	S	7,8	
Char_1	3_122	Arctic Char	P		11,12	
Char_21_SP	3_123	Arctic Char	P	S	7,8	
Char_18	3_124	Arctic Char	P		7,8	
Char_17	3_125	Arctic Char	P		7	
Char_16	3_126	Arctic Char	P		7	
Char_12_SP	3_127	Arctic Char	P	S	11,12	
Char_11_SP	3_128	Arctic Char	P	S	7,8	
Char_14	3_129	Arctic Char	P		5,6	
Char_13	3_130	Arctic Char	P		5,6	
Char_9_SP	3_133	Arctic Char	P	S	4,5	
Char_10_SP	3_134	Arctic Char	P	S	7,8	
Char_8_SP	3_135	Arctic Char	P	S	1,2,3,4,5,12	
Char_15	3_136	Arctic Char	P		7	
Char_7_SP	3_137	Arctic Char	P	S	1,2,3,4,5,12	
Char_6_SP	3_138	Arctic Char	P	S	1,2,3,4,5,12	
Char_5_SP	3_139	Arctic Char	P	S	7	
Char_4_SP	3_140	Arctic Char	P	S	7	
Char_2_SP	3_141	Arctic Char	P	S	11,12	
Char_3_SP	3_142	Arctic Char	P	S	7	
Char_22_AP	3_143	Arctic Char	P	A	7,8	
Char_3	4_10	Arctic Char	P		5,6	
Char_1	4_8	Arctic Char	P		1,2,3	
Char_2	4_9	Arctic Char	P		4,5	
Char_3	5_10	Arctic Char	P		all year	
Char_4	5_11	Arctic Char	P		all year	
Char_5	5_12	Arctic Char	P		4,5,6	
Char_6	5_13	Arctic Char	P		all year	
Char_7	5_14	Arctic Char	P		all year	
Char_1	5_8	Arctic Char	P		4,5,6	
Char_2	5_9	Arctic Char	P		all year	
Char_1	6_21	Arctic Char	P		all year	
Char_2_AP	6_22	Arctic Char	P	A	all year	
Char_3	6_23	Arctic Char	P		3,4,5	
Char_4_AP	6_24	Arctic Char	P	A	7,8	
Char_5	6_25	Arctic Char	P		4,5	Good char
Char_6	6_26	Arctic Char	P		4,5,6,7,8	
Char_7	6_27	Arctic Char	P		all year	
Char_8	6_28	Arctic Char	P		all year	
Char_9_AP	6_29	Arctic Char	P	A	all year	
Char_10_AP	6_30	Arctic Char	P	A	7,8,9	
Char_11	6_31	Arctic Char	P		10,11	Fishing in the area before water freezes up
Char_12_AP	6_32	Arctic Char	P	A	all year	
Char_13_AP	6_33	Arctic Char	P	A	all year	
Char_14	6_34	Arctic Char	P	A	all year	
Char_15	6_35	Arctic Char	P	A	all year	
Char_16	6_36	Arctic Char	P		all year	

Figure 7: Areas of occupation for Arctic Char (continued).

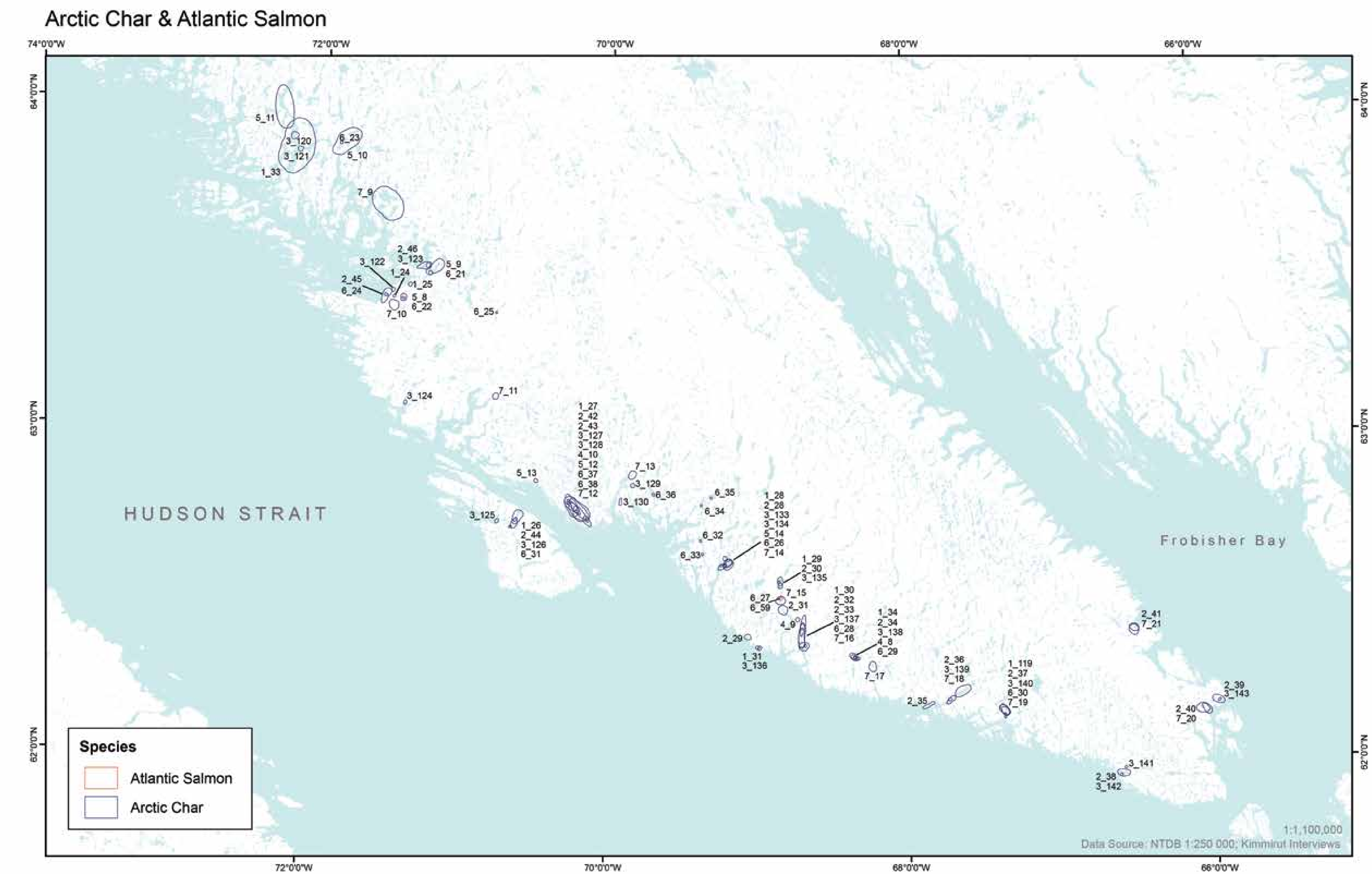


Table 5: Areas of occupation for Arctic Char and Atlantic Salmon (continued).

MAP CODE	MAP LABEL	SPECIES	PRESENT – P HISTORIC – H	SPECIAL CODING	MONTHS	COMMENTS
Char_17	6_37	Arctic Char	P		all year	
Char_18	6_38	Arctic Char	P		all year	
ASal_1_H	6_59	Atlantic Salmon	H		4	Caught in nets
Char_2_AP	7_10	Arctic Char	P	A	2,3	
Char_3	7_11	Arctic Char	P		9	
Char_4	7_12	Arctic Char	P		4,5,6	
Char_5	7_13	Arctic Char	P		10,11	End of October
Char_6_AP	7_14	Arctic Char	P	A	all year	Fishing in the area mainly in April and May
Char_7_AP	7_15	Arctic Char	P	A	all year	
Char_8_AP	7_16	Arctic Char	P	A	all year	
Char_9_AP	7_17	Arctic Char	P	A	1,2,3,4	
Char_10_AP	7_18	Arctic Char	P	A	1,2,3,4	
Char_11_AP	7_19	Arctic Char	P	A	1,2,3,4,7,8,9	
Char_12_AP	7_20	Arctic Char	P	A	7,8,9	
Char_13_AP	7_21	Arctic Char	P	A	7,8,9	
Char_1_AP	7_9	Arctic Char	P	A	3,4	

Figure 8: Areas of occupation for Arctic Cod, Atlantic Cod, and Greenland Cod.

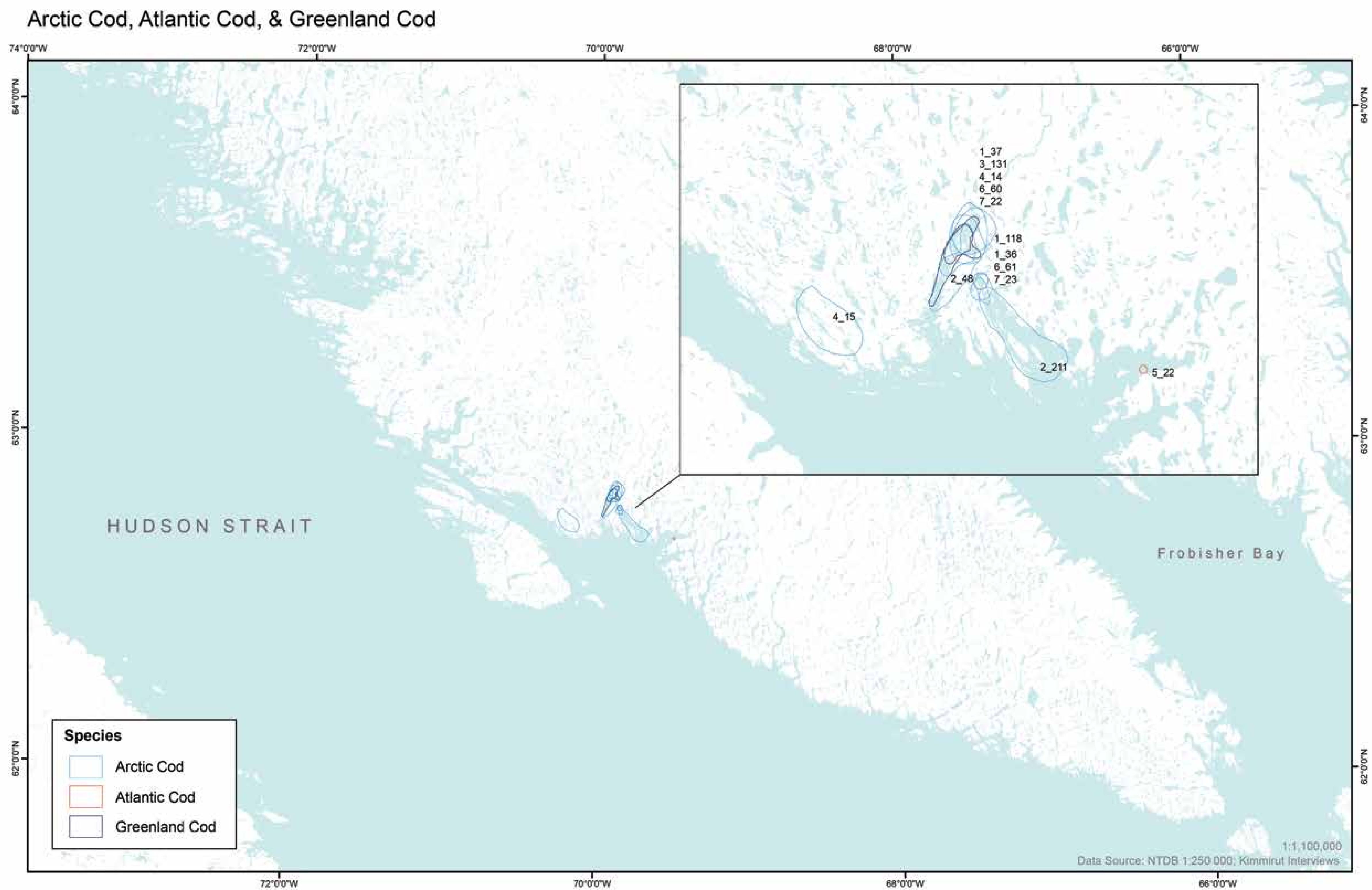


Table 6: Areas of occupation for Arctic Cod, Atlantic Cod and Greenland Cod.

MAP CODE	MAP LABEL	SPECIES	PRESENT – P HISTORIC – H	SPECIAL CODING	MONTHS	COMMENTS
Cod_1	1_118	Arctic Cod	P		10	
Cod_2	2_211	Arctic Cod	P		all year	
Cod_1	2_48	Arctic Cod	P		all year	
Cod_1	4_14	Arctic Cod	P		all year	
Cod_2	4_15	Arctic Cod	P		5,6,7	
Cod_1_AP	6_60	Arctic Cod	P	A	all year	
Cod_1_AP	6_61	Arctic Cod	P	A		
Cod_1_AP	7_22	Arctic Cod	P	A	all year	
Cod_1	7_23	Arctic Cod	P		6	
ACod_1_H	5_22	Atlantic Cod	H		6	
GrCod_1	1_36	Greenland Cod	P		10	
GrCod_2_AP	1_37	Greenland Cod	P	A	10	
GrCod_1	3_131	Greenland Cod	P		all year	

Figure 9: Areas of occupation for Broad Whitefish and Lake Trout

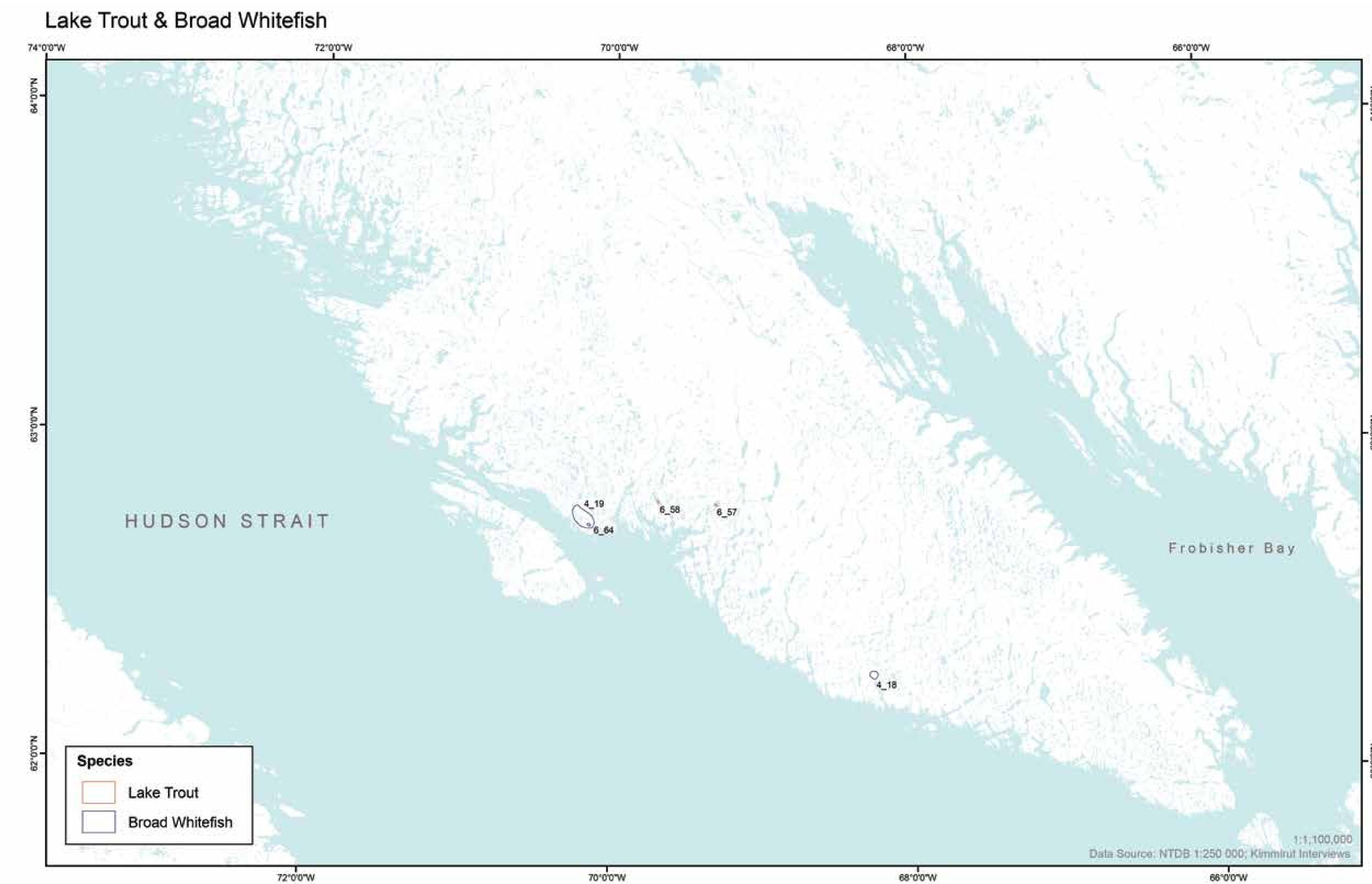


Table 7: Areas of occupation for Broad Whitefish and Lake Trout

MAP CODE	MAP LABEL	SPECIES	PRESENT – P HISTORIC – H	SPECIAL CODING	MONTHS	COMMENTS
BWh_1	4_18	Broad Whitefish	P		1,2,3,11,12	
BWh_2	4_19	Broad Whitefish	P		5,6	
BWH_1	6_64	Broad Whitefish	P			
LT_1	6_57	Lake Trout	P		all year	
LT_2	6_58	Lake Trout	P		all year	Really big lake trout

Figure 10: Areas of occupation for Capelin, Greenland Shark, and Threespine Stickleback.

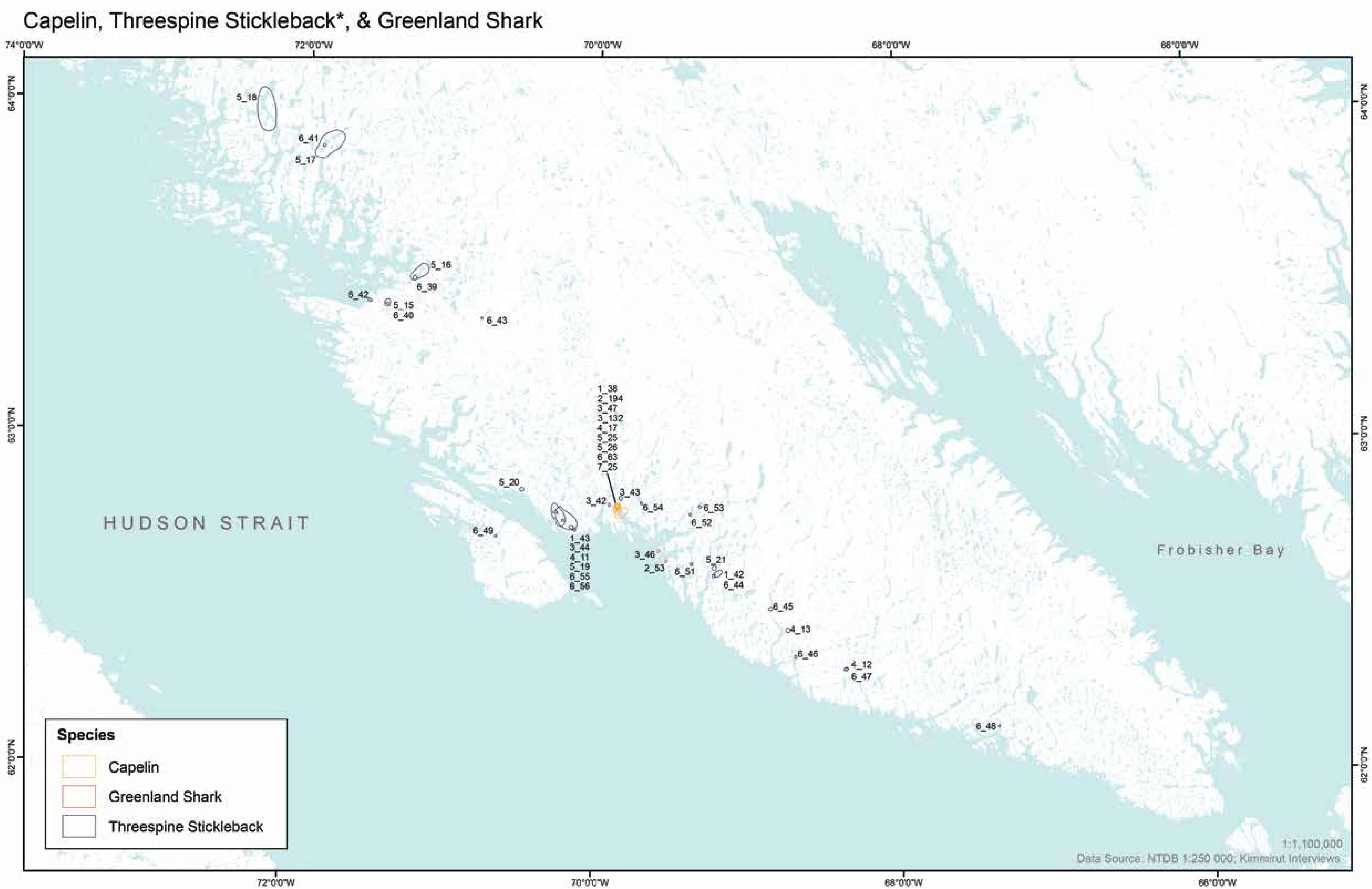


Table 8: Areas of occupation for Capelin, Greenland Shark, and Threespine Stickleback.

MAP CODE	MAP LABEL	SPECIES	PRESENT – P HISTORIC – H	SPECIAL CODING	MONTHS	COMMENTS
Cape_1	1_38	Capelin	P		8,9,10	
Cape_1	2_194	Capelin	P			
Cape_1	3_132	Capelin	P	A	7,8	
Cape_1_AP	4_17	Capelin	P	A	8	
Cape_2_AP	5_25	Capelin	P	A	7,8,9,10,11	While there is open water
Cape_1_AP	6_63	Capelin	P	A	7,8,9,10	
Cape_1_AP	7_25	Capelin	P	A	8,9	
GS_1	2_53	Greenland Shark	P		9,10	Caught one in a seal net
GS_1	3_46	Greenland Shark	P		10	
GS_2	3_47	Greenland Shark	P		7	
GS_1_H	5_26	Greenland Shark	H		8	
TStb_2_AP	1_42	Threespine Stickleback	P	A	4,7	
TStb_3_AP	1_43	Threespine Stickleback	P	A	7	
TStb_1	3_42	Threespine Stickleback	P		all year	
TStb_2	3_43	Threespine Stickleback	P		all year	
TStb_3	3_44	Threespine Stickleback	P		all year	
TStb_1	4_11	Threespine Stickleback	P		all year	
TStb_2	4_12	Threespine Stickleback	P		all year	
TStb_3	4_13	Threespine Stickleback	P		all year	
TStb_1	5_15	Threespine Stickleback	P		all year	
TStb_2	5_16	Threespine Stickleback	P		all year	
TStb_3	5_17	Threespine Stickleback	P		all year	
TStb_4	5_18	Threespine Stickleback	P		all year	
TStb_5	5_19	Threespine Stickleback	P		all year	
TStb_6	5_20	Threespine Stickleback	P		all year	
TStb_7	5_21	Threespine Stickleback	P		all year	
TStb_1	6_39	Threespine Stickleback	P		all year	
TStb_2	6_40	Threespine Stickleback	P		all year	
TStb_3	6_41	Threespine Stickleback	P		all year	
TStb_4	6_42	Threespine Stickleback	P		all year	
TStb_5	6_43	Threespine Stickleback	P		all year	
TStb_6	6_44	Threespine Stickleback	P		all year	
TStb_7	6_45	Threespine Stickleback	P		all year	
TStb_8	6_46	Threespine Stickleback	P		all year	
TStb_9	6_47	Threespine Stickleback	P		all year	
TStb_10	6_48	Threespine Stickleback	P		all year	
TStb_11	6_49	Threespine Stickleback	P		all year	
TStb_13	6_51	Threespine Stickleback	P		all year	
TStb_14	6_52	Threespine Stickleback	P		all year	
TStb_15	6_53	Threespine Stickleback	P		all year	
TStb_16	6_54	Threespine Stickleback	P		all year	
TStb_17	6_55	Threespine Stickleback	P		all year	
TStb_18	6_56	Threespine Stickleback	P		all year	

"Everywhere" Coded Data: Capelin and Threespine Stickleback

MAP LABEL	SPECIES	PRESENT – P HISTORIC – H	SPECIAL CODING	MONTHS	COMMENTS
5_24	Capelin	P	e	all year	
1_41	Threespine Stickleback	P	e	all year	
2_52	Threespine Stickleback	P	e	all year	In all lakes

Figure 11: Areas of occupation for Clam and Mussel

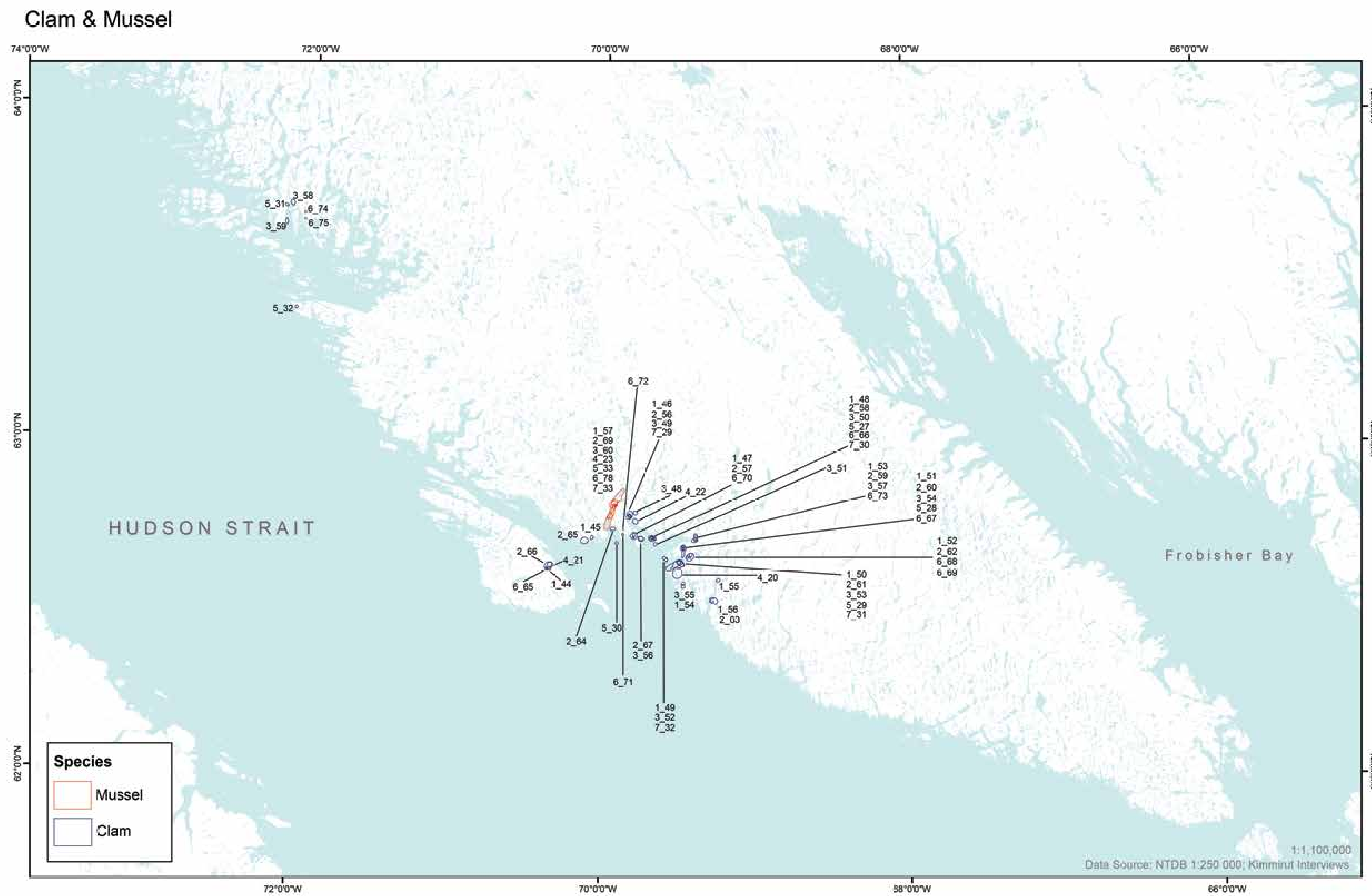


Table 9: Areas of occupation for Clam and Mussel

MAP CODE	MAP LABEL	SPECIES	PRESENT – P HISTORIC – H	SPECIAL CODING	MONTHS	COMMENTS
Clam_1	1_44	Clam	P		7,8,9,10	
Clam_2	1_45	Clam	P		7,8,9,10	
Clam_3	1_46	Clam	P		7,8,9,10	
Clam_4	1_47	Clam	P		7,8,9,10	
Clam_5	1_48	Clam	P		7,8,9,10	
Clam_6	1_49	Clam	P		7,8,9,10	
Clam_7	1_50	Clam	P		7,8,9,10	
Clam_8	1_51	Clam	P		7,8,9,10	
Clam_9	1_52	Clam	P		7,8,9,10	
Clam_10	1_53	Clam	P		7,8,9,10	
Clam_11	1_54	Clam	P		7,8,9,10	
Clam_12	1_55	Clam	P		7,8,9,10	
Clam_13	1_56	Clam	P		7,8,9,10	
Clam_1	2_56	Clam	P		8,9,10	
Clam_2	2_57	Clam	P		8,9,10	
Clam_3	2_58	Clam	P		8,9,10	
Clam_4	2_59	Clam	P		8,9,10	
Clam_5	2_60	Clam	P		8,9,10	
Clam_6	2_61	Clam	P		8,9,10	
Clam_7	2_62	Clam	P		8,9,10	
Clam_8	2_63	Clam	P		8,9,10	
Clam_9	2_64	Clam	P		8,9,10	
Clam_10	2_65	Clam	P		8,9,10	
Clam_11	2_66	Clam	P		8,9,10	
Clam_12	2_67	Clam	P		7,8,9,10	Bigger ones, walrus food
Clam_1	3_48	Clam	P		7,8,9,10	
Clam_2	3_49	Clam	P		7,8,9,10	
Clam_3	3_50	Clam	P		7,8,9,10	
Clam_4	3_51	Clam	P		7,8,9,10	
Clam_5	3_52	Clam	P		7,8,9,10	
Clam_6	3_53	Clam	P		7,8,9,10	
Clam_7	3_54	Clam	P		7,8,9,10	
Clam_8	3_55	Clam	P		7,8,9,10	
Clam_9	3_56	Clam	P		7,8,9,10	
Clam_10	3_57	Clam	P		7,8,9,10	
Clam_11	3_58	Clam	P		7,8,9,10	
Clam_12	3_59	Clam	P		7,8,9,10	
Clam_1	4_20	Clam	P		8,9	
Clam_2	4_21	Clam	P		8,9	Big ones
Clam_3	4_22	Clam	P		8,9	
Clam_1	5_27	Clam	P		7,8,9,10	
Clam_2	5_28	Clam	P		7,8,9,10	
Clam_3	5_29	Clam	P		7,8,9,10	
Clam_4	5_30	Clam	P		7,8,9,10	
Clam_5	5_31	Clam	P		7,8,9,10	
Clam_6	5_32	Clam	P		7,8,9,10	
Clam_1	6_65	Clam	P		7,8,9	
Clam_2	6_66	Clam	P		7,8,9	
Clam_3	6_67	Clam	P		7,8,9	
Clam_4	6_68	Clam	P		7,8,9	
Clam_5	6_69	Clam	P		7,8,9	
Clam_6	6_70	Clam	P		7,8,9	
Clam_7	6_71	Clam	P		7,8,9	
Clam_8	6_72	Clam	P		7,8,9	
Clam_9	6_73	Clam	P		7,8,9	
Clam_10	6_74	Clam	P		7,8,9	Really good clams
Clam_11	6_75	Clam	P		7,8,9	Really good clams
Clam_1	7_29	Clam	P		7,8,9	
Clam_2	7_30	Clam	P		7,8,9	
Clam_3	7_31	Clam	P		7,8,9	
Clam_4	7_32	Clam	P		7,8,9	
Mus_1_AP	1_57	Mussel	P	A	7,8,9,10	
Mus_1	2_69	Mussel	P		7,8,9,10	
Mus_1	3_60	Mussel	P		7,8,9,10	
Mus_1	4_23	Mussel	P		8,9	
Mus_1_AP	5_33	Mussel	P	A	7,8,9,10	
Mus_1	6_78	Mussel	P		7,8,9	
Mus_1	7_33	Mussel	P		7,8,9	

Figure 12: Areas of occupation for Cockle, Oyster, Scallop, and Whelk

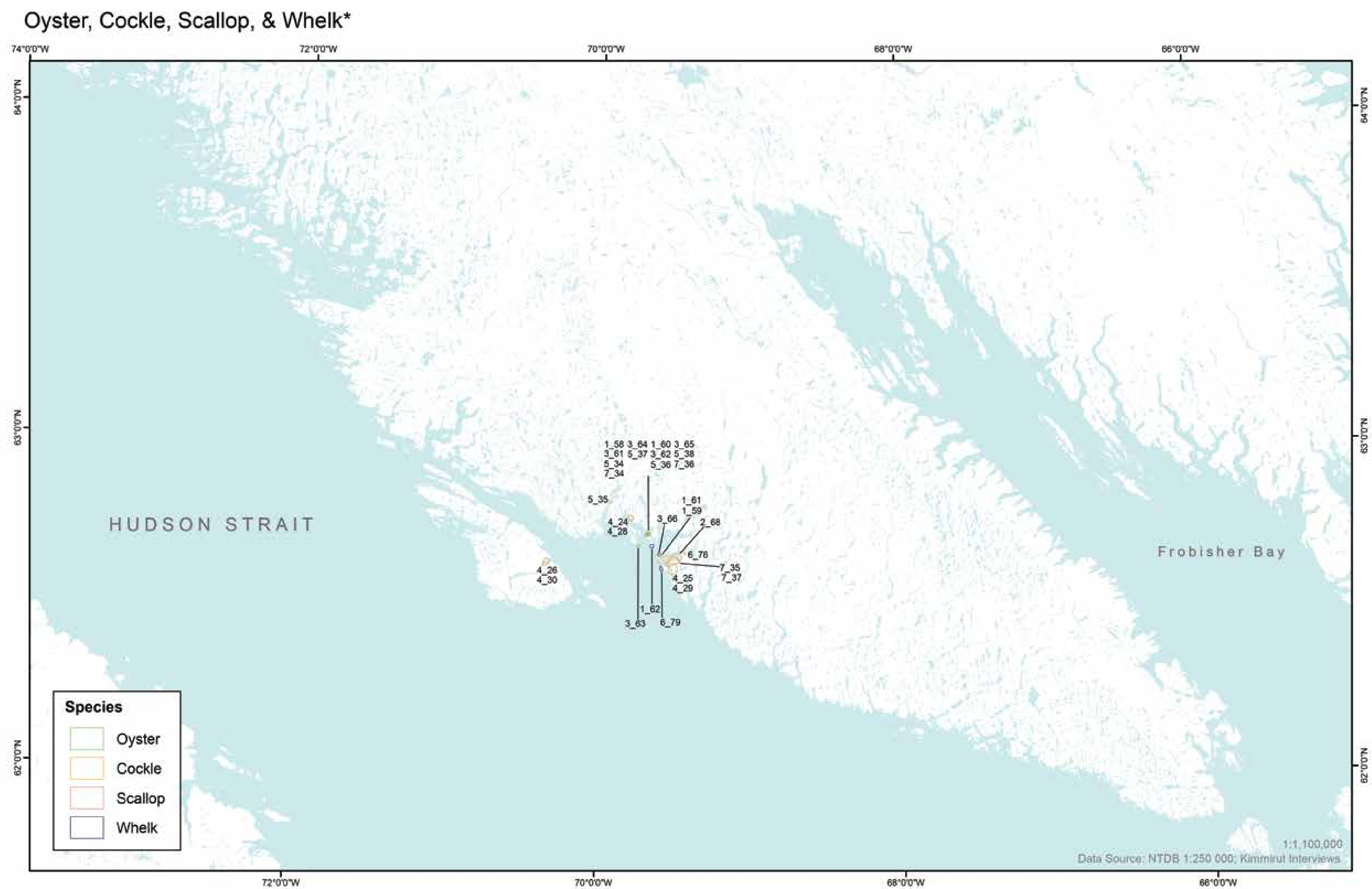


Table 10: Areas of occupation for Cockle, Oyster, Scallop and Whelk

MAP CODE	MAP LABEL	SPECIES	PRESENT – P HISTORIC – H	SPECIAL CODING	MONTHS	COMMENTS
Ckl_1	1_58	Cockle	P		7,8,9,10	
Ckl_2	1_59	Cockle	P		7,8,9,10	
Ckl_1	2_68	Cockle	P		7,8,9,10	In deeper water
Ckl_1	3_61	Cockle	P		7,8,9,10	With clams, but not as abundant as clams
Ckl_1	4_24	Cockle	P		8,9	
Ckl_2	4_25	Cockle	P		8,9	
Ckl_3	4_26	Cockle	P		8,9	
Ckl_1	5_34	Cockle	P		7,8,9,10	
Ckl_1	6_76	Cockle	P		7,8,9	
Ckl_1	7_34	Cockle	P		7,8,9	
Ckl_2	7_35	Cockle	P		7,8,9	
Oys_1	3_63	Oyster	P		8	Caught some in a crab pot
Oys_2	3_64	Oyster	P		7,8,9,10	Caught some in a crab pot
Oys_1	5_37	Oyster	P		7,8,9,10	
Scal_1	1_60	Scallop	P		7,8,9,10	
Scal_2	1_61	Scallop	P		7,8,9,10	
Scal_1	3_62	Scallop	P		7,8,9,10	Collects scallops when tide is lower than usual
Scal_1	5_35	Scallop	P		7,8,9,10	
Scal_2	5_36	Scallop	P		7,8,9,10	
Whe_1_AP	1_62	Whelk	P	A	4,5,6	When the ice cracks open
Whe_1	3_65	Whelk	P		7,8,9,10	Not very many
Whe_2	3_66	Whelk	P		7,8,9,10	Not very many
Whe_1	4_28	Whelk	P		8,9	
Whe_2	4_29	Whelk	P		8,9	
Whe_3	4_30	Whelk	P		8,9	
Whe_1	5_38	Whelk	P		7,8,9,10	
Whe_1_AP	6_79	Whelk	P	A	7,8,9	
Whe_1	7_36	Whelk	P		7,8,9	
Whe_2	7_37	Whelk	P		7,8,9	

"Everywhere" Coded Data: Whelk

MAP LABEL	SPECIES	PRESENT – P HISTORIC – H	SPECIAL CODING	MONTHS	COMMENTS
2_70	Whelk	P	e	7,8,9	Washed up on shore

Figure 13: Areas of occupation for Mud Star and Polar Sea Star.

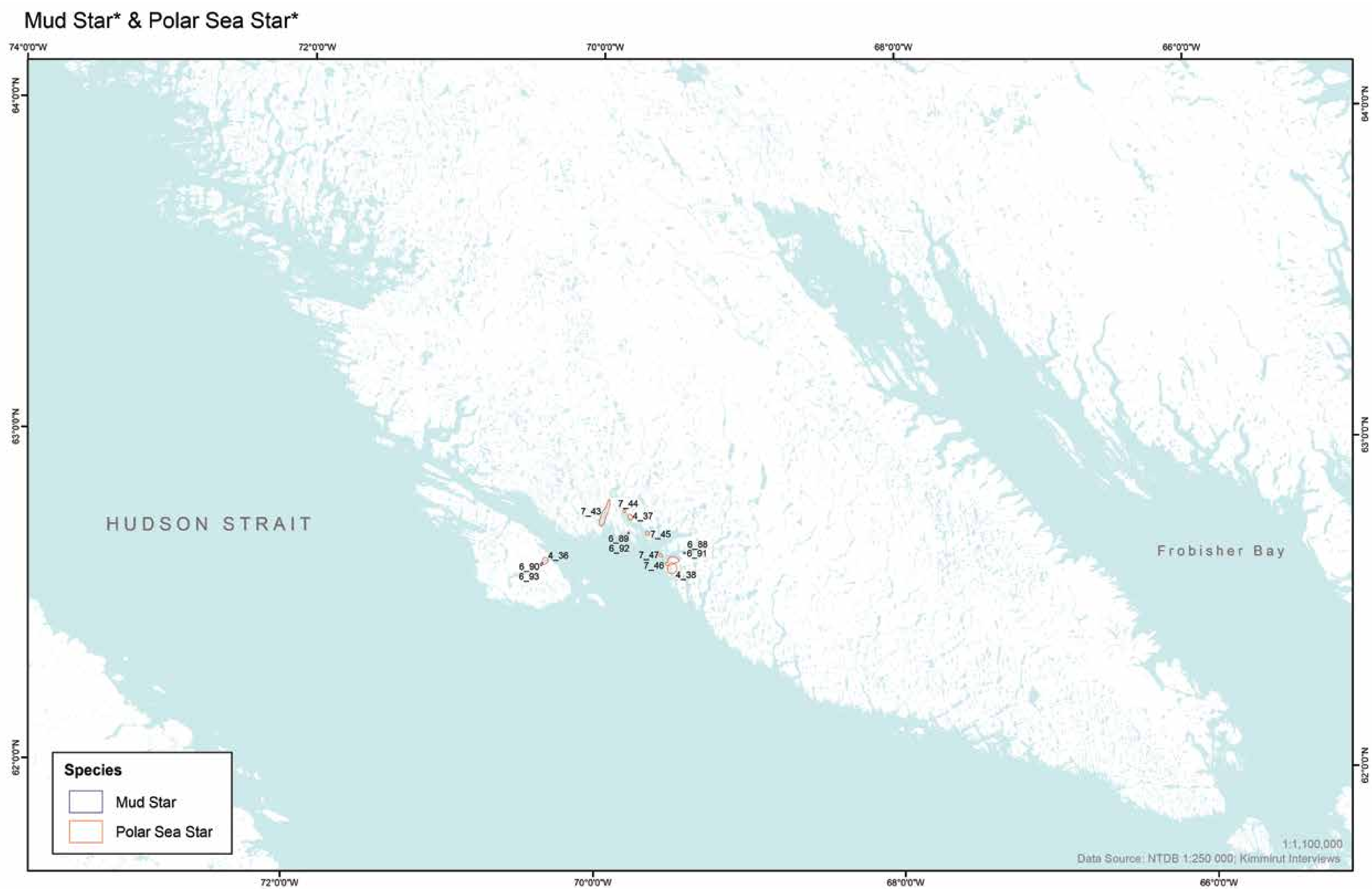


Table 11: Areas of occupation for Mud Star and Polar Sea Star.

MAP CODE	MAP LABEL	SPECIES	PRESENT – P HISTORIC – H	SPECIAL CODING	MONTHS	COMMENTS
6_91	MStar_1	Mud Star	P		7,8,9	After a big storm
6_92	MStar_2	Mud Star	P		7,8,9	After a big storm
6_93	MStar_3	Mud Star	P		7,8,9	After a big storm
4_36	PStar_1	Polar Sea Star	P		8,9	
6_88	PStar_1	Polar Sea Star	P		7,8,9	After a big storm
7_43	PStar_1	Polar Sea Star	P		7,8,9	
4_37	PStar_2	Polar Sea Star	P		8,9	
6_89	PStar_2	Polar Sea Star	P		7,8,9	After a big storm
7_44	PStar_2	Polar Sea Star	P		7,8,9	
4_38	PStar_3	Polar Sea Star	P		8,9	
6_90	PStar_3	Polar Sea Star	P		7,8,9	After a big storm
7_45	PStar_3	Polar Sea Star	P		7,8,9	
7_46	PStar_4	Polar Sea Star	P		7,8,9	
7_47	PStar_5	Polar Sea Star	P		7,8,9	

"Everywhere" Coded Data: Mud Star and Polar Sea Star

MAP LABEL	SPECIES	PRESENT – P HISTORIC – H	SPECIAL CODING	MONTHS	COMMENTS
5_47	Mstar_1_e	Mud Star	P		
1_69	Pstar_1_e	Polar Sea Star	P		
2_75	Pstar_1_e	Polar Sea Star	P	7,8,9	Small ones washes up on shore
3_73	Pstar_1_e	Polar Sea Star	P	8,9	
5_46	Pstar_1_e	Polar Sea Star	P		

Figure 14: Areas of occupation for Northern Shrimp, Scampi, Sea Anemone, Sea Urchin, and Toad Crab.

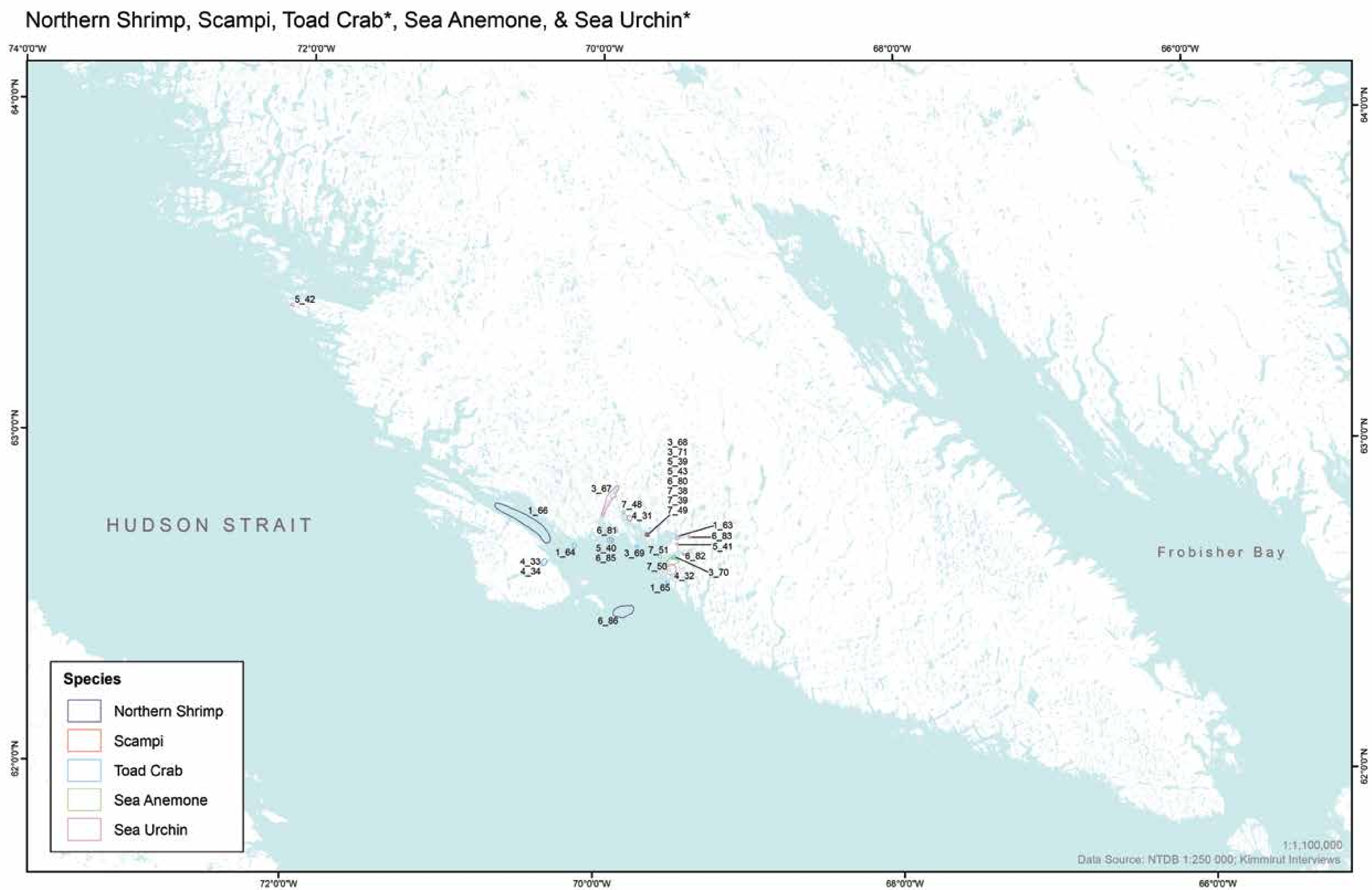


Table 12: Areas of occupation for Northern Shrimp, Scampi, Sea Anemone, Sea Urchin and Toad Crab.

MAP CODE	MAP LABEL	SPECIES	PRESENT – P HISTORIC – H	SPECIAL CODING	MONTHS	COMMENTS
NS_1_AP	1_66	Northern Shrimp	P	A	9	In stomach contents of Ringed Seal and Bearded Seal
NS_1	3_71	Northern Shrimp	P		8,9	Appear more in the fall
NS_1	6_86	Northern Shrimp	P		7,8,9	
Scampi_1	7_39	Scampi	P		7,8,9	If there is a lot of South winds they'll be washed up on shore
San_1	7_48	Sea Anemone	P		7,8,9	
San_2	7_49	Sea Anemone	P		7,8,9	
San_3	7_50	Sea Anemone	P		7,8,9	
San_4	7_51	Sea Anemone	P		7,8,9	
SU_1_AP	1_63	Sea Urchin	P	A	8,9,10	
SU_1	3_67	Sea Urchin	P		7,8,9,10	
SU_2	3_68	Sea Urchin	P		7,8,9,10	
SU_1	4_31	Sea Urchin	P		8,9	
SU_2	4_32	Sea Urchin	P		8,9	
SU_3	4_33	Sea Urchin	P		8,9	
SU_1	5_39	Sea Urchin	P		7,8,9,10	
SU_2	5_40	Sea Urchin	P		7,8,9,10	
SU_3	5_41	Sea Urchin	P		7,8,9,10	
SU_4	5_42	Sea Urchin	P		7,8,9,10	
SU_1	6_80	Sea Urchin	P		7,8,9	
SU_2	6_81	Sea Urchin	P		7,8,9	
SU_3	6_82	Sea Urchin	P		7,8,9	
SU_4	6_83	Sea Urchin	P		7,8,9	
SU_1	7_38	Sea Urchin	P		7,8,9	
TC_1	1_64	Toad Crab	P		7,8,9,10	
TC_2	1_65	Toad Crab	P		7,8,9,10	
TC_1	3_69	Toad Crab	P		8	
TC_2	3_70	Toad Crab	P		8	Caught in crab pot
TC_1	4_34	Toad Crab	P		8,9	
TC_1	5_43	Toad Crab	P		7,8,9,10	
TC_1	6_85	Toad Crab	P		7,8,9	

"Everywhere" Coded Data: Sea Anemone, Sea Urchin and Toad Crab.

Map Label	Species	Present – P Historic – H	Special Coding	Months	Comments
1_70	Sea Anemone	P	e	7,8,9,10	
4_39	Sea Anemone	P	e	all year	
5_48	Sea Anemone	P	e	7,8,9,10	
6_96	Sea Anemone	P	e	7,8,9	Along the coast
2_71	Sea Urchin	P	e	7,8,9	
2_72	Toad Crab	P	e	7,8,9	

Figure 15: Areas of occupation for Bearded Seal, Harbour Seal, Harp Seal, Hooded Seal, and Spotted Seal.

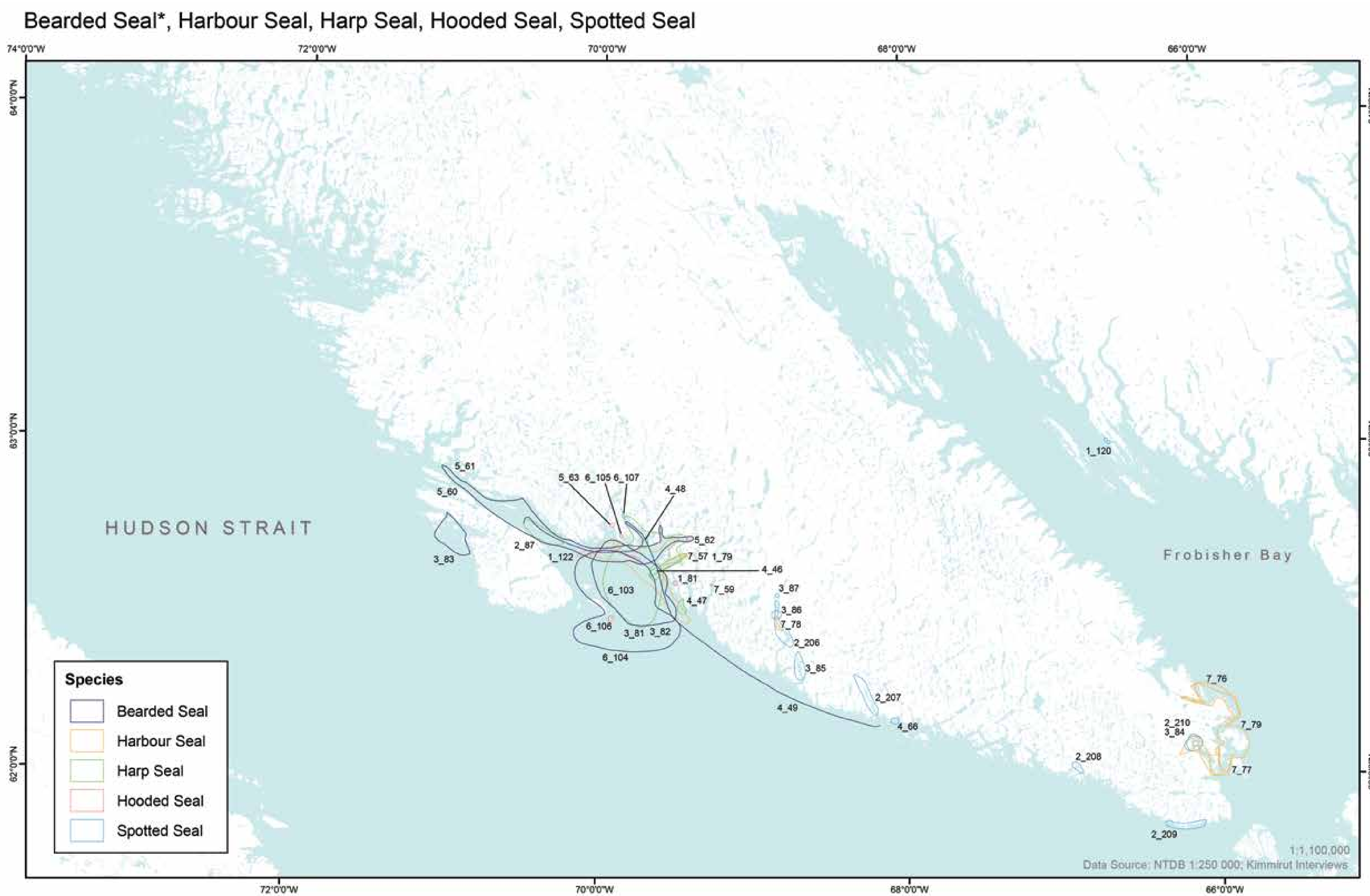


Table 13: Areas of occupation for Bearded Seal, Harbour Seal, Harp Seal, Hooded Seal and Spotted Seal.

MAP CODE	MAP LABEL	SPECIES	PRESENT – P HISTORIC – H	SPECIAL CODING	YEAR	MONTHS	COMMENTS
BS_1_AP	3_82	Bearded Seal	P	A		all year	
BS_2_AP	3_83	Bearded Seal	P	A		all year	
BS_1	4_49	Bearded Seal	P			all year	
BS_1	5_61	Bearded Seal	P			7,8,9	
BS_1_AP	6_104	Bearded Seal	P	A		all year	
HbS_1	7_57	Harbour Seal	P				7,8
HbS_3	7_76	Harbour Seal	P				
HbS_4	7_77	Harbour Seal	P				
HbS_2	7_78	Harbour Seal	P				
HbS_3	7_79	Harbour Seal	P				
HS_1	1_79	Harp Seal	P			9,10	
HS_1	2_87	Harp Seal	P			7,8,9,10,11	
HS_1_AP	3_81	Harp Seal	P	A		7,8,9,10	
HS_1	4_46	Harp Seal	P			7,8	
HS_2	4_47	Harp Seal	P			7,8	
HS_3	4_48	Harp Seal	P			7,8	
HS_1_H	5_60	Harp Seal	P	A		7,8,9	
HS_1	6_103	Harp Seal	P			7,8,9,10,11	
HoS_2_NP	1_122	Hooded Seal	P	N		6,7,8	Young
HoS_1	1_81	Hooded Seal	P			6,7,8	Adults
HoS_1	5_62	Hooded Seal	P			7,8,9	
HoS_2	5_63	Hooded Seal	P			7,8,9	
HoS_1	6_105	Hooded Seal	P			10	
HoS_2	6_106	Hooded Seal	P			7	He caught a small one
HoS_1	7_59	Hooded Seal	P		2005	10	
SpSeal_1_H	1_120	Spotted Seal	H			7	Caught four in 1964
SpSeal_1	2_206	Spotted Seal	P			7,8	
SPSeal_2	2_207	Spotted Seal	P			7,8	
SpSeal_3	2_208	Spotted Seal	P			7,8	
SpSeal_5	2_209	Spotted Seal	P			7,8	
SpSeal_4	2_210	Spotted Seal	P			7,8	
SpSeal_1	3_84	Spotted Seal	P			7	
SpSeal_2	3_85	Spotted Seal	P			7	
SpSeal_3	3_86	Spotted Seal	P			5	
SpSeal_4_H	3_87	Spotted Seal	H			5	
SpSeal_1	4_66	Spotted Seal	P			6	
SpSeal_1	6_107	Spotted Seal	P			8	

“Everywhere” Coded Data: Bearded Seal.

MAP LABEL	SPECIES	PRESENT – P HISTORIC – H	SPECIAL CODING	MONTHS	COMMENTS
1_80	Bearded Seal	P	e	all year	
2_88	Bearded Seal	P	e	1,2,3,4,6,7,12	Pupping on moving ice in June and July. Not as abundant as ringed seals.
7_58	Bearded Seal	P	e		All year

Figure 16: Areas of occupation for Ringed Seal

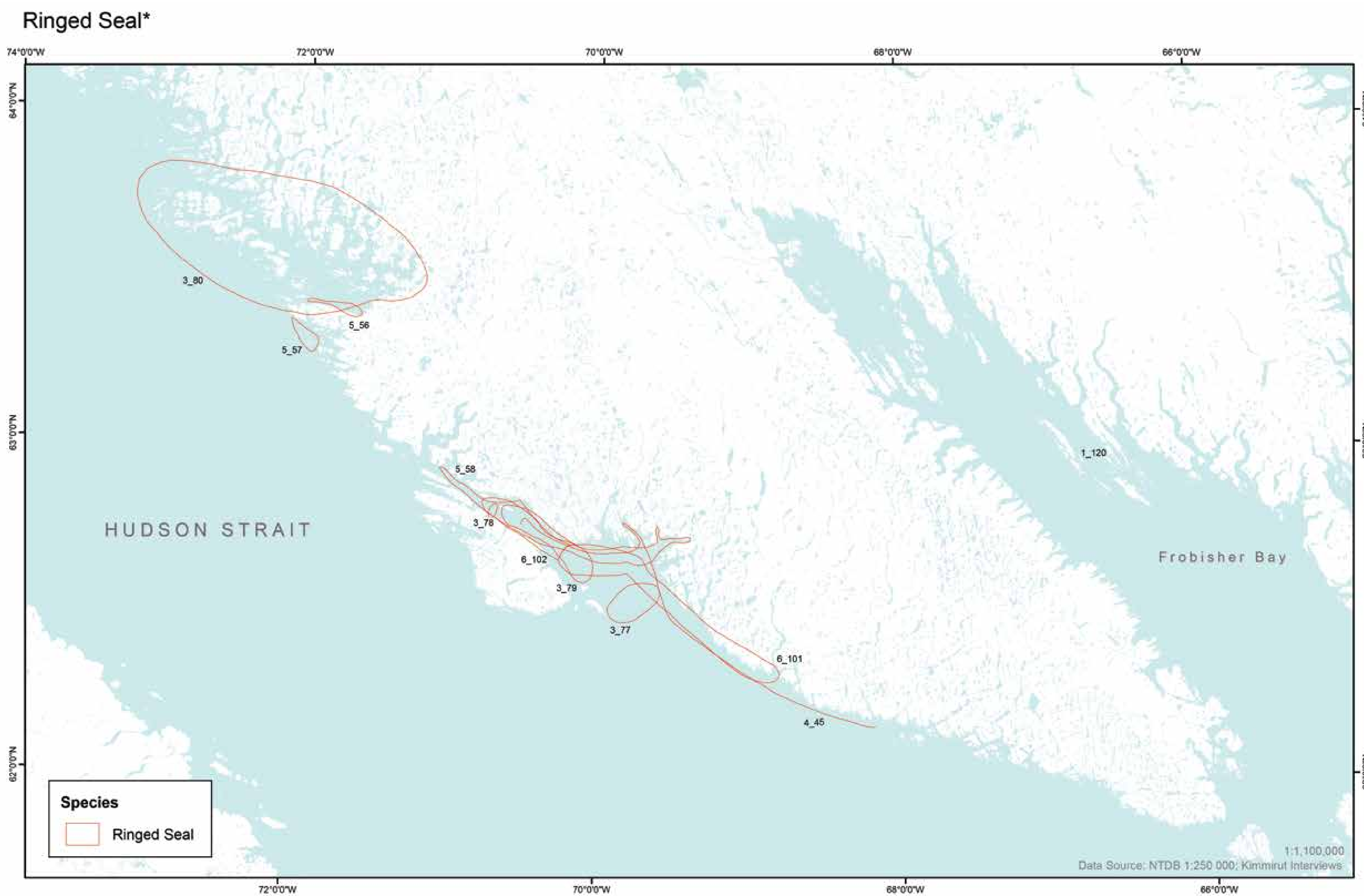


Table 14: Areas of occupation for Ringed Seal.

MAP CODE	MAP LABEL	SPECIES	PRESENT – P HISTORIC – H	SPECIAL CODING	MONTHS	COMMENTS
RS_1	3_77	Ringed Seal	P		3,4,5	
RS_2	3_78	Ringed Seal	P		3,4,5	
RS_3	3_79	Ringed Seal	P		5	
RS_4	3_80	Ringed Seal	P		4,5	Seal hunting at polynyas
RS_1	4_45	Ringed Seal	P		all year	
RS_1_AP	5_56	Ringed Seal	P	A	7,8,9	
RS_2_AP	5_57	Ringed Seal	P	A	7,8,9	
RS_3_AP	5_58	Ringed Seal	P	A	all year	Most abundant from July to September
RS_1	6_101	Ringed Seal	P		all year	
RS_2_AP	6_102	Ringed Seal	P	A	9	

"Everywhere" Coded Data: Ringed Seal.

INTERVIEW	MAP CODE	SPECIES	PRESENT – P HISTORIC – H	MONTHS	COMMENTS
1_78	Ringed Seal	P	e	all year	
2_86	Ringed Seal	P	e	all year	
7_56	Ringed Seal	P	e	all year	

Figure 17: Areas of occupation for Polar Bear.

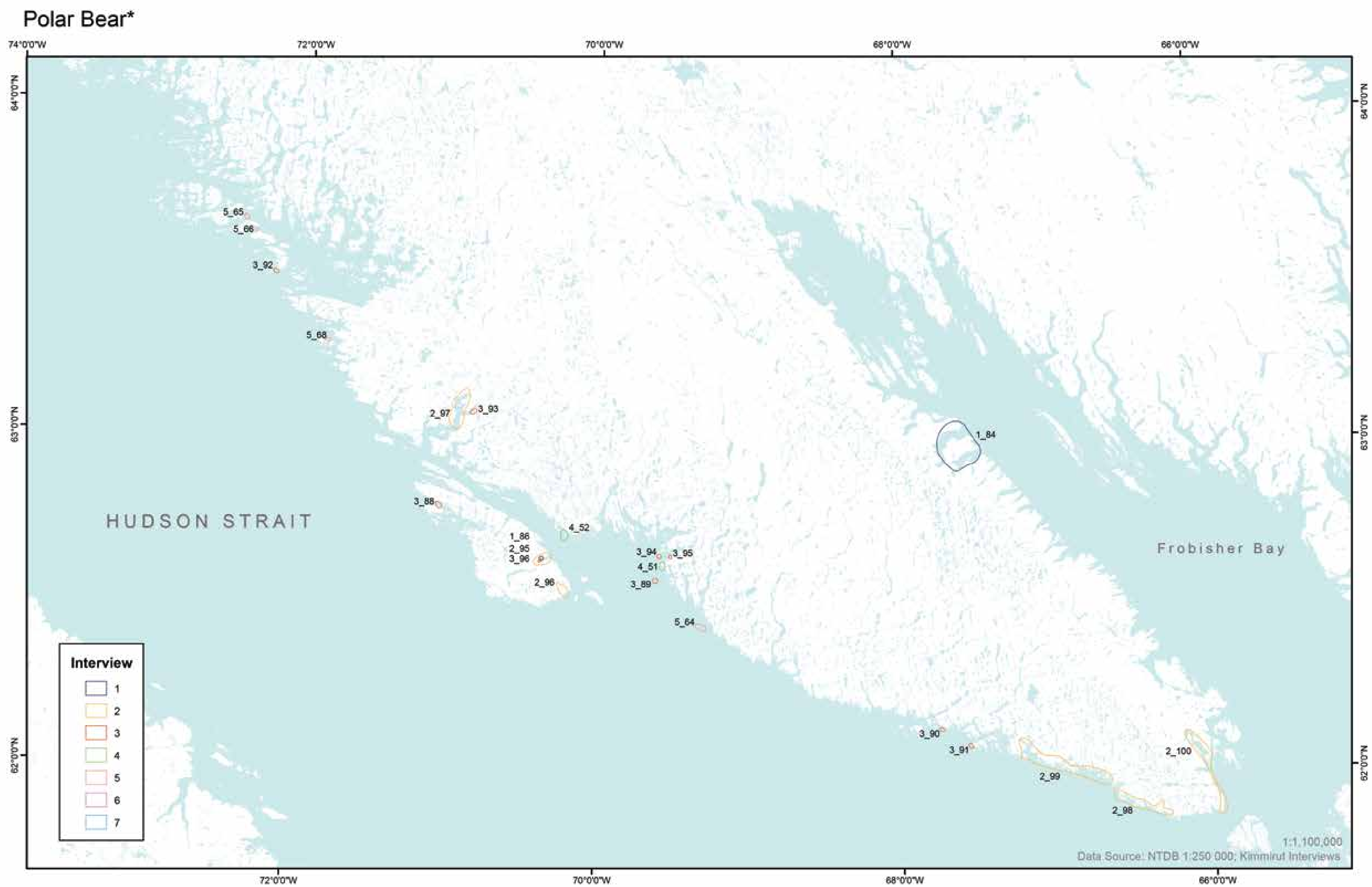


Table 15: Areas of occupation for Polar Bear.

MAP CODE	MAP LABEL	SPECIES	PRESENT – P HISTORIC – H	ABUND	YEAR	MONTHS	COMMENTS
PB_1_AH	1_84	Polar Bear	H	A		4	
PB_3_SP	1_86	Polar Bear	P			1,2,3,4	
PB_7_SP	2_100	Polar Bear	P	S		7,8,9	
PB_2_SP	2_95	Polar Bear	P	S		7,8,9	
PB_3_SP	2_96	Polar Bear	P	S		7,8,9	
PB_4_SP	2_97	Polar Bear	P	S		7,8,9	
PB_5_SP	2_98	Polar Bear	P	S		7,8,9	
PB_6_SP	2_99	Polar Bear	P	S		7,8,9	
PB_1	3_88	Polar Bear	P			4	Since 2005 they find there isn't as much polar bear in the area
PB_2	3_89	Polar Bear	P			3	
PB_3	3_90	Polar Bear	P			1,2,3,12	
PB_4	3_91	Polar Bear	P			1,2,3,4,12	
PB_5	3_92	Polar Bear	P			1,2,3,4,12	
PB_6	3_93	Polar Bear	P			1,2,3,4,12	
PB_7	3_94	Polar Bear	P			1,2,3,4,12	
PB_8_H	3_95	Polar Bear	H		1958-1960	3	
PB_9_SP	3_96	Polar Bear	P	S		7,8	
PB_1	4_51	Polar Bear	P			4	
PB_2	4_52	Polar Bear	P			1,2,3	
PB_1	5_64	Polar Bear	P			4	
PB_2_H	5_65	Polar Bear	H			1	
PB_3_H	5_66	Polar Bear	H			1	
PB_5_H	5_68	Polar Bear	H			1,2	Caught a polar bear in the area

"Everywhere" Coded Data: Polar Bear

MAP CODE	SPECIES	PRESENT – P HISTORIC – H	ABUND	COMMENTS
2_94	Polar Bear	P	e	all year
6_108	Polar Bear	P	e	all year
7_60	Polar Bear	P	e	all year

Figure 18: Areas of occupation for Walrus.

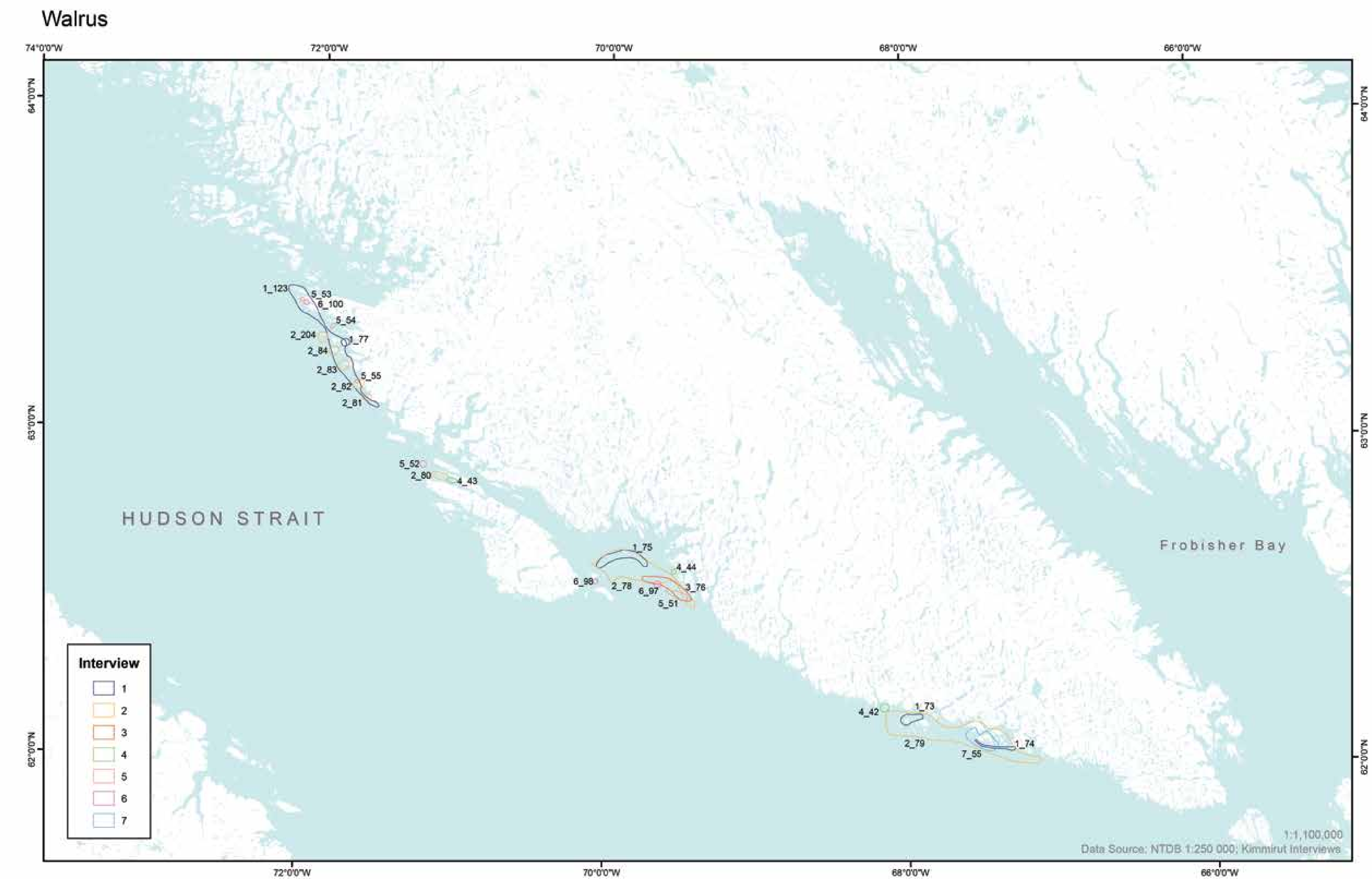


Table 16: Areas of occupation for Walrus.

MAP CODE	MAP LABEL	SPECIES	PRESENT – P HISTORIC – H	SPECIAL CODING	YEAR	MONTHS	COMMENTS
WaL_4_AP	1_123	Walrus	P	A		7,8	
Wal_1_H	1_73	Walrus	H			9	
Wal_2_AH	1_74	Walrus	H	A		1,2,3,4	
Wal_3	1_75	Walrus	P			1,2,3,4	
Wal_5_AP	1_77	Walrus	P	A		7,8	Island is covered because there is so much walrus
Wal_8	2_204	Walrus	P				
Wal_1	2_78	Walrus	P			3,4,5	At the floe edge
Wal_2	2_79	Walrus	P			all year	Sees clam shells on ice
Wal_3	2_80	Walrus	P			7,8	Sees walrus where there are points
Wal_4	2_81	Walrus	P			7,8	Sees walrus where there are points
Wal_5	2_82	Walrus	P			7,8	Sees walrus where there are points
Wal_6	2_83	Walrus	P			7,8	Sees walrus where there are points
Wal_7	2_84	Walrus	P			7,8	Sees walrus where there are points
Wal_1	3_76	Walrus	P			3,4	
Wal_1	4_42	Walrus	P			6,7	End of June
Wal_2_H	4_43	Walrus	H		1998	8	
Wal_3_H	4_44	Walrus	H		1999	6	Caught a walrus
Wal_1	5_51	Walrus	P			1	
Wal_2_H	5_52	Walrus	H		1989	5,6	Island was full of walrus in 1989
Wal_3_H	5_53	Walrus	H			8	
Wal_4_H	5_54	Walrus	H			8	
Wal_5_H	5_55	Walrus	H			8	
Wal_4_H	6_100	Walrus	H			8	
Wal_1	6_97	Walrus	P			3,4	Walrus come into the area first then the beluga; both animals travel in the same direction
Wal_2	6_98	Walrus	P		2007	3,4	
Wal_1_AP	7_55	Walrus	P	A		9	

Figure 19: Areas of occupation for Bowhead Whale, Humpback Whale, Killer Whale, and Sperm Whale

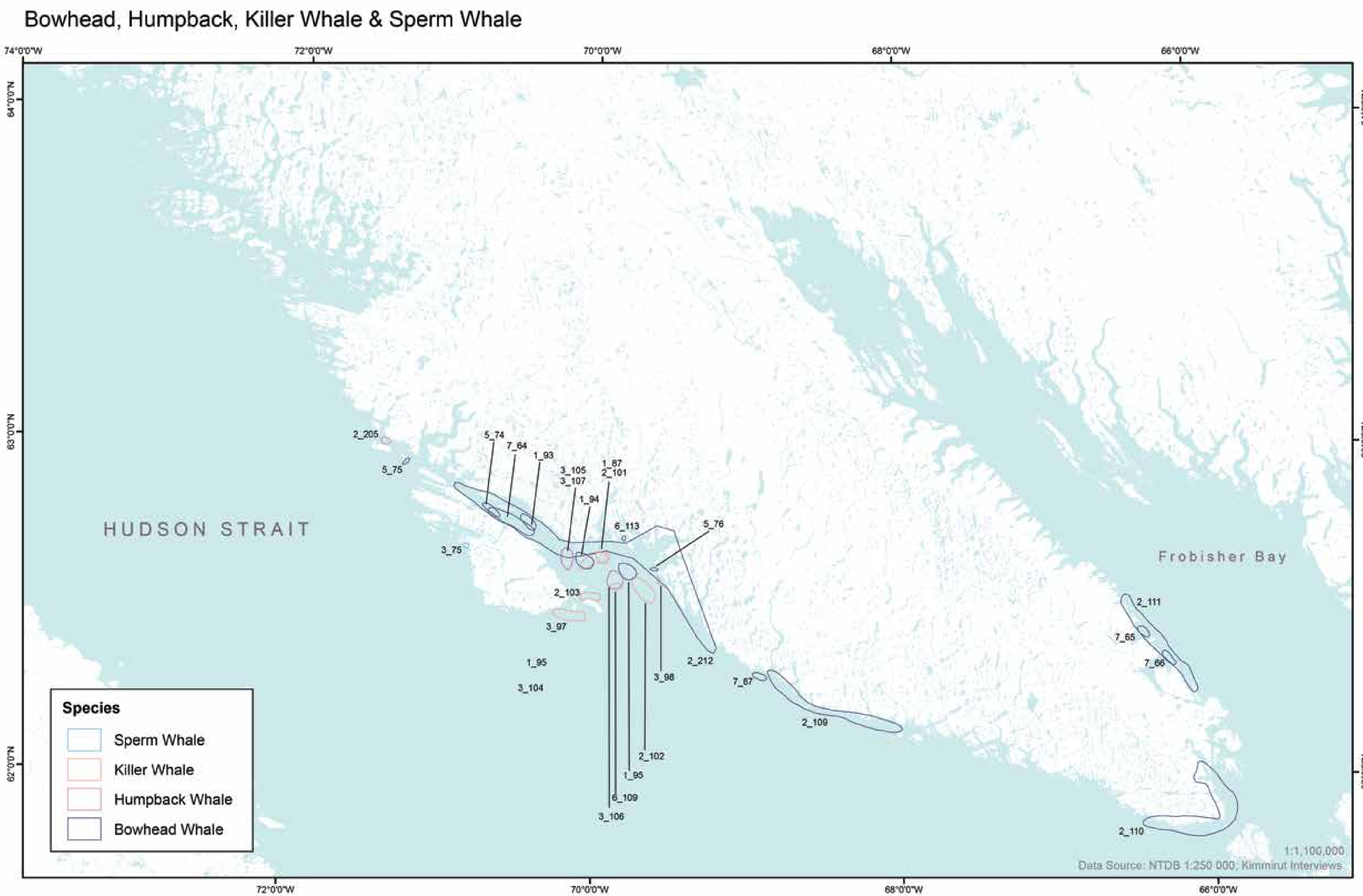


Table 17: Areas of occupation for Bowhead Whale, Humpback Whale, Killer Whale and Sperm Whale

MAP CODE	MAP LABEL	SPECIES	PRESENT – P HISTORIC – H	SPECIAL CODING	YEAR	MONTHS	COMMENTS
BW_1	1_93	Bowhead Whale	P			9	Saw two
BW_2	1_94	Bowhead Whale	P			9	
BW_3	1_95	Bowhead Whale	P			9	Saw a really big one
BW_2	2_109	Bowhead Whale	P			8,9	
BW_3	2_110	Bowhead Whale	P			7,8	Saw three or four Bowhead Whale
BW_4	2_111	Bowhead Whale	P			7,8	
BW_1	2_212	Bowhead Whale	P			9	
BW_1	3_104	Bowhead Whale	P			8	Two to four together
BW_2	3_105	Bowhead Whale	P			8	
BW_1	5_74	Bowhead Whale	P		2007	8	
BW_2	5_75	Bowhead Whale	P			8	
BW_3	5_76	Bowhead Whale	P			5,6	
BW_1	6_113	Bowhead Whale	P			6	Bowhead whales come into the area before beluga
BW_1	7_64	Bowhead Whale	P			8	Saw two to three on different days
BW_2	7_65	Bowhead Whale	P			7,8	Saw two to three on different days
BW_3	7_66	Bowhead Whale	P			7,8	Saw two to three on different days
BW_4	7_67	Bowhead Whale	P			7,8	Saw two to three on different days
HW_1_H	2_205	Humpback Whale	H			October, November	
HW_1	3_106	Humpback Whale	P			4,5	
HW_2	3_107	Humpback Whale	P			4,5	
KW_1_H	1_87	Killer Whale	H	S		7,8,9,10	
KW_1_H	2_101	Killer Whale	H			9	Saw about four
KW_2_H	2_102	Killer Whale	H		1960	9,10	
KW_3	2_103	Killer Whale	P		2002	6,7	Saw six to eight Killer Whale
KW_1_H	3_97	Killer Whale	H		1980		
KW_2_H	3_98	Killer Whale	H		1980-1991		
KW_1_H	6_109	Killer Whale	H		1998	8	
SPW_1_H	3_75	Sperm Whale	H		1950's	1,2,3,4,12	Sperm Whale was dead washed up on shore

Figure 20: Areas of occupation for Beluga, Minke Whale, and Narwhal.

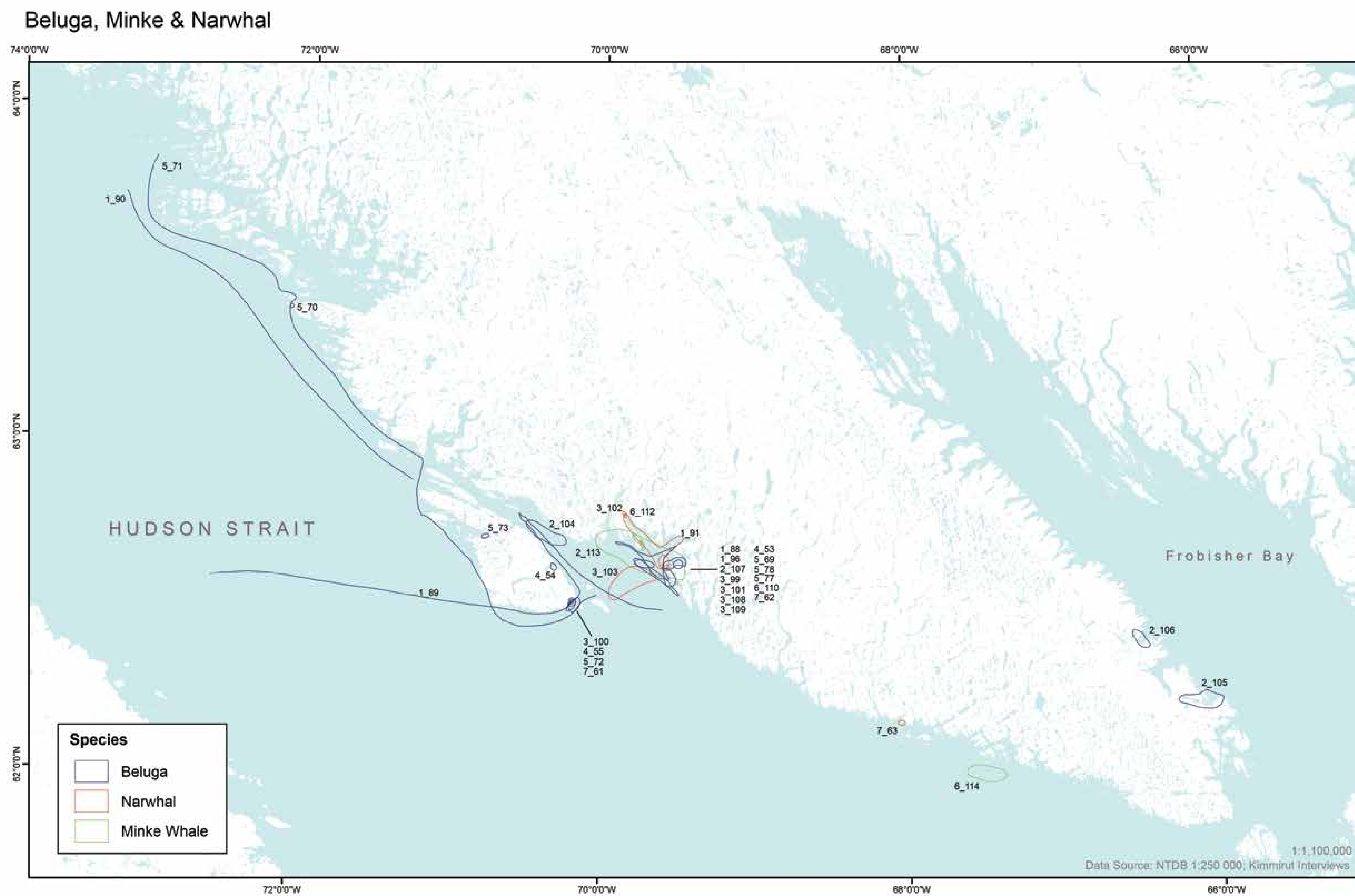


Table 18: Areas of occupation for Beluga, Minke Whale and Narwhal.

MAP CODE	MAP LABEL	SPECIES	PRESENT – P HISTORIC – H	SPECIAL CODING	YEAR	MONTHS	COMMENTS
Bel_1	1_88	Beluga	P			3,4	At the floe edge
Bel_2_MP	1_89	Beluga	P	M			
Bel_1	2_104	Beluga	P			4,5,6,10,11	At the floe edge
Bel_2	2_105	Beluga	P			7,8	
Bel_3	2_106	Beluga	P			7,8	
Bel_2	3_100	Beluga	P			6,7	
Bel_1	3_99	Beluga	P			10,11	
Bel_1	4_53	Beluga	P			9,10	
Bel_2	4_54	Beluga	P			6	
Bel_3	4_55	Beluga	P			6	
Bel_1	5_69	Beluga	P			4,5	
Bel_2	5_70	Beluga	P			10	
Bel_3_MP	5_71	Beluga	P	M		Migrate towards Kimmirut in May and migrate out away from Kimmirut in October	
Bel_4	5_72	Beluga	P			6	
Bel_5_H	5_73	Beluga	H			7	
Bel_1	6_110	Beluga	P			6,10,11	
Bel_1	7_61	Beluga	P		0	6	Migrating into the area
Bel_2	7_62	Beluga	P		0	10,11	Migrating out of the area
MW_1_H	1_96	Minke Whale	H		1970	8	
MW_1	2_113	Minke Whale	P			7,8	
MW_1	3_108	Minke Whale	P			9	
MW_2	3_109	Minke Whale	P			9	
MW_1_H	5_77	Minke Whale	H			8	
MW_2_H	5_78	Minke Whale	H			8	
MW_1_H	6_114	Minke Whale	H		1990	8	
NW_1	1_91	Narwhal	P		1982, 2008	9,10	In Kimmirut in September 1982 and October 2008
NW_1_H	2_107	Narwhal	H		1986	6	Caught six Narwhal
NW_1_H	3_101	Narwhal	H		1980's	6	
NW_2	3_102	Narwhal	P		2007	10,11	
NW_3_H	3_103	Narwhal	H		1962	6	
NW_1	6_112	Narwhal	P			10	Rarely come into the Kimmirut area but he saw two
NW_1_H	7_63	Narwhal	H		0	8	

Figure 21: Areas of occupation for Bladder Wrack, Edible Kelp, Green Sea Fingers, Hollow Stemmed Kelp, and Sea Colander

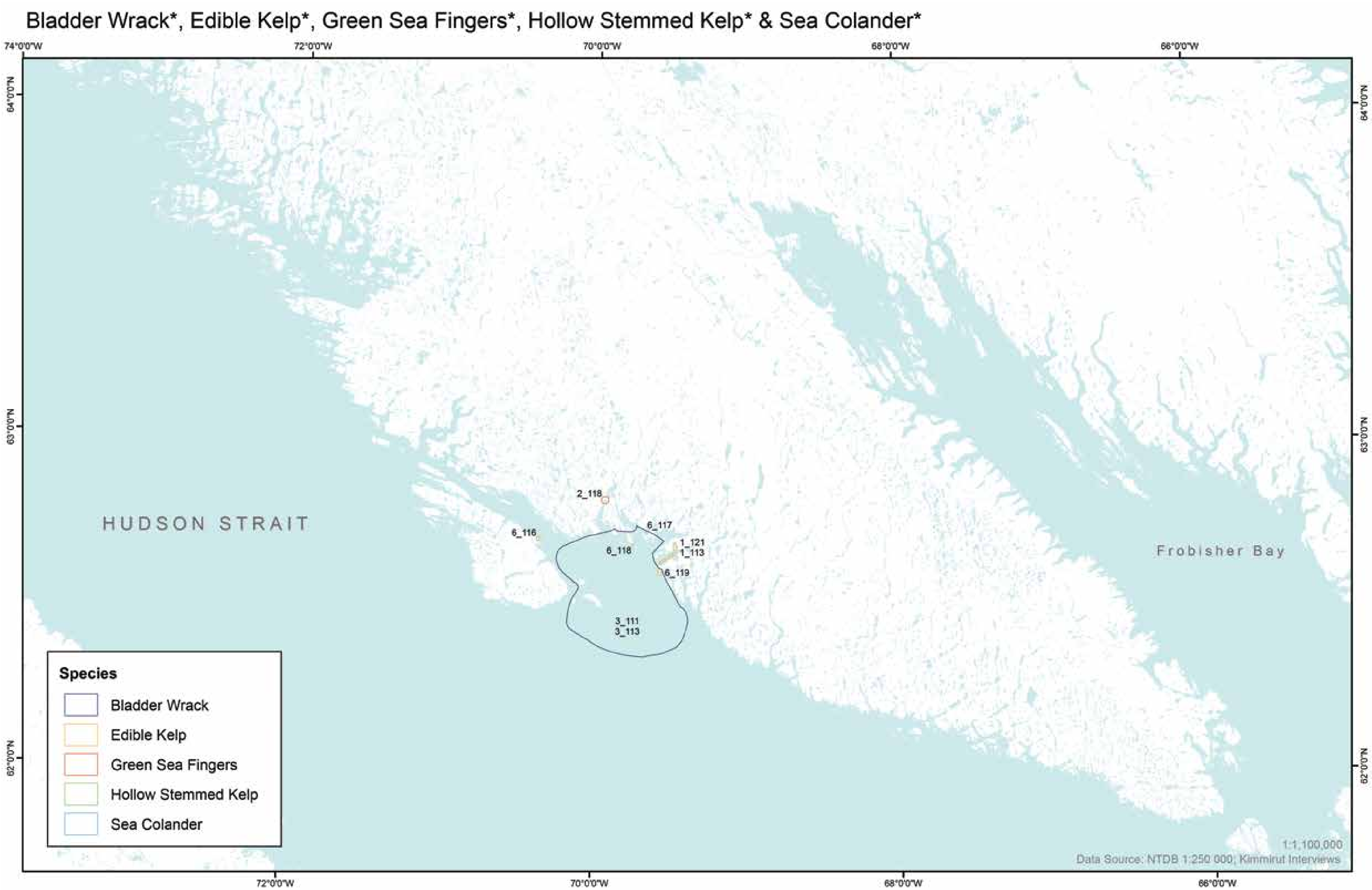


Table 19: Areas of occupation for Bladder Wrack, Edible Kelp, Green Sea Fingers, Hollow Stemmed Kelp and Sea Colander

MAP CODE	MAP LABEL	SPECIES	PRESENT – P HISTORIC – H	SPECIAL CODING	MONTHS	COMMENTS
BWra_2_AP	3_113	Bladder Wrack	P	A	all year	
EK_2	1_113	Edible Kelp	P			
EK_1_AP	6_116	Edible Kelp	P	A	all year	Kelp taste the best in this area
EK_2	6_117	Edible Kelp	P		6,7,8,9,10	Kelp is very salty in this area
EK_3	6_118	Edible Kelp	P		6,7,8,9,10	
EK_4	6_119	Edible Kelp	P		6,7,8,9,10	
GSF_1_AP	2_118	Green Sea Fingers	P	A	7,8,9,10	
HSK_2_AP	3_111	Hollow Stemmed Kelp	P	A	all year	
SCol_1	1_121	Sea Colander	P			

"Everywhere" Coded Data : Areas of occupation for Bladder Wrack, Edible Kelp, Green Sea Fingers, HollowStemmed Kelp and Sea Colander

MAP LABEL	SPECIES	PRESENT – P HISTORIC – H	SPECIAL	MONTHS	COMMENTS
1_102	Bladder Wrack	P	e	all year	
2_120	Bladder Wrack	P	e	7,8,9,10	
3_112	Bladder Wrack	P	e	all year	Air bladders tend to bubble up more when there is natural gas in the ocean
4_60	Bladder Wrack	P	e	all year	
5_84	Bladder Wrack	P	e	all year	
6_124	Bladder Wrack	P	e	all year	
7_74	Bladder Wrack	P	e	all year	
1_98	Edible Kelp	P	e	all year	
2_115	Edible Kelp	P	e	all year	Taste better during spring and winter; not as salty
3_116	Edible Kelp	P	e	all year	Kelp are different in different spots; usually picks them during clam digging season
4_57	Edible Kelp	P	e	all year	
5_80	Edible Kelp	P	e	all year	During the winter people of the community collect edible kelp with a long stick and an ulu or knife tied to the bottom of the stick
6_120	Edible Kelp	P	e	all year	
7_71	Edible Kelp	P	e	all year	
3_115	Green Sea Fingers	P	e	all year	
6_122	Green Sea Fingers	P	e	7,8,9,10	Seen more when the tide is lower
1_97	Hollow Stemmed Kelp	P	e	all year	After rough waters
2_114	Hollow Stemmed Kelp	P	e	all year	
3_110	Hollow Stemmed Kelp	P	e	all year	
4_56	Hollow Stemmed Kelp	P	e	all year	
5_79	Hollow Stemmed Kelp	P	e	all year	
6_115	Hollow Stemmed Kelp	P	e	all year	
7_70	Hollow Stemmed Kelp	P	e	all year	Area of strong currents
2_116	Sea Colander	P	e	7,8,9,10	
1_100	Sea Colander	P	e		
3_117	Sea Colander	P	e	all year	Usually found with edible kelp
4_58	Sea Colander	P	e	all year	
5_81	Sea Colander	P	e	all year	
6_121	Sea Colander	P	e	all year	
7_72	Sea Colander	P	e	all year	Not as abundant as other kelp

Figure 22: Areas of occupation for Sandhill Crane, Tundra Swan, Dovekie, and Northern Fulmar.

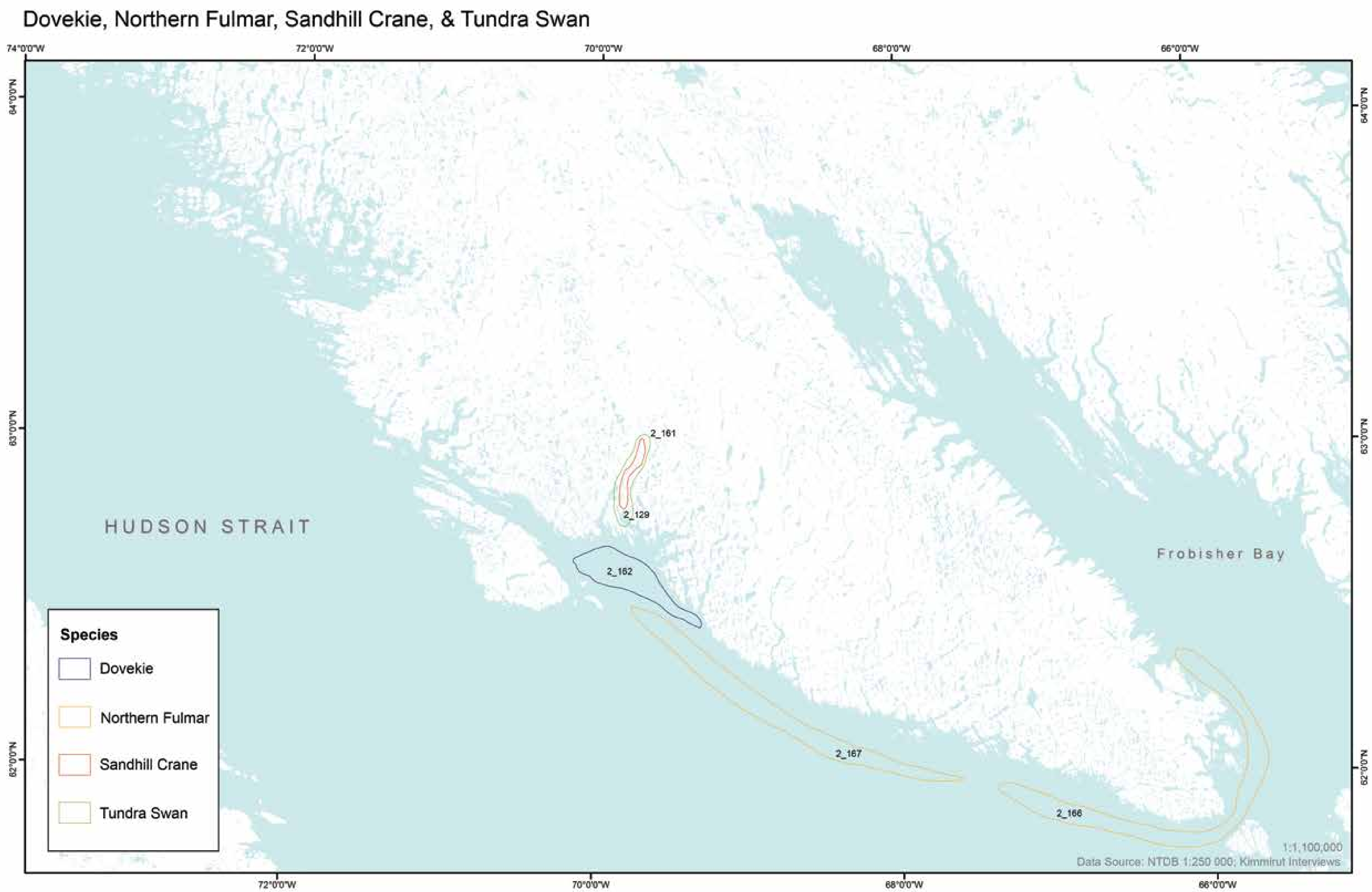


Table 20: Areas of occupation for Sandhill Crane, Tundra Swan, Dovekie, and Northern Fulmar.

MAP CODE	MAP LABEL	SPECIES	PRESENT – P HISTORIC–H	SPECIAL CODING	YEAR	MONTHS	COMMENTS
SCrn_1	2_129	Sandhill Crane	P			6	
TS_1	2_161	Tundra Swan	P			6	They don't stick around.
Dove_1	2_162	Dovekie	P		1950	3	They saw a lot in 1950; sees from one to five here and there.
NF_1_AP	2_166	Northern Fulmar	P	A		8,9,10	
NF_2	2_167	Northern Fulmar	P			8,9,10	

Figure 23: Areas of occupation for Common Eider, Harlequin Duck, Mallard, Rock Ptarmigan

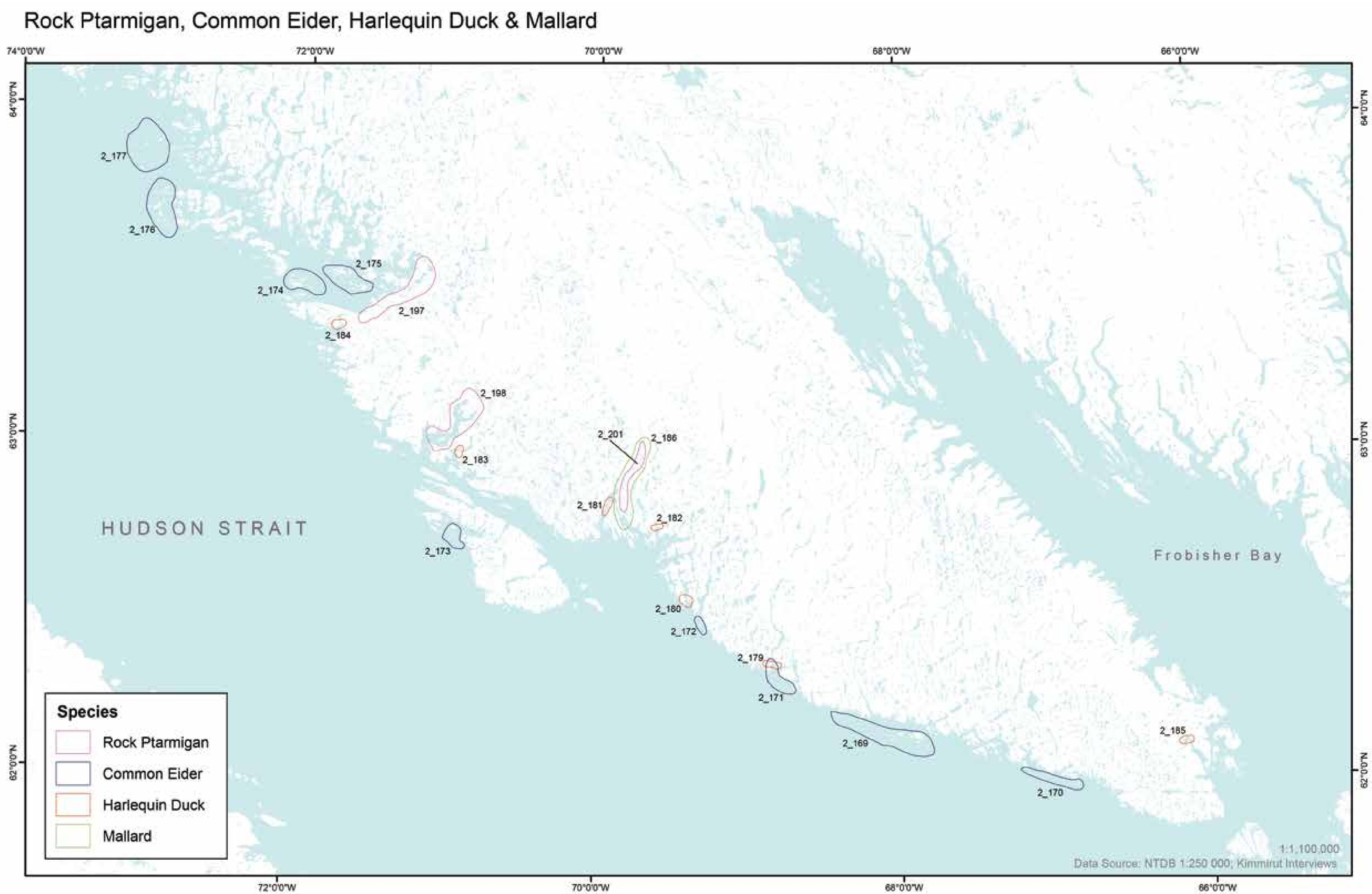


Table 21: Areas of occupation for Common Eider, Harlequin Duck, Mallard, Rock Ptarmigan

MAP CODE	MAP LABEL	SPECIES	PRESENT – P HISTORIC–H	SPECIAL CODING	YEAR	MONTHS	COMMENTS
CE_1_SPA	2_169	Common Eider	P	S,A		5,6,7,8,9,10	Arrive end of May
CE_2_SPA	2_170	Common Eider	P	S,A		5,6,7,8,9,10	Arrive end of May
CE_3_SPA	2_171	Common Eider	P	S,A		5,6,7,8,9,10	Arrive end of May
CE_4_SPA	2_172	Common Eider	P	S,A		5,6,7,8,9,10	Arrive end of May
CE_5_SPA	2_173	Common Eider	P	S,A		5,6,7,8,9,10	Arrive end of May
CE_6_SPA	2_174	Common Eider	P	S,A		5,6,7,8,9,10	Arrive end of May
CE_7_SPA	2_175	Common Eider	P	S,A		5,6,7,8,9,10	Arrive end of May
CE_8_SPA	2_176	Common Eider	P	S,A		5,6,7,8,9,10	Arrive end of May
CE_9_SPA	2_177	Common Eider	P	S,A		5,6,7,8,9,10	Arrive end of May
HQD_1_SP	2_179	Harlequin Duck	P	S		8	Can be seen in all reversing falls areas
HQD_2_SP	2_180	Harlequin Duck	P	S		8	Can be seen in all reversing falls areas
HQD_3_SP	2_181	Harlequin Duck	P	S		8	Can be seen in all reversing falls areas
HQD_4_SP	2_182	Harlequin Duck	P	S		8	Can be seen in all reversing falls areas
HQD_5_SP	2_183	Harlequin Duck	P	S		8	Can be seen in all reversing falls areas
HQD_6_SP	2_184	Harlequin Duck	P	S		8	Can be seen in all reversing falls areas
HQD_7_SP	2_185	Harlequin Duck	P	S		8	Can be seen in all reversing falls areas
Mall_1	2_186	Mallard	P			6,7	Not many
RPTar_3	2_197	Rock Ptarmigan	P			1,2,3,12	
RPTar_2	2_198	Rock Ptarmigan	P			1,2,3,12	
RPTar_1	2_201	Rock Ptarmigan	P			1,2,3,12	

Figure 24: Areas of occupation for Gryfalcon, Rough Legged Hawk, Short Eared Owl, and Snowy Owl.

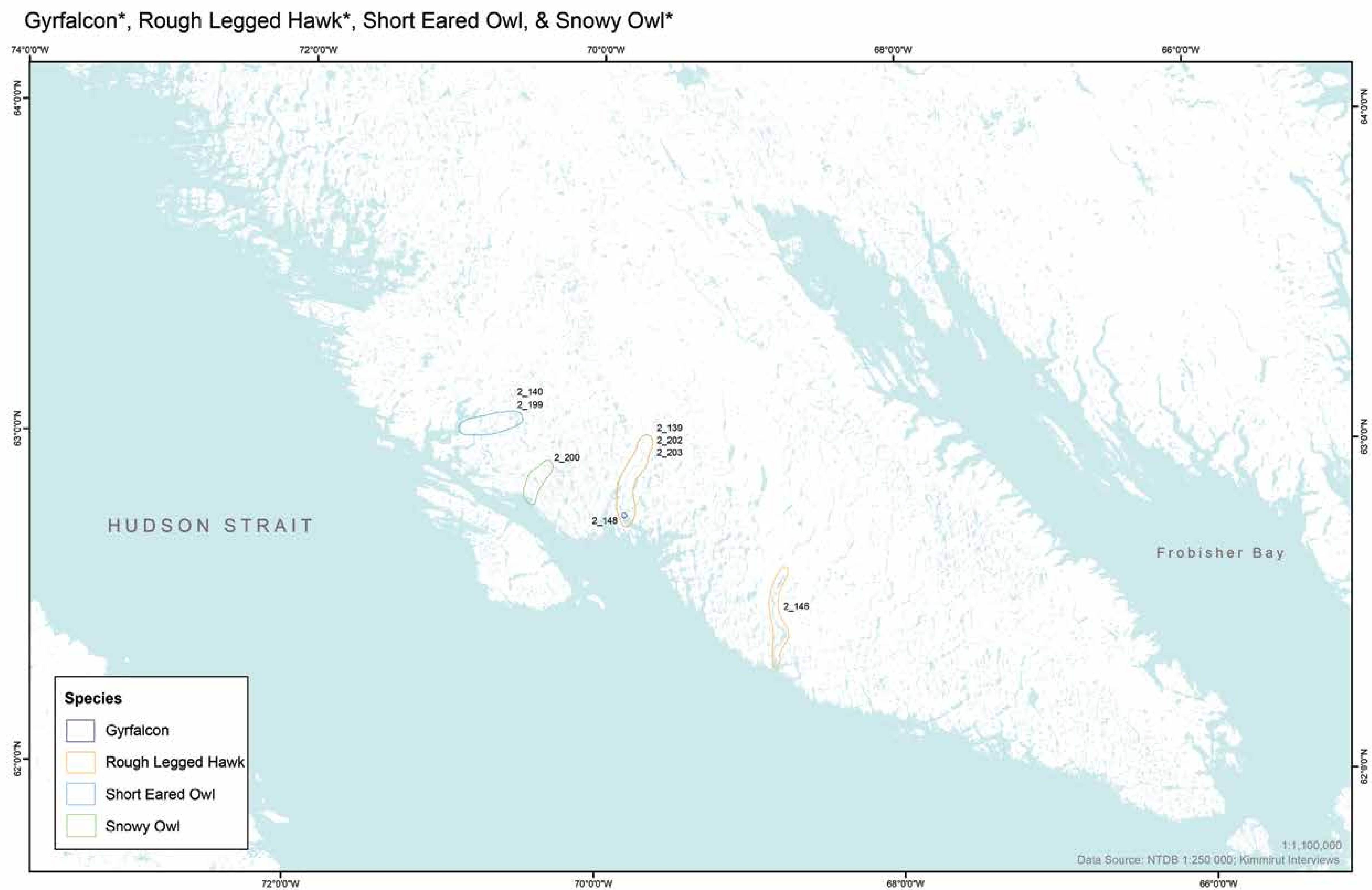


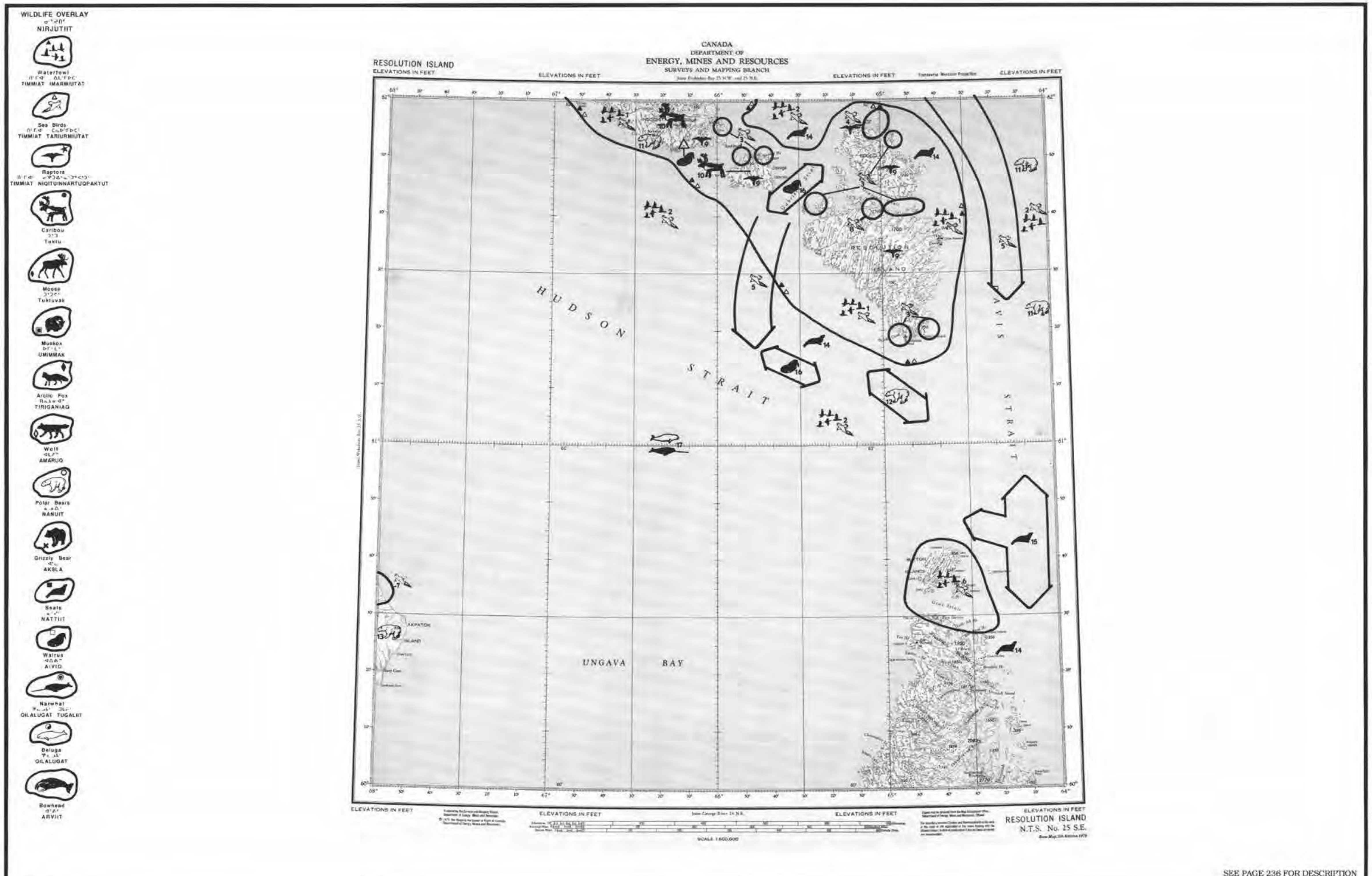
Table 22: Areas of occupation for Gryfalcon, Rough Legged Hawk, Short Eared Owl and Snowy Owl.

MAP CODE	MAP LABEL	SPECIES	PRESENT – P HISTORIC – H	SPECIAL CODING	YEAR	MONTHS	COMMENTS
Gyr_1	2_148	Gyrfalcon	P			8	Seen injured in the ocean.
RLH_3_SP	2_146	Rough Legged Hawk	P	S		5,6,7,8,9	Saw four or five.
RLH_2_SP	2_203	Rough Legged Hawk	P	S		5,6,7,8,9	
SEO_1_SP	2_139	Short Eared Owl	P	S		7,8	Saw one with an owlet; says the've been nesting in the area within the last two years (2007-2009).
SEO_2_SP	2_140	Short Eared Owl	P	S		7,8	Nesting in the area within the last two years (2007-2009).
SOwl_3_SP	2_199	Snowy Owl	P	S		7,8,9	
SOwl_2_SP	2_200	Snowy Owl	P	S		7,8,9	
SOwl_1_SP	2_202	Snowy Owl	P	S		7,8,9	

"Everywhere" Coded Data : Gryfalcon, Rough Legged Hawk, Snowy Owl.

MAP LABEL	SPECIES	PRESENT – P HISTORIC – H	SPECIAL CODING	YEAR	MONTHS	COMMENTS
2_149	Gyrfalcon	P	e		1,2,3,12	Saw two above their home hunting ravens.
2_144	Rough Legged Hawk	P	e		5,6,7,8,9	
2_138	Snowy Owl	P	e		all year	

Figure 25: Nunavut Atlas: Resolution Island



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RESOLUTION ISLAND

1. WATERFOWL AND SEABIRDS

This large nearshore area is used by several species of seabird and waterfowl for a variety of activities, mainly from spring through to fall. Local upwellings around Edgell Island and Resolution Island make these waters particularly attractive for feeding marine birds. Black guillemots are numerous and widespread; they are found along the eastern coast of the Lower Savage Islands and among the islands and along the Resolution Island coast on the east side if Gabriel Strait. Common eiders are abundant and nest on small islands and on headlands, slopes and shores of small bays. Canada geese nest in some of the coastal lowlands, mainly on Meta Incognita Peninsula. Oldsquaws, red-breasted mergansers, and Harlequin ducks also nest in this area in small numbers. Brant and snow geese occur only as migrants. Red-throated, common and Arctic loons also breed in the area (red-throated loons are the most common of the three). Red phalaropes nest and feed within this area. Other species which use this area include Kumlien's gulls, king eiders, scoters, glaucous gulls, arctic terns, thick-billed murres, black-legged kittiwakes and fulmars.

2. WATERFOWL AND SEABIRDS

The large offshore marine area is important to a variety of waterfowl and seabirds, mainly during spring through fall. It comprises a broad migration corridor for many species, as well as important summer feeding grounds. Commonly found in these offshore waters during summer are thick-billed murres, northern fulmars, and kittiwakes, and less commonly, dovekies, greater shearwaters, red phalaropes and jaegers. Some large pelagic concentrations of seabirds are found near Resolution Island in summer. Recurring polynyas and shoreleads in this area are important to overwintering population of common and king eiders, oldsquaws, ivory gulls, Kumlien's gulls, glaucous gulls, northern fulmars, thick-billed murres, black guillemots, and dovekies. Eiders (mostly common) are the dominant overwintering species in coastal regions. Other species that may be found in this offshore area include razorbills, scoters, Harlequin ducks, mergansers, brant, loons and arctic terns.

3. SEABIRDS

These are locations of single species or mixed species colonies of Kumlien's and glaucous gulls. Kumlien's gulls generally predominate, with 60 to 70 breeding pairs per colony. The colony at Hatton Headland is exclusively black-legged kittiwakes (50-60 pairs). The colony at Acadia Cove contains 200-300 pairs of kittiwakes and 50 pairs of Kumlien's gulls. Black guillemots (100 pairs) also nest on the northeastern coast of Lower Savage Islands.

4. SEABIRDS AND RAPTORS

The high, steep cliffs between Baillarge Bay and Elwin Inlet provide critical nesting habitat for a large population of northern fulmars, estimated at approximately 25,000 breeding pairs.

5. SEABIRDS

This small island (unofficially known as Hantzsch Island) has nesting colonies of thick-billed murres (50,000 pairs), kittiwakes (5,000 pairs), glaucous gulls (20-25 pairs) and some black guillemots. Northern fulmars may also nest here, as may common puffins. Gyrfalcons and peregrine falcons have been observed near Hantzsch Island, preying on the local seabirds (mainly murres).

6. WATERFOWL AND SEABIRDS

Over 1,400 pairs of black-legged kittiwakes breed in three colonies on the Button Islands and the Knight Islands. Black guillemots (10 pairs) nest on the Button Islands. Up to 1,500 pairs of glaucous gulls nest in this area. This is also an important wintering area for eiders.

7. SEABIRDS

This is part of a large colony of thick-billed murres (about 200,000 pairs) which nest on the northern side of Akpatok Island. Small numbers of black guillemots also nest in this area. Also 100,000 pairs of murres nest on the south side of the island to the west of this map sheet.

8. SEABIRDS

A colony of black-legged kittiwakes nests here.

9. RAPTORS

Although the status of raptors within this area is unknown, these areas likely provide optimal habitat for gyrfalcons and peregrine falcons (presence of suitable cliff faces and prey species). Rough-legged hawks also breed in the area. The islands within this map area probably comprise a major spring and fall migration corridor for gyrfalcons and snowy owls (between eastern Baffin Island and Labrador).

10. CARIBOU

Caribou occur on Meta Incognita peninsula (and sometimes on Lower Savage Islands) in summer. These caribou are part of the sub-population of south Baffin caribou that resides year-round on the peninsula. About 2,000 to 3,000 caribou are thought to occupy the peninsula. Caribou formerly lived on Resolution Island but no longer occur here.

11. POLAR BEARS

Polar bears occur on the sea ice east of Edgell and Resolution islands, pursuing ringed seals during the winter and spring periods. They are found on the coasts during summer and fall.

12. POLAR BEARS

Polar bears from the Labrador-Ungava Bay sub-population are thought to use this migration route in the spring and fall.

13. POLAR BEARS

Polar bears den and find summer refuge at Akpatok Island.

14. SEALS

Ringed seals are found year-round in the nearshore marine areas but are particularly numerous along the coastlines. Bearded seals, occurring sporadically, are found somewhat further offshore, in areas of moving pack ice. Bearded seals are found around the east and west coasts of Resolution Island. Harbour seals occur around Lower Savage Islands, and around Edgell, Resolution and Killinek islands. Several summer haul-out sites for harbour seals are found on Edgell and Resolution islands.

15. SEALS

Hundreds of thousands of harp seals migrate north from pupping areas off the coast of Newfoundland to summering areas in the Canadian eastern arctic and in west Greenland waters during May and June (some also enter Hudson Strait and Hudson Bay). The return southward migration occurs between September and November. Some hooded seals likely follow a similar migratory path to the Canadian eastern arctic. Some harp seals may summer in the area.

16. WALRUSES

Walruses migrate eastward along the north shore of Hudson Strait in winter. Walruses occur around the Lower Savage Islands during the fall.

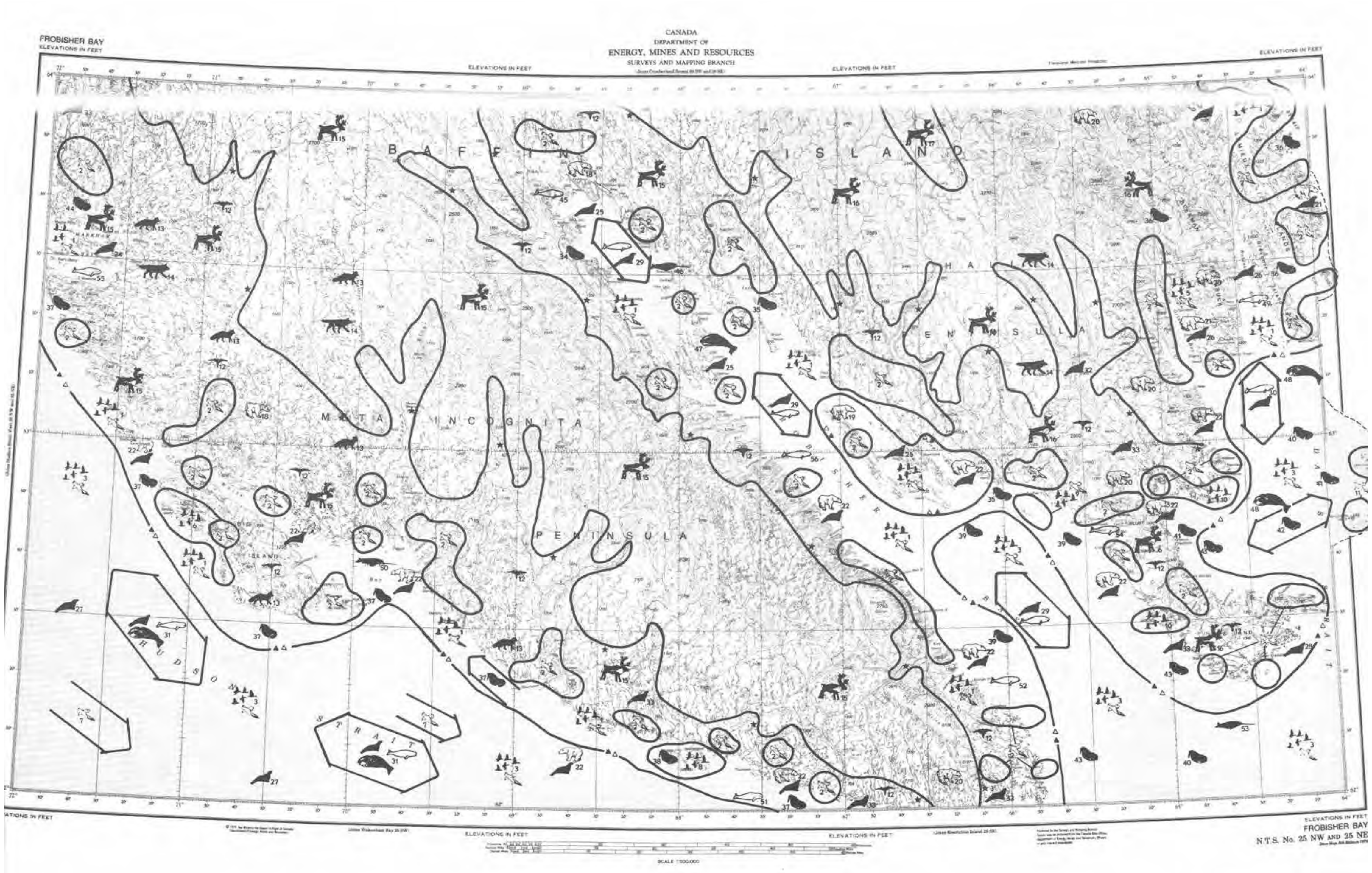
17. BELUGAS AND NARWHALS

Belugas which spend the summer in Hudson and Ungava bays and possibly in Cumberland Sound overwinter in the offshore pack ice throughout Hudson Strait. Some narwhals overwinter in the eastern Hudson Strait and southeastern Baffin Island areas, but the summering areas of this population are uncertain (probably Hudson Bay and Foxe Basin).

NOTE

The Resolution Island-Killinek Island area supports a diversity of marine mammals during the spring, summer and fall. In addition to the species already listed and discussed, bowhead whales may overwinter and summer in the area, while sperm, bottlenose, killer and minke whales can be found in this area during summer and fall. Important national shrimp fisheries occur around Resolution Island every summer and fall.

Figure 26: Nunavut Atlas: Frobisher Bay



SEE PAGE 200 FOR DESCRIPTION

FROBISHER BAY

1. WATERFOWL AND SEA BIRDS

This area encompasses the near-shore (coastal) waters and adjacent coastal lowlands and well-vegetated river valleys. It is occupied mainly during spring through fall and is important to birds for a variety of functions, including staging, nesting, brood-rearing, migration, feeding and molting. The most abundant and widespread species are common eiders, black guillemots and Kumlien's gulls. Less common birds include king eiders, oldsquaws, scoters, Harlequin ducks, red-breasted mergansers, glaucous gulls, Arctic terns and loons (mostly red-throated loons). Thick-billed murres, northern fulmars and black-legged kittiwakes may rarely occur in these nearshore waters, most likely during September. These three species are more numerous in the waters around Loks Land.

Common eiders nest in large numbers in low coastal areas, especially on small islands and on headlands, slopes and shores of salt water bays. Although few common eiders nest along the east coast of Hall Peninsula, large numbers of these birds molt in this region. King eiders occur mostly as migrants as they are not common breeders on southeastern Baffin Island. Southwestern Davis Strait and Hudson Strait are suspected to be important migration corridors for eiders, especially common eiders.

Black guillemots are common and widespread nesters in this coastal area. They nest around reefs and along steep, fractured and or talus-strewn coastal areas. They are especially abundant along the outer coast of eastern Hall Peninsula and around Loks Land.

Canada Geese nest in small numbers in coastal lowlands and long many of the well-vegetated river valleys. The total number of Canada geese on the southern half of Meta Incognita Peninsula is of the order of a few thousand birds. There is a small concentration of nesting geese along the Soper River. Other common nesting species within this map area are oldsquaws, red-breasted mergansers, harlequin ducks, and red-throated loons. Brant, snow geese, and whistling swans occur in the area as migrants. Small numbers of common loons and Arctic loons also breed in the area. Canada geese and brant stage during spring along the coast of Hall Peninsula.

The waters that comprise the head of Frobisher Bay receive much less use by marine birds than the remainder of the offshore zone, owing to fast ice persisting late into the breeding season in the head of the bay.

2. SEABIRDS

These areas support nesting colonies of Kumlien's and/or glaucous gulls. Both species are common along all coast lines within this map area. Kumlien's gulls are confined to cliff-nesting colonies on or near the coast, while glaucous gulls will utilize cliffs, boulders and low-lying islands for nesting sites, in or near both freshwater and marine environs. In south Baffin, glaucous gulls often nest in small numbers in mixed colonies of predominantly Kumlien's gulls. Glaucous gulls often breed in very small groups or as isolated pairs along the coast. Colony size ranges from 5 – 200 breeding pairs, predominantly or exclusively of Kumlien's gulls. (Those located along the Sylvia Grinnell River, at the mouth of Barrier Inlet and at the head of Noble Inlet are probably exclusively glaucous gulls).

Small numbers of herring gulls nest as scattered pairs or occasionally small colonies, usually on offshore boulders or low-lying islands along the coast or in lakes. A few great black-backed gulls occur within the map area as non-breeders.

Small numbers of thick-billed murres are reported to nest on the cliffs along High Bluff Island. The Upper Savage Islands and the small islands in northern North Bay appear to be of some importance as breeding and foraging areas for black guillemots.

The gull colony on the west side of the Harper Islands (near Loks Land) also contains about 60 breeding pairs of black-legged kittiwakes and 10 -15 pairs of razorbills. This is the most northerly breeding colony of razorbills in the Canadian arctic. About 75 pairs of black-legged kittiwakes nest on an island off Queen Elizabeth Foreland.

3. WATERFOWL AND SEABIRDS

This large offshore area is important to murres, dovekies, guillemots, fulmars, gulls, eiders, oldsquaws, scoters, Harlequin ducks, mergansers, brant, loons, Arctic terns, jaegers, and shorebirds, all of which inhabit the area mainly from May to October. The area off the mouth of Frobisher Bay and offshore from Loks Land is also important to razorbills and shearwaters during this period. Hudson Strait and Davis Strait are important spring and fall migration corridors for marine birds, converging in the northern Labrador Sea.

Most marine birds arrive in the area in late April and may as the sea ice is beginning to break up. Birds concentrate in large numbers in open leads or along ice edges until conditions are suitable for them to move on to their nesting areas.

These offshore waters are also important for many species during summer, engaging in activities such as brood-rearing, feeding and molting. Non-breeding, pelagic wanderers such as black-legged kittiwakes, northern fulmars and jaegers, are widely distributed in these offshore waters during summer. Other summering species in these offshore waters include thick-billed murres, dovekies, greater shearwaters and red phalaropes. Thick-billed murres from the Hantzsch Island colony (on Resolution Island map) utilize the offshore waters at the mouth of Frobisher Bay and around Loks Land for feeding. Large pelagic concentrations of birds have been observed during summer in the offshore waters south of Loks Land.

Marine birds overwinter in these offshore waters in very small numbers. Some overwintering species are common eider, King eider, oldsquaw, ivory gull, Kumlien's gull, glaucous gull, northern fulmar, thick-billed murre, black guillemot, and dovekie. Within the south Baffin region, the most important wintering areas for marine birds are the recurring flaw leads and polynyas that occur in eastern Hudson Strait and in the mouth of Frobisher Bay. Eiders (mostly common eiders) are the dominant species found overwintering in coastal habitats. The availability of open water may result in the higher use of some coastal areas in winter than in summer. Thick-billed murres and Kumlien's gulls may also utilize coastal habitats in winter (in small numbers). Eiders, ivory gulls, thick-billed murres and Kumlien's gulls are the most common birds found in offshore areas in winter.

4. WATERFOWL AND SEABIRDS

This is an important area for marine birds, especially common eiders. The area likely contains some of the earliest opening coastal waters adjacent to suitable breeding sites in Frobisher Bay and may therefore be important to staging common eiders and other species. Eiders will congregate wherever open water is available for up to several weeks until conditions become suitable for nesting, usually until mid-June. Many of the smaller islands, particularly the outer islands, support breeding colonies of common eiders. Most colonies appear to be small however, high densities of nesting eiders occur on many of the islands in Hamlen Bay. The area may support in total several thousand breeding pairs of common eiders. Due to the relative protection afforded by the many islands and bays within or near this area, many of the breeding females and their young likely remain in or near the area during brood-rearing (late July-October).

The area is also of importance for feeding and nesting Kumlien's gulls, glaucous gulls, and black guillemots. Both glaucous gulls and guillemots are widespread breeders within the area.

5. WATERFOWL AND SEABIRDS

One of the small islands within this area (off southern Allen Island) supports a breeding colony of about 1000 pairs of common eiders. About 10 pairs of glaucous gulls also nest on this island.

6. WATERFOWL

Many of the small islands along the west side of Big Island support small breeding colonies of common eiders during the period mid-June to early August. Many of the breeding females and young likely remain nearby during the brood-rearing period (late July to October).

7. SEABIRDS

In fall, thick-billed murres from the breeding colonies located at Coats Island and Digges Sound undertake a flightless swimming migration through Hudson Strait to wintering areas off Newfoundland.

8. WATERFOWL

The Middle Savage Islands and Saddleback Island are an important breeding area for common eiders. This area supports upwards of a few thousand breeding pairs. Many breeding females and young remain in or near this area during the brood-rearing period (late July-October).

9. WATERFOWL AND SEABIRDS

Many hundreds of breeding pairs of common eiders nest on these small islands, during the period mid-June to early August. A few pairs of gulls, likely glaucous gulls, also nest on these islands.

10. WATERFOWL

These areas have open water early in spring and are used by large numbers of staging common eiders. These open areas are also close to suitable nesting sites. Many of the smaller islands within these areas support small breeding colonies of common eiders. Many breeding females and young likely remain in or near these areas during brood-rearing (late July- October).

11. SEABIRDS

These islands and adjacent waters are of importance to feeding and nesting black guillemots (upwards of several hundred guillemots). Black-legged kittiwakes may also nest on these islands. A gull colony numbering 100-120 breeding pairs, predominately (with some glaucous gulls) or exclusively Kumlien's gulls, occurs on a cliff on the east coast of Lady Franklin Island.

12. RAPTORS

Much of this area likely provides breeding habitats of some importance for raptors, due to the availability of suitable nesting cliffs and the relative abundance of appropriate prey. The area east and southeast of Lake Harbour is known to be a breeding area for cliff-nesting raptors; this area is probably the most productive known breeding area for peregrine falcons on Baffin Island. Significant numbers of gyrfalcons have also been found breeding there. Most breeding sites, particularly gyrfalcons, are on or near the coast. Some use is made of inland breeding sites, mostly by peregrines and some rough-legged hawks. Most inland sites are located along well-vegetated river valleys.

Some gyrfalcons may overwinter as an adequate winter-resident prey base is likely available, including Arctic hares, ptarmigans and especially overwintering marine birds.

Gyrfalcons may also be common within this area as spring and fall migrants to southeastern Baffin Island is suspected to be within a major migration corridor for gyrfalcons.

The northern coast of Meta incognita Peninsula likely has less potential for raptors as suitable prey, mainly marine birds, appear to be generally less abundant here. The southeastern and southern coasts of peninsula appear to have a greater potential for breeding falcons as suitable cliffs are available and prey (marine birds) are very abundant.

During interviews with Iqaluit hunters in December 1986, the following raptor nesting sites were pointed out:

Gyrfalcons
Peale Point; Peterhead Inlet; just north of Iqaluit; Burton Bay; head of Anna Maria Port; Northeast of Augustus Island; Jaynes Inlet.

Peregrine Falcons
Northeast of Augustus Island; east of Cormack Bay.

Rough-legged Hawks
Head of Anna Maris Port.

Falcons (species not indicated)
Royer Cove.

13. ARCTIC FOXES

Arctic foxes have been reported from these areas. They probably occur in most coastal regions.

14. WOLVES

Wolves have been reported from these areas. Their distribution closely matches that of caribou which are their main prey, so wolves are probably widely distributed throughout the terrestrial areas of this map.

15. CARIBOU

These areas provide important year-round range for caribou. Caribou numbers seem to have increased substantially during the past few decades. Caribou here are thought to be part of the resident sub-population of south Baffin caribou that resides year-round on Meta Incognita Peninsula. They are replaced around the head of Frobisher Bay by wintering caribou of the large migratory South Baffin herd (see below). The population size of this resident sub-population of the peninsula is 2000 to 3000 animals. Caribou of this sub-population may calve on the uplands around Mingo Lake. Some caribou may calve in the rugged uplands of the interior of the peninsula. Caribou of this sub-population undertake only limited seasonal movements, mostly elevational changes. During summer and fall, they occur in low-lying coastal areas (e.g. Markham Bay) and along well-vegetated river valleys (e.g. Ramsay River, Soper River, Livingstone River). In winter, caribou occur in upland areas, mostly in or towards the interior (e.g. east and northeast Markham Bay). Caribou apparently make little use of the highest (about 600 m ASL) plateaus and mountains, which are largely devoid of vegetation and occur mainly throughout much of the northern half of Meta Incognita Peninsula.

Small numbers of caribou from the large migratory South Baffin herd (thought to number in excess of 55, 000 animals and occurring mostly to the north of this map) may be found during winter in the northwestern portion of Meta Incognita Peninsula (west of Soper River), and larger number, around the head of Frobisher Bay. Most caribou of this migratory herd migrate north during spring, and only a few bull caribou are left behind to summer on these wintering grounds.

16. CARIBOU

These areas support the sub-population of caribou that resides year-round on hall Peninsula. The population size of this herd is about 3500 animals. They undertake limited seasonal movements of an elevational nature, occupying low-lying coastal areas and well-vegetated river valleys in summer and fall. Also during summer, they make extensive use of higher, well-vegetated central interior plains of Hall Peninsula. This extensive interior summering area centers on area 17 Caribou (below). In winter, they occupy upland areas, many of which border the coast. They make little use of the highest (above 600 m ASL) plateaus and mountains, which are devoid of vegetation and are found mainly along the eastern side and interior of Hall Peninsula.

These caribou are reported to calve (mid-June) mostly at high elevations in the mountains and uplands along the eastern coast of Hall Peninsula and throughout the uplands that border many of the large river valleys on the southeast end of the peninsula. The uplands inland from Cyrus Field Bay may be an important calving area. Soon after calving, caribou abandon the calving areas and congregate in the snow-free river valley bottoms. In late June or early July, caribou abandon these post-calving areas and move inland to summer on the interior plains.

17. CARIBOU
This area, which encompasses the generally well-vegetated interior plains surrounding the large lakes that form the headwaters of the McKeand River (mostly on the adjacent map to the north), appears to be an important summering and possibly post-calving area for the resident sub-population of caribou that inhabits Hall Peninsula.

18. POLAR BEARS
Polar bears may den and/or spend the late summer and fall in these areas.

19. POLAR BEARS
Polar bears occur in the central part of Frobisher bay during the winter and spring, hunting seals on land fast ice, on offshore pack ice, and at the floe edge.

20. POLAR BEARS
Polar bear females den in these areas.

21. POLAR BEARS AND SEALS
Polar bears hunt seals on the fast ice and pack ice along the east coast of Hall Peninsula (including the Brevoort and Lemieux islands area) during winter and spring. Female polar bears leave their dens with their cubs in spring and move to the coastal areas to hunt seals. Adult male polar bears may hunt seals on offshore pack ice in winter. Polar bears in these areas show a vey high degree of fidelity to their winter and spring hunting grounds. Ringed seals are numerous along these complex fiord coast and islands of southeastern Baffin Island.

22. POLAR BEARS AND SEALS
Polar bears occur along the south and north coasts of Meta Incognita Peninsula and off southern Hall Peninsula during winter and spring, hunting seals on land fast ice, on offshore pact ice, and at the flow edge. Some polar bears venture far offshore in Hudson Strait and Davis Strait during winter. Polar bears in these areas show a high degree of fidelity to their winter and spring hunting areas. Ringed seals occur year-round along these same coasts. Bearded seals occur in these same inshore waters mainly during spring and summer, and they also occur sporadically in the offshore pack ice in winter.

23. POLAR BEARS AND SEALS
Cyrus Field bay supports a very large number of ringed seals which therefore attract polar bears into this area. In September there is a great influx of harp seals into this bay.

24. SEALS
The Markham Bay area supports a large population of ringed seals year-round. A few bearded seals and harbour seals may also occur in this area.

25. SEALS
Ringed seals are abundant along the complex coastline of Frobisher Bay. Bearded seals occur sporadically throughout Frobisher Bay during summer but seem to prefer the waters around Bishop, Hill and Faris islands and east of Culbertson Island. Harp seals occur in inner Frobisher Bay in large numbers during late summer and fall.

26. SEALS
Bearded seals are common in the shallow waters of small bays along Robinson Sound and Brevoort Island and around Enchantress and Rogers islands.

27. SEALS
Bearded seals occur year-round in the offshore pack ice of Hudson Strait.

28. SEALS
Bearded seals are common in shallow waters along the southeast and north coasts of Loks Land during summer.

29. SEALS AND BELUGAS
While most harp seals migrating from Newfoundland during spring continue northward along the east coast of Baffin Island, some enter Frobisher Bay. Hundreds of seals arrive at the head of the bay by the time of ice breakup.

Small numbers of belugas enter Frobisher Bay in summer and fall, after appearing at the floe edge (between Gabriel Island and Cape Cracroft) during spring. Their period of occurrence in the bay is May to November. Some whales probably overwinter in the mouth of Frobisher Bay.

30. SEALS AND BELUGAS
Belugas likely migrate north along the eastern Baffin Island coast during spring, possibly heading to summering areas in Cumberland Sound from wintering areas in Hudson Strait.

Many thousands of harp seals migrate offshore along the east Baffin Island coast during spring to high arctic summering areas. The return southward migration occurs through the Lemieux Islands area during September.

31. SEALS, BELUGAS AND BOWHEADS
Although most harp seals migrating northward during spring from Newfoundland continue north into Davis Strait and Baffin bay, small numbers move westward through Hudson Strait. They are common south of Big Island and High Bluff Island and in North Bay during spring and fall. Small numbers of harp seals occur along the southern coast of Meta incognita Peninsula during summer. Large numbers of belugas overwinter in the offshore pack ice throughout Hudson Strait, and migrate during spring to summering areas in Hudson Bay. They are seen along the floe edge during the spring. The return eastward migration occurs in fall. A few belugas use White Strait as a migratory route. Some belugas may summer in the North Bay area. Bowhead whales may utilize Hudson Strait as a migration route to and from summering areas in northwest Hudson Bay. Bowheads were apparently taken in large numbers around Big Island during the spring commercial whalers. Some bowheads may overwinter in this area along the floe edge and in the offshore pack ice of eastern Hudson Strait and southwest Davis Strait.

32. SEALS
Harbour seals are reported from this large lake.

33. SEALS
Harbour seals have been reported from the head of Cyrus Field Bay, the Beare Sount-Lupton Channel area and the Harper Islands. In addition, they have been seen at the head of Wight Inlet, on the southern coast of Meta Incognita Peninsula near 670W longitude, and in the head of Noble Inlet. Harbour seals may also occur in the lake at the head of Ava Inlet. Harbour seals probably pup and breed at many of these sites in the spring and summer.

34. WALRUSES
Walruses are found only infrequently at the head of Frobisher Bay during summer.

35. WALRUSES
Walruses may occur in Ward Inlet and Hamlen Bay, mainly during summer and fall. There is a summer/fall haul-out site (ulli) on some very small islands southwest of Summer Island.

36. WALRUSES
Walruses occur year-round in the Lemieux Islands area (including Brevoort Island) and along Beekman Peninsula. Numerous fall haul-out sites (ulliit) are located throughout the Lemieux Islands, along the west coast of Brevoort Island and on islands in the mouth of Cornelius Grinnell Bay.

37. WALRUSES
Walruses overwinter along the floe edge and throughout the offshore pack ice of Hudson Strait. They may also occur in North Bay and White Strait during winter. Walruses from Middle Savage Island sometimes drift westward on ice to the North Bay area during winter. There is an ulli on Spice Island.

38. WALRUSES
Walruses occur in large numbers around Middle Savage Islands in spring and in late fall.

39. WALRUSES
Walruses occur along the floe edge an din offshore pack ice in Frobisher Bay during winter and spring.

40. WALRUSES
Walruses occur on offshore pack ice off the mouth of Frobisher Bay and off the east coast of Hall Peninsula during winter and spring.

41. WALRUSES
Traditional ulliit occur at Cape Melby, Monumental Island and Lady Franklin Island. Up to 600-700 walruses have been counted at the latter site in late summer and fall. Hundreds of walruses have been seen feeding over a shallow bank northwest of Lady Franklin Island. There are also ulliit on some very small offshore islands at 630N, 640W.

42. WALRUSES
Walruses appear to make an onshore migration from lady Franklin Island during the fall.

43. WALRUSES
Walruses are numerous from August to October throughout the southeat Hall Peninsula coastal area, including Loks Land, Cyrus Field Bay, Blunt Peninsula and at Potter Island. The beginning of a southward migration is thought to be characterized by onshore movements of walruses at Loks Land and Cyrus Field Bay. There are several ulliit in Cyrus Field Bay and on two small islands east of Cape Farrington, near Hall Island, and also on some small islands at the southern end of Lupton Channel. There are two ulliit in the Kendall Strait area.

44. WALRUSES
Walruses only occasionally entre Markham Bay in the late summer after ice break-up.

45. BELUGAS
A few belugas frequent Foul Inlet during summer.

46. NARWHALS
Narwhals occasionally penetrate to the head of Frobisher Bay during summer.

47. BOWHEADS
Bowheads occasionally reach the inner part of Frobisher Bay during summer.

48. BOWHEADS
Bowheads frequent southeast Baffin Island during spring, summer and all.

49. BELUGAS
Some belugas may summer in these nearshore waters adjacent to the eastern coast of Hall Peninsula and in the Allen Island area.

50. NARWHALS
Narwhals may occur occasionally in North Bay during summer.

51. BELUGAS
Belugas have been observed along the north coast of Hudson Strait during spring and summer.

52. BELUGAS
Large concentrations of belugas are observed each year during July or August in Jackman Sound and around Halford Island.

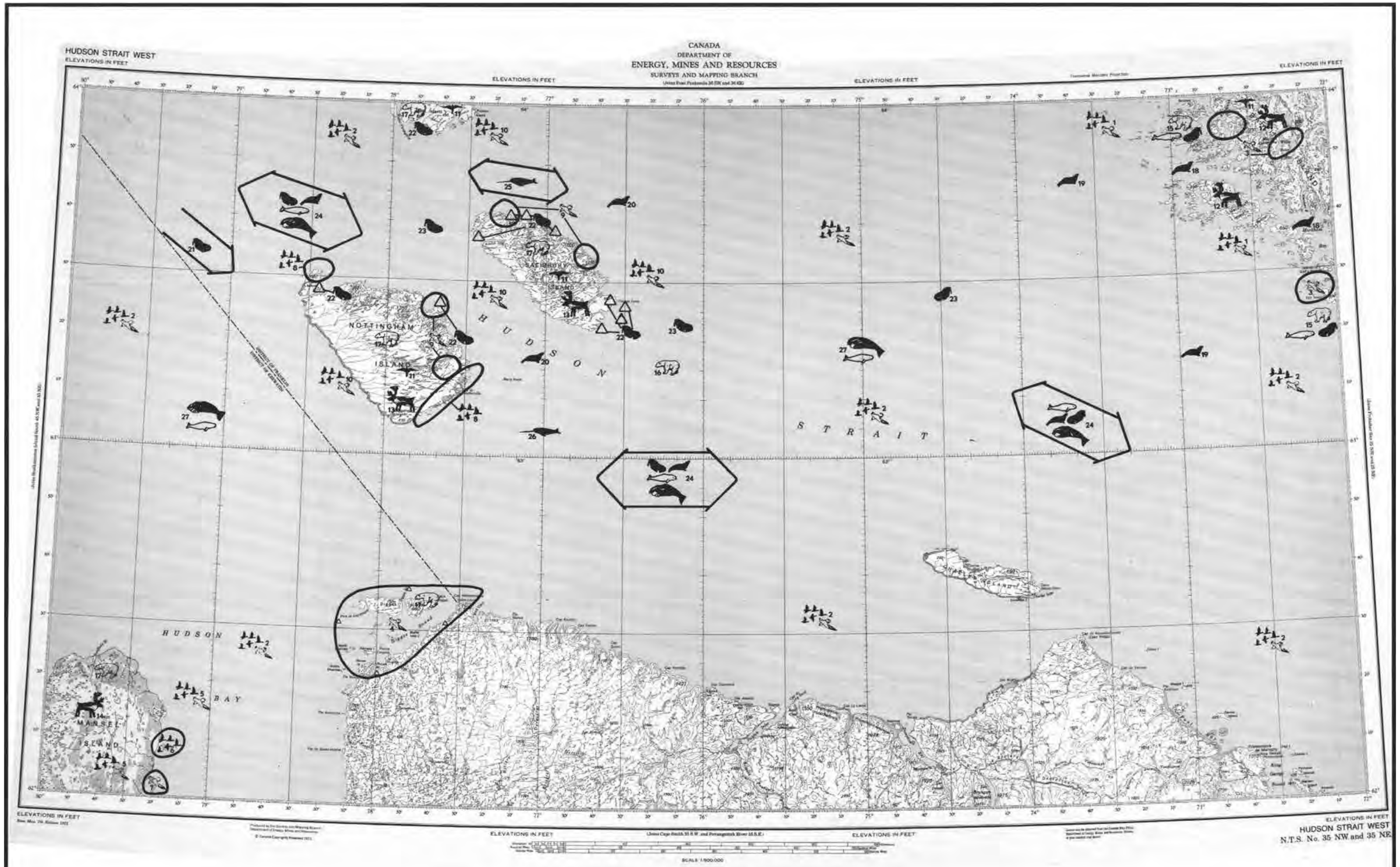
53. NARWHALS
Narwhals occur occasionally in Frobisher Bay and off Hall Peninsula during spring, summer and fall. Some narwhals overwinter in eastern Hudson Strait and southwestern Davis Strait (east of Frobisher Bay and Cumberland Sound).

54. BELUGAS
Belugas occur in Countess of Warwick Sound during summer.

55. BELUGAS
Belugas sometimes occur in southern Markham Bay during fall.

56. BELUGAS
Belugas occur along the west side of Frobisher Bay, from Newell Sound to Watts Bay, during May and June.

Figure 27: Nunavut Atlas: Hudson Strait West



SEE PAGE 207 FOR DESCRIPTION

HUDSON STRAIT WEST

1. WATERFOWL AND SEABIRDS
This nearshore region also includes the lowlands and river valleys of the coastal islands and adjacent mainland. Common eiders nest in the area in great numbers, mainly on the small islands and the shores of small bays. Black guillemots are common breeders on the small offshore islands. Canada geese, oldsquaws, red-throated loons (and lesser numbers of Arctic and common loons), and red phalaropes also nest commonly within this area. The marine, and to a much lesser extent, the freshwater environments are important for feeding waterfowl and seabirds. In addition to the above-listed species, these include: Kumlien's gull, king eiders, red-breasted mergansers, glaucous and herring gulls, Arctic terns, and thick-billed murres.

2. WATERFOWL AND SEABIRDS
This extensive offshore region is important to a variety of seabirds and waterfowl for a variety of functions, including migration, breeding, feeding, staging, molting, and overwintering. Overwintering species (in small numbers) include common eider, oldsquaw, Kumlien's and glaucous gulls, thick-bulled murre, dovekie, and black guillemot. Other species that use the area (mainly from spring through to fall) include mergansers, brant, loons, arctic terns, jaegers, scoters and various shorebirds. Thick billed murres which breed at Digges Sound and at Coats Island feed in offshore waters of northern Hudson Bay and western Hudson Strait. Murres are most prevalent and widest ranging seabird during summer in offshore western Hudson Strait.

3. SEABIRDS
These areas support nesting colonies of glaucous, Kumlien's and herring gulls. All three species are common nesters along the Baffin Island coast of this map sheet. Herring gulls predominate in the inland regions.

4. SEABIRDS
About 200,000 pairs of thick-billed murres nest at Cape Wolstenholme while about 100,000 pairs nest at Digges Islands. These Digges Sound colonies comprise the single-largest breeding collection of thick-billed murres in the Canadian Arctic.

Several hundred pairs of glaucous gulls breed in several colonies in Digges Sound. About 500 pairs of black guillemots breed in the area. A colony of 40 pairs of puffins occurs in the area. Some herring and Kumlien's gulls also nest in the area.

5. WATERFOWL AND SEABIRDS
Whistling swans, oldsquaws, common eiders, Arctic terns, Sabine's and herring gulls, red-throated and Arctic loons all commonly breed on Mansel Island and utilize its nearshore marine waters. Other less common species include king eiders, red-breasted mergansers, scoters, brant, Canada goose, pintail, common loon and jaegers. Other activities such as feeding, staging and molting are carried out in this area. Thick-billed murres infrequently appear in this area. Snow geese occur only as migrants. Herring gulls nest in small colonies on islets in lakes or along the coast.

6. WATERFOWL
As least 1000 pairs of common eiders breed an Awrey Island. A few black guillemots and small numbers of Arctic terns also breed here.

7. SEABIRDS
Several small breeding colonies (25-50 pairs per colony) of Arctic terns nest in this area. A few Sabine's gulls also nest at these colonies. The terns nest mostly on small islets in coastal lakes or just offshore.

8. WATERFOWL
Large numbers of common eiders nest on small offshore islands in these areas.

9. SEABIRDS
These areas contain single colonies (25-60 pairs) of Kumlien's gulls with only a few glaucous gulls. Glaucous gulls are widely distributed as single breeding pairs or small colonies. Herring gulls also nest within this general area.

10. WATERFOWL AND SEABIRDS
This nearshore area includes adjacent coastal lowlands and valleys and is important to waterfowl and seabirds for nesting, staging, molting, migration and feeding. Common breeders in this area include common eiders on the small islands and along the shores of bays, black guillemots on the rugged eastern coasts of Nottingham and Salisbury islands and the north coast of Mill Island, and Canada geese. Small numbers of whistling swans breed on Salisbury and Nottingham islands. Brant and snow geese occur mainly as migrants. Red-throated loons also commonly breed in the area, with lesser numbers of common and arctic loons breeding.

11. RAPTORS
Although the status of raptors within the area of this map sheet is unknown, these areas likely provide habitat of some importance to peregrine falcons and gyrfalcons due to the availability of suitable cliffs and good potential prey abundance. Rough-lagged hawks may also breed in some of these areas.

12. CARIBOU
Caribou occur year-around inland from Markham Bay and on the island offshore from this bay. These are part of the migratory South Baffin caribou herd. More caribou occupy these areas in spring and summer then during the other seasons.

13. CARIBOU
A few caribou inhabit Salisbury and Nattingham island year-around.

14 .CARIBOU
Only a small number of caribou inhabit Mansel Island.

15. POLAR BEARS, WALRUSES AND BELUGAS
The Markham Bay area supports polar bears during winter and spring when they hunt ringed seals in the sea-ice habitat. Walruses and belugas often occur in the area in summer.

16. POLAR BEARS
Polar bears use the sea ice environment in this region of Hudson Strait during winter.

17. POLAR BEARS
Nottingham, Salisbury and Mills islands and the Digges Islands are summer and fall refuges for polar bears. Polar bears may den on Mansel Island during fall and winter.

18. SEALS
Ringed seals are abundant year-around in this inshore region. Production of seals is very high here.

19. SEALS
Bearded seals occur sporadically in the offshore pack ice and at the floe edge off Markham Bay.

20. SEALS
Ringed and bearded seals numerous in the marine waters of western Hudson Strait.

21. WALRUSES
It is believed that late-summer winds from the north and west move walruses on ice pans from Foxe Basin through Foxe Channel to the vicinity of Nottingham, Salisbury and Mills islands. In some years walruses from the Coats Island-Seashore Point area are thought to join this fall migration. Walruses feed in shallow waters around these islands.

22. WALRUSES

When all the ice has left the area, thousands of walruses haul-out on rocks on Salisbury, Nottingham and Mills islands. Walruses are most numerous around southeastern Salisbury Island.

23. WALRUSES

Walruses overwinter in western Hudson Strait.

24. BOWHEADS, BELUGAS, WALRUSES AND SEALS

Hudson Strait is utilized as a migration route by bowheads which summer in northwest Hudson Bay, and by belugas which summer in Hudson Bay. In fall, walruses reportedly migrate eastward through the northern coastal and offshore waters of Hudson Strait. Small numbers of harp seals migrate through Hudson Strait to and from summering areas in Hudson Bay and Foxe Basin.

25. NARWHALS

Narwhals which summer in Foxe Basin and winter in eastern Hudson Strait utilize northern Hudson Strait as a migratory route.

26. NARWHALS

Small numbers of narwhals may overwinter in western Hudson Strait.

27. BOWHEADS AND BELUGAS

Small numbers of bowheads and large numbers of belugas overwinter in the offshore pack ice of Hudson Strait. These belugas probably spend the summer in Hudson Bay, and the bowheads, in northwest Hudson Bay and Foxe Basin.

FINAL THOUGHTS

INTERVIEW PROCESS

The interview process was judged to be reasonably effective, even though both format and execution were quite relaxed. The process was well defined, and the use of photos and maps ensured that the same material was considered from one interview to the next. This provided a solid, reproducible structure that encouraged rigor, permitted immediate interviewee inter-comparisons, and allowed for future community assessments. Interviews took from 2-6 hours, depending on a number of factors, such as the depth of the individual's knowledge, or the amount of marine-specific information they possessed, and the extent to which responses prompted supplementary questions. Since the process was focused on coastal resources, it generally excluded mammals considered primarily terrestrial, such as, Caribou, Muskoxen or Arctic Fox, while embracing Polar Bears and a broad array of birds that range widely over both.

Despite general satisfaction with the process, some prior reservations warrant comment. First, the interview process initially was conducted in the present tense, with the implicit assumption that all responses were addressing contemporary, immediate or very recent experience with the organism under discussion. However, unless explicitly excluded, there can be some question as to whether the information offered represents temporal integration over some indeterminate period. Hunters who have traveled and hunted these areas for decades could provide responses drawn from observations made indiscriminately from the short, medium or long term. For these reasons, interviewees were routinely informed that contemporary data was that collected since 2000, and data offered from observations before that date should be accompanied with an indication of the observation date. These latter observations were analyzed, identified, and archived independently of contemporary data.

A second issue was whether the geographic location presented for an organism represents the place at which it was caught or collected or whether it was intended to indicate a much broader range. The former case could lead to an overestimate of abundance and locations while the latter could underestimate the areal coverage. Both ambiguities have subsequently been corrected through adjustments to the survey document and more specifically through the questions addressed to the interviewee.

The final issue addresses the designation "everywhere". Sometimes an interviewee, in response to a question about an animal's distribution, indicated that they were observed to be present "everywhere". Everywhere is a very subjective descriptor that, without additional qualifiers, is not very useful. Essentially, it refers to the geographic extent of the respondent's knowledge, and unless that knowledge is further defined, its utility is limited. Consequently, all interviewees were asked at some point to delineate the extent of their travels. That information was recorded and subsequently displayed (see Figure 4) where it can be located and used to identify what is meant by "everywhere" for a specific interviewee.

MAPS AND DATA

The map format was chosen, given the broad geographic reach of the interviewee's responses, to provide a synoptic view of the collected data. Every effort was made to keep a common scale for all maps in this document, in order to permit comparisons between maps. For some species, the scale showed the breadth of the distribution and the interconnectedness of seeming disparate locations. While for others, especially where distributions were modest or localized, the advantages were less obvious.

The scale used on maps obtained from the Nunavut Atlas (1992) is smaller because the geographic area of interest is also smaller. In addition, one must keep in mind that the data collected for the Nunavut Atlas was actually collected in the early 70's and so it represents conditions that were extant 35 years ago. Some comparisons are possible but they must be handled with caution.

Harvest data available from the Nunavut Wildlife Management Board (NWMB) Study (2004) is not represented in this report. The difference between these two studies is that the Coastal Inventory was attempting to ascertain the qualitative geographic distribution of species while the NWMB's primary concern was harvest statistics. Additional inventories conducted in the future, should, where possible, document harvest data from any fishery in the study area.

The present data set was never conceived as a stand-alone product. It represents a snapshot in time drawn from observations made by individuals within a community who have considerable experience hunting, fishing and trapping in the region surrounding that community. These data have been considered within the comparative context provided by other studies but it has limitations, just as with those that preceded it. For a fully rounded picture it would be necessary to view these findings as one data set of many, all of which are mutually complementary.

GOVERNANCE

Collection of resource information through the process of IQ interviews can have many different values to a community such as cultural, social, historical, and economic values. All of these, with the exception of the economic value, are more or less self evident. However, translating a living marine resource into an economic benefit, while simultaneously addressing the issue of sustainability, requires some thought given to the subject of resource governance.

Acquiring knowledge about available resources can be empowering, and the acquisition of those resources could lead to prosperity and well being. The NCRI is attempting to identify the location and abundance of mammals, fish, birds, invertebrates, and plants so that this information can be used for a number of reasons, among them economic development. However, the exploitation of a resource requires important decision- making, a reasonable definition of expectations and limits, empowerment of individuals, and accountability. In other words, a sustainable approach to resource utilization requires a vision or goals, coupled with an implementation plan. The resource should be thoughtfully governed from the outset.

One example of the need for governance emerged from earlier interviews. Shallow areas off Iglulik are known to contain clams in some abundance, which are known to be an important source of food for walrus. Inuit hunters are aware of their presence but acknowledge that they are difficult to obtain because of their inhospitable location on/in sea floor sediment under cold water. Each interviewee was initially asked about their distribution and abundance, then later about whether this was a resource that might be harvested for commercial purposes. Most of the responses supported the concept of a commercial clam fishery, even though almost no information was available on the total size of the resource, its detailed distribution, reproductive capacity, or growth rates. In addition, one must also consider the importance of clams to the walrus and what impact the depletion of clams might have on the distribution and well-being of this large, highly prized mammal. A sustainable approach would ensure a balance between these two apparently competing interests such that both resources would be governed using reliable knowledge about these organisms, an accepted plan, and clear responsibilities for all parties.

CLIMATE CHANGE

Over the past 20 years, a growing chorus of arctic researchers has commented on the looming possibility of climate change and global warming, and their expected impacts on the marine environment (Tynan and DeMaster 1997; Michel, C., R. Ingram and L.R. Harris 2006; Ford et al 2008a, 2008b, Moore and Huntington 2008). Many positive and negative changes will occur in recurrent open water sites, undoubtedly influencing many coastal resources. Specific impacts can be expected on water stratification and its role in nutrient renewal, the balance between multi-year and annual ice, the duration and location of open water, and the impacts of tidal mixing and topographic upwelling. The impact of these physical changes could then influence some facet of the marine food web, such as, the relative importance of ice algae; the timing and magnitude of primary and secondary production; and changes in the distribution, abundance, and success of traditional species. In other words, we can expect change to occur in our physical world that will, in turn, alter the biological system, including the human component.

The Nunavut Coastal Resource Inventory initiative was undertaken to provide information that could inform decision-making in the areas of resource management, economic development, conservation, environmental assessment, and the mitigation of anticipated climate change effects. In order to be effective, each intervention will require baseline resource information plus knowledge about the factors that are driving change. Change will be divided between direct human (resource extraction) and significant systemic changes (climate change). Climate change will exert its influence through warmer average temperatures, altered wind patterns, changes in precipitation, increasing fresh water input, and modified ocean circulation. These will, in turn, directly affect the physical marine environment which will then influence coastal marine resources. In order to mitigate, ameliorate, or influence these anticipated changes, a considerable amount of information about the factors that drive both the physical and biological environments, as well as their interconnectedness is required. There are two immediate sources for that information, traditional ecological knowledge and scientific knowledge.

COMBINING TRADITIONAL ECOLOGICAL KNOWLEDGE (IQ) AND SCIENTIFIC KNOWLEDGE

Inuit Qaujimajatuqangit or Traditional Inuit Ecological Knowledge is unique in that it is qualitative, intuitive, holistic, spiritual, empirical, personal, and often based on long time series of observations (Berkes 2002). Some of these characteristics are sometimes cited as limitations, such as a reliance on long-term memory or the fact that it is qualitative and subjective. Conversely, they also qualify as positive since they represent a long time-series unattainable in any other manner. Perhaps as the sole device to fully understand and manage coastal resources traditional knowledge might be found lacking, while a complementary coupling with western science could produce important synergies resulting in a very powerful tool.

The scientific approach embraces all available evidence and postulates a theory that attempts to predict future changes. The correctness of the prediction is a measure of the completeness of scientific understanding. Understanding the reasons for change is important because that information is central to any attempt to mitigate or influence long term effects, such as climate change. Addressing the root cause is a more certain approach than attempting to influence symptoms. A critical factor in the scientific method is the availability and reliability of data available for analysis. The Arctic, because of size, complexity and manpower limitations, does not often have a plentiful supply of scientific observations. However, one underutilized data source is in the form of traditional knowledge where species, locations, processes, and events have been monitored, sometimes for decades. Bringing traditional knowledge and science together into a complementary working relationship could provide significant benefits for all parties.

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APPENDIX 1
BIOGRAPHIES OF KIMMIRUT INTERVIEWEES

INTERVIEW CODE	INTERVIEWEE	PROFILE
KM_1	Gotileah Judea	Active hunter and elder. He was born at Iviit in 1940, but grew up traveling between many locations (Iviit, Ukiallivialuk, Qilujjuaq, Atanikirruq, Qatuqaq, Qairulittalik, Kangiqsu, Anauliqvik, Tikiraaluk), and he has lived in Kimmirut since 1966. He began hunting when he was 10 years old and continues to hunt, especially for Walrus, Beluga, Ringed Seal, Arctic Char, Polar Bear, Caribou, and Ptarmigan.
KM _2	Sandy Akavak	Born in 1941 at Nuvutiqpaaraaluk, he grew up around Ukiallavialuk and Kimmirut; residing in Kimmirut since 1947. He started hunting ptarmigan and small animals when he was ten and seals when he was tweleve. Today he hunts Arctic Hare, Ptarmigan, Arctic Fox, Ringed Seal, Geese, Ducks, Beluga, Bearded Seal, and Walrus.
KM _3	Joe Arlooktoo	Active hunter; former MLA. Born in Frobisher Bay area in 1939, he moved to Kimmirut in 1941. He started fishing when he was 10 years old and today hunts Arctic Char, Cod, Caribou, Seals, Polar Bear, Ptarmigan, Arctic Hare, and Walrus. He doesn't hunt Beluga anymore because they don't come into the area as often.
KM _4	Itee Temela	Born in 1948 she has lived in Kimmirut her whole life. She started hunting and fishing when she was fourteen or fifteen. Today she hunts Ptarmigans, Fish, Ducks, Bearded Seal, Ringed Seal, Walrus, Beluga, Polar Bear, and Caribou.
KM _5	Temela Okpik	Born in 1946 at Itinniq, but his family moved to Sikutaqtulik in 1958 and then Kimmirut in 1974. He started fishing when he was ten years old and started hunting when he was fourteen. Today he hunts Caribou, Seals, Polar Bear, Ducks, Geese, Beluga, Walrus, and Fish.
KM _6	Jamesie Kootoo	He was born near Iqaluit at Ukaliqtuliq in 1944 and grew up in Iqaluit, but has lived in Kimmirut since 1974. He started hunting and fishing when he was fourteen, mainly during the summer. Today he hunts Seals, Fish, Caribou, Walrus, Beluga, Ducks, and he enjoys hunting Geese.
KM _7	Anonymous	

APPENDIX 2
ACRONYMS AND ABBREVIATIONS

CBCRI - Community-Based Coastal Resource Inventory

CLEY - Department of Culture, Language, Elders and Youth

CWS - Canadian Wildlife Service

DFO - Department of Fisheries and Oceans

DOE - Department of the Environment

DSD - Department of Sustainable Development

ED & T - Department of Economic Development and Transportation

GC - Government of Canada

GN - Government of Nunavut

HTO - Hunter/Trapper Organization

INAC - Indian and Northern Affairs, Government of Canada

IQ - Inuit Qaujimajatuqangit

IPCC - Intergovernmental Panel on Climate Change

NRCan - Natural Resources Canada

NRI - Nunavut Research Institute

NTI - Nunavut Tunngavik Incorporated

NWMB - Nunavut Wildlife Management Board

TK - Traditional Knowledge

TEK - Traditional Ecological Knowledge

APPENDIX 3
KIMMIRUT – BIRD SIGHTINGS COMMENTARY

The following table stacks the community interview findings with several literary sources and consultant expectations. The list begins with those that interviewees stated seeing and has some additional species that were not mentioned but have been reported by others. These have been graded on their range status according to Godfrey, 1986 and occupancy type by Richards and White, 2008. The next column covers the NWT/NU Checklist Survey databank. The final column gives the reaction of Jim Richards to the interview findings with the other sources in mind. The checklist databank is assumed valid.

Hopefully this comparative chart contextualizes the knowledge gained through the Nunavut Coastal Resource Inventory.

BIRDS REPORTED IN INTERVIEWS:	IS THE BIRD WITHIN NORMAL BREEDING RANGE?	WHAT STATUS DOES THE BIRD HAVE WITHIN THE AREA?	IS THE BIRD LISTED WITH THE NWT/NU BIRD CHECKLIST SURVEY?	COMMENTS FROM JIM RICHARDS ON THE LIKELIHOOD OF BIRD SIGHTING FREQUENCY AND INTERVIEW FINDINGS.
Least Sandpiper	No	Migrant, Breed		possible rare visitor
Purple Sandpiper	Yes	Migrant, Breed		as expected
American Golden-Plover	Yes	Migrant, Breed		as expected
Semi-palmated Plover	Yes	Migrant, Breed		as expected
Snow Bunting	Yes	Migrant, Breed	Yes	as expected
American Robin	No	Vagrant, Breed		possible rare visitor
Fox Sparrow	No	Accidental		doubtful
Common Redpoll	No	Migrant, Breed		should be regular migrant
Sandhill Crane	No	Migrant, Breed		should be common migrant
Long Tailed Jaeger	Yes	Migrant, Breed		as expected
Rock Ptarmigan	Yes	Permanent, Breed		as expected
Willow Ptarmigan	No	Permanent, Breed		quite likely in some years
Snowy Owl	Yes	Permanent, Breed		as expected
Short Eared Owl	No	Migrant, Breed		would be uncommon visitor
Common Raven	Yes	Permanent, Breed	Yes	as expected
Red Phalarope	No	Migrant, Breed		should be regular migrant
Red-necked Phalarope	Yes	Migrant, Breed	Yes	as expected
Rough-legged Hawk	Yes	Migrant, Breed	Yes	as expected

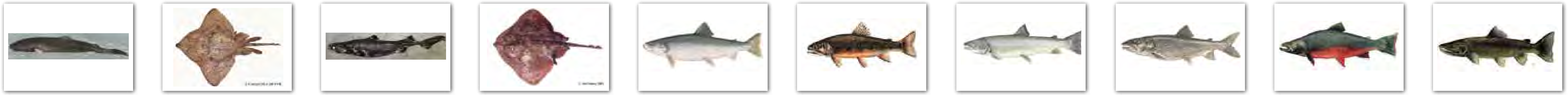
BIRDS REPORTED IN INTERVIEWS:	IS THE BIRD WITHIN NORMAL BREEDING RANGE?	WHAT STATUS DOES THE BIRD HAVE WITHIN THE AREA?	IS THE BIRD LISTED WITH THE NWT/NU BIRD CHECKLIST SURVEY?	COMMENTS FROM JIM RICHARDS ON THE LIKELIHOOD OF BIRD SIGHTING FREQUENCY AND INTERVIEW FINDINGS.
Peregrine Falcon	Yes	Migrant, Breed		as expected
Gryfalcon	Yes	Permanent, Breed		as expected
Glaucous Gull	Yes	Migrant, Breed, wintertime		as expected
Herring Gull	Yes	Migrant, Breed		as expected
Thayer's Gull	Yes	Migrant, Breed		probably Iceland Gull
Ivory Gull	No	Migrant, Breed, wintertime		probable uncommon vagrant
Black-headed Gull	No	Accidental		no doubt seen Sabine's Gull
Snow Goose	Yes	Migrant, Breed		as expected
Ross's Goose	No	Migrant, Breed		probable casual migrant
Canada Goose	Yes	Migrant, Breed		as expected
Cackling Goose	No	Migrant, Breed		could be regular migrant
Brant	No	Migrant, Breed		could be regular migrant
White-fronted Goose	No	Migrant, Breed		could be infrequent visitor
Tundra Swan	No	Migrant, Breed		should be regular migrant
Dovekie	No	Migrant, Breed, wintertime		non-breeding visitor
Arctic Tern	Yes	Migrant, Breed		as expected
Thick-Billed Murre	No	Migrant, Breed, wintertime		should be frequent visitor
Black Guillemot	Yes	Migrant, Breed, wintertime		as expected
Northern Fulmar	No	Migrant, Breed, wintertime	Yes	should be regular visitor
King Eider	Yes	Migrant, Breed		as expected
Common Eider	Yes	Migrant, Breed		as expected
Long Tailed Duck	Yes	Migrant, Breed		as expected
Harlequin Duck	Yes	Migrant, Breed, wintertime		as expected

BIRDS REPORTED IN INTERVIEWS:	IS THE BIRD WITHIN NORMAL BREEDING RANGE?	WHAT STATUS DOES THE BIRD HAVE WITHIN THE AREA?	IS THE BIRD LISTED WITH THE NWT/NU BIRD CHECKLIST SURVEY?	COMMENTS FROM JIM RICHARDS ON THE LIKELIHOOD OF BIRD SIGHTING FREQUENCY AND INTERVIEW FINDINGS.
Mallard	No	Vagrant, Breed		questionable, but possible
Red Breasted Merganser	Yes	Migrant, Breed		as expected
Common Loon	Yes	Migrant, Breed		as expected
Red-throated Loon	Yes	Migrant, Breed	Yes	as expected
Pacific Loon	Yes	Migrant, Breed		as expected
BIRDS RECORDED BY OTHERS:				
Lapland Longspur	Yes	Migrant, Breed		should be regular breeder
Hoary Redpoll	No	Migrant, Breed		should be regular migrant
Sanderling	No	Migrant, Breed		should be regular migrant
Red Knot	No	Migrant, Breed		should be regular migrant
Dunlin	No	Migrant, Breed		should be regular migrant
American Pipit	Yes	Migrant, Breed	Yes	should be regular breeder
Black-legged Kittiwake	No	Migrant, Breed	Yes	should be regular migrant
Iceland Gull	Yes	Migrant, Breed	Yes	should be regular breeder
Black-bellied Plover	No	Migrant, Breed		should be uncommon migrant
Ruddy Turnstone	Yes	Migrant, Breed		should be present
Semipalmated Sandpiper	Yes	Migrant, Breed		should be present
White-rumped Sandpiper	Yes	Migrant, Breed		should be present
Baird's Sandpiper	No	Migrant, Breed		should be regular migrant
Pomarine Jaeger	No	Migrant, Breed		should be regular migrant
Parasitic Jaeger	Yes	Migrant, Breed		should be present
Sabine's Gull	No	Migrant, Breed		should be infrequent visitor

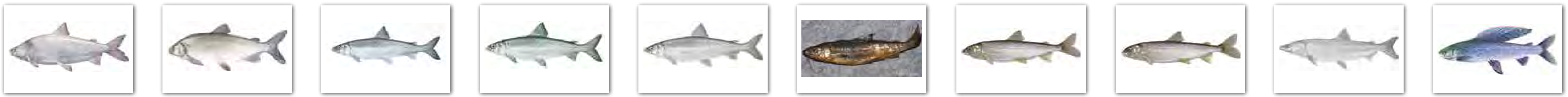
BIRDS REPORTED IN INTERVIEWS:	IS THE BIRD WITHIN NORMAL BREEDING RANGE?	WHAT STATUS DOES THE BIRD HAVE WITHIN THE AREA?	IS THE BIRD LISTED WITH THE NWT/NU BIRD CHECKLIST SURVEY?	COMMENTS FROM JIM RICHARDS ON THE LIKELIHOOD OF BIRD SIGHTING FREQUENCY AND INTERVIEW FINDINGS.
Horned Lark	Yes	Migrant, Breed		should be common breeder
Northern Wheatear	Yes	Migrant, Breed		should be uncommon breeder

APPENDIX 4
SPECIES PHOTOS

FISH



Greenlandic Shark | Arctic Skate | Black Dogfish | Thorny Skate | Arctic Char | Brook Trout | Bull Trout | Lake Trout | Dolly-Varden | Atlantic Salmon



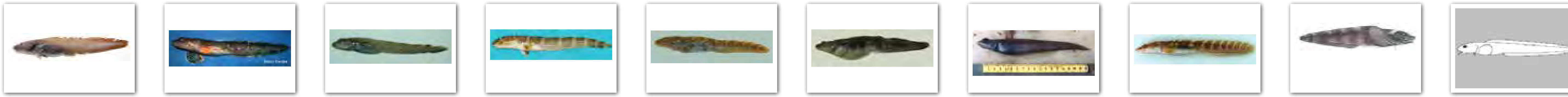
Lake Whitefish | Broad Whitefish | Lake Cisco | Least Cisco | Arctic Cisco | Blackfin Cisco | Round Whitefish | Mountain Whitefish | Inconnu | Arctic Grayling

White Sucker | Longnose Sucker | Lake Chub | Atlantic Cod | Greenland Cod | Arctic or Polar Cod | Toothed Cod | Burbot | Threebeard Rockling | Arctic Rockling

Rock Grenadier | Arctic Staghorn Sculpin | Deepwater Sculpin | Fourhorn Sculpin | Arctic Sculpin | Shorthorn Sculpin | Slimy Sculpin | Spoonhead Sculpin | Hamecon | Twohorn Sculpin

Spatulate Sculpin | Bigeye Sculpin | Ribbed Sculpin | Mailed Sculpin | Variegated Snailfish | Bartail Seasnail | Gelatinous Seasnail | Atlantic Seasnail | Lumpsucker | Smooth Lumpfish

Leatherfin Lumpsucker | Atlantic Spiny Lumpsucker | Arctic Alligator Fish | Atlantic Sea Poacher | Ocean Perch | Deepwater Redfish | Walleye | Arctic Eelpout | McAllister's Eelpout | Shulupaoluk



Adolf's Eelpout | Saddled Eelpout | Pale Eelpout | Canadian Eelpout | Threespot Eelpout | Longear Eelpout | Paamiut Eelpout | Polar Eelpout | Lutken's Eelpout | Barsukov's Pout

Fish Doctor | Slender Eelblenny | Daubed Shanny | Stout Eelblenny | Fourline Snakeblenny | Pacific Sand Lance | Northern Sand Lance | Northern Wolfish | Spotted Wolfish | Atlantic Wolfish

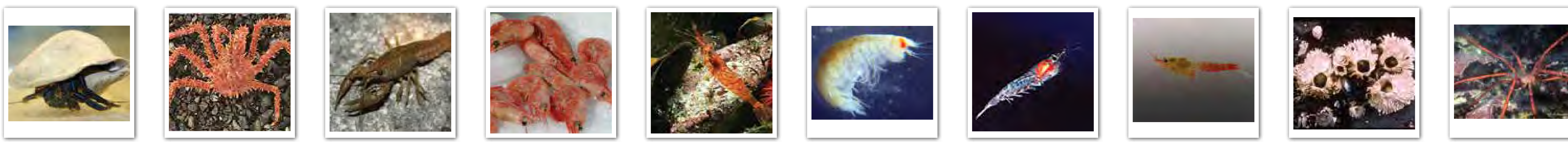
Banded Gunnel | Starry Flounder | Arctic Flounder | Winter Flounder | Greenland Halibut | Capelin | Rainbow Smelt | Atlantic Herring | Pacific Herring | Trout-perch

Northern Pike | Ninespine Stickleback | Threespine Stickleback | Glacier Lantern Fish | Arctic Lamprey | Northern Hagfish

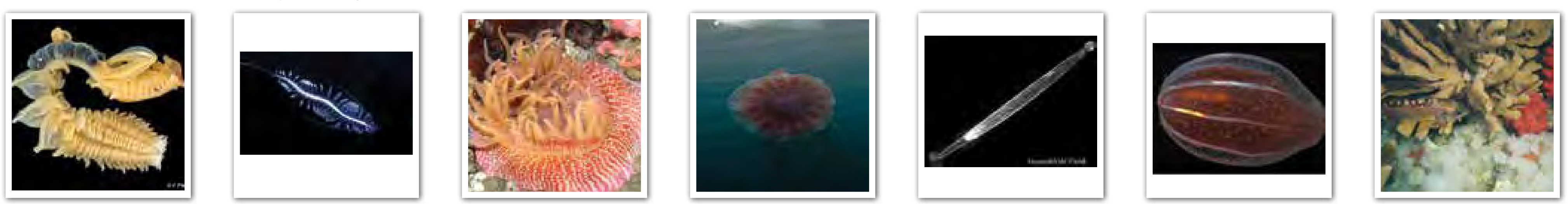
INVERTEBRATES

Truncate Softshell Clams | Blue Mussel | Northern Horsemussel | Common Cockle | Islandic Scallop | Atlantic Oyster | Tortoiseshell Limpet | Whelk | Naked Sea Butterfly | Naked Shelled Sea Butterfly

Flexed Gyro | Arctic Moonsnail | Boreal Armhook Squid | Pale Sea Urchin | Polar Sea Star | Mud Star | Basket Star | North Atlantic Sea Cucumber | Snow Crab | Toad Crab

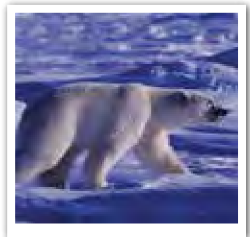


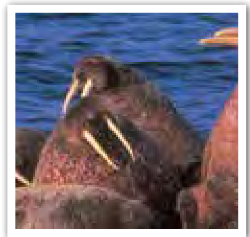
Hermit Crab | Deep Sea King Crab | Crayfish | Northern Shrimp | Striped Shrimp | Amphipod | Northern Krill | Mysid Shrimp | Acorn Barnacle | Sea Spider



Parchment Worm | Plankton Worm | Sea Anemone | Jellyfish | Arrow Worm | Ctenophore | Orange Finger Sponge

MARINE MAMMALS


Polar Bear


Walrus

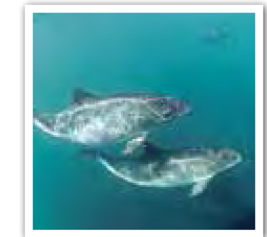

Ringed Seal


Harp Seal


Bearded Seal


Hooded Seal


Harbour Seal


Harbour Porpoise


Atlantic White-sided Dolphin

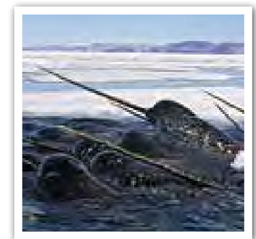

White-beaked Dolphin

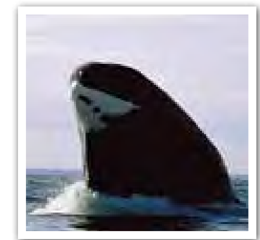

Northern Bottlenose Whale


Long-finned Pilot Whale

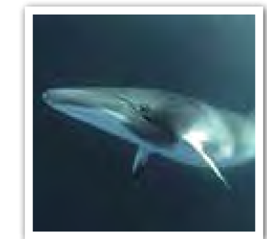

Killer Whale


Beluga


Narwhal

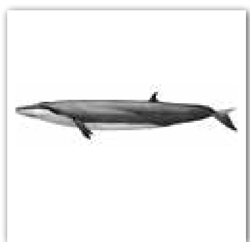

Bowhead Whale

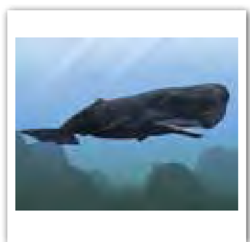

North Atlantic Right Whale

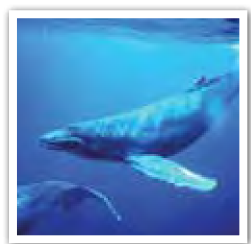

Common Minke Whale


Fin Whale

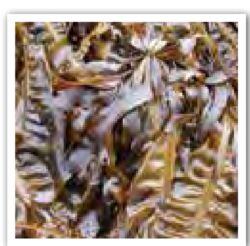

Blue Whale


Sei Whale

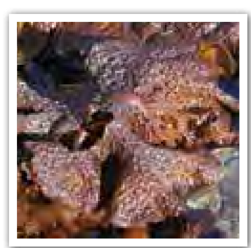

Sperm Whale


Humpback Whale

SEAWEED AND MARINE PLANTS

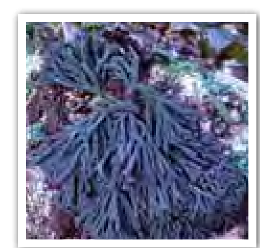

Edible Kelp

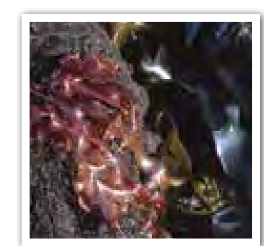

Hollow Stemmed Kelp

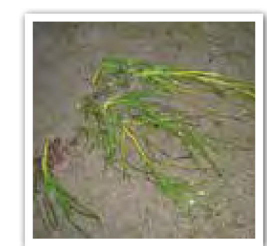

Sea Colander


Spiny Sour Weed

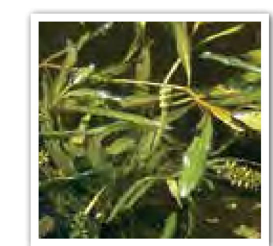

Bladder Wrack

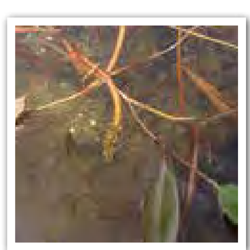

Green Sea Fingers

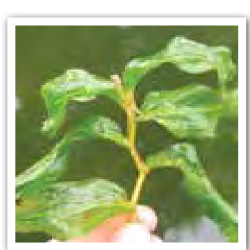

Dulse

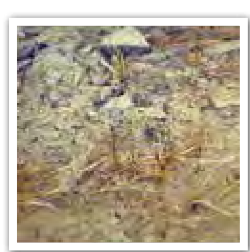

Eel Grass


Robbin's Pondweed

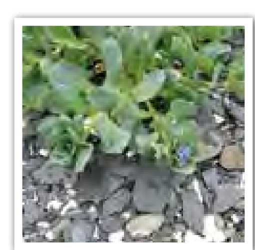

Alpine Pondweed

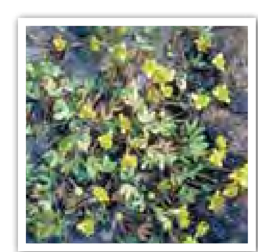

Variableleaf Pondweed


Whitestem Pondweed


Semaphore Grass

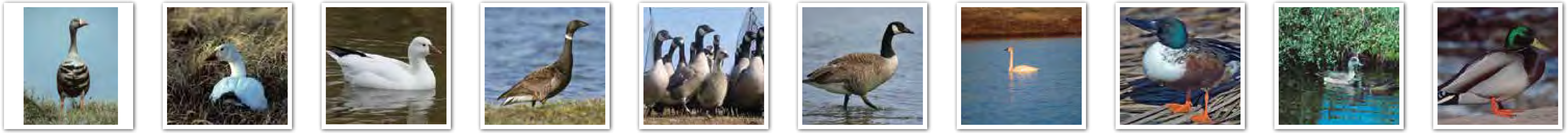

Goose Grass


Sea Lungwort


Floating Buttercup


Mare's Tail

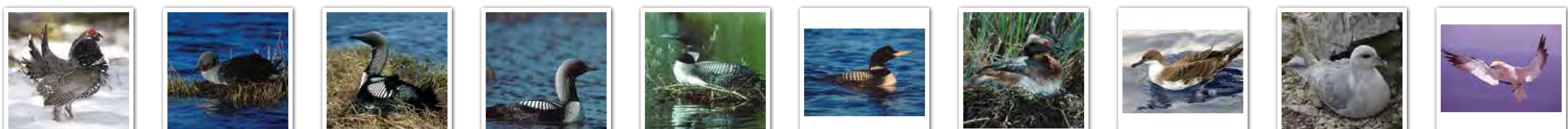
BIRDS



White-fronted Goose | Snow Goose | Ross's Goose | Brant | Cackling Goose | Canada Goose | Tundra Swan | Northern Shoveler | American Wigeon | Mallard

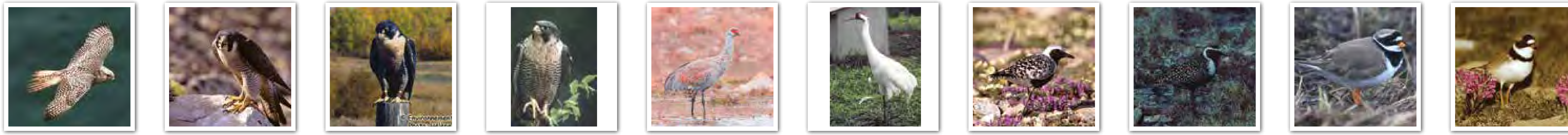
Northern Pintail | Green-winged Teal | Greater Scaup | Lesser Scaup | King Eider | Common Eider | Harlequin Duck | Surf Scoter | White-winged Scoter | Black Scoter

American Black Duck | Long-tailed Duck | Common Merganser | Red-breasted Merganser | Hooded Merganser | Common Goldeneye (male) | Barrow's Goldeneye | Willow Ptarmigan | Rock Ptarmigan | White-tailed Ptarmigan



Spruce Grouse (male) | Red-throated Loon | Arctic Loon | Pacific Loon | Common loon | Yellow-billed Loon | Horned Grebe | Greater Shearwater | Northern Fulmar | Nothern Gannet

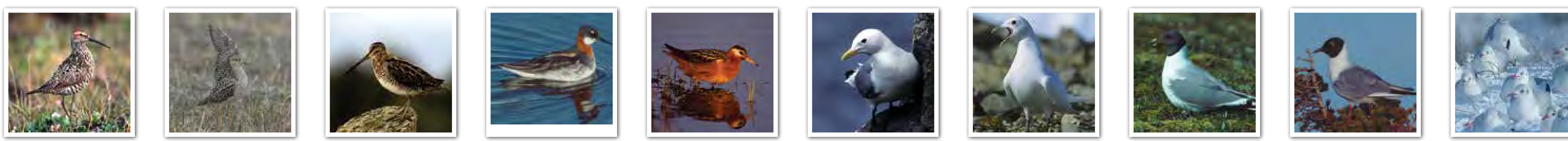
Double-crested Cormorant | American Bittern | Bald Eagle | Rough-legged Hawk | Sharp-shinned Hawk | Northern Goshawk | Northern Harrier | Golden Eagle | American Kestrel | Merlin



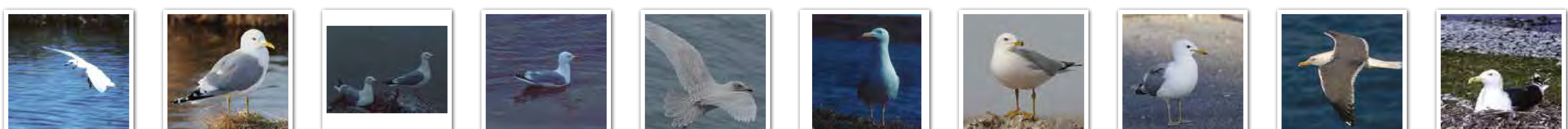
Gryfalcon | Peregrine Falcon | Peregrine Falcon Anatum | Peale's Peregrine Falcon | Sandhll Crane | Whooping Crane | Black-bellied Plover | American Golden-Plover | Common Ringed Plover | Semipalmated Plover

Piping Plover Melodus | Piping Plover | Killdeer | Lesser Yellowlegs | Greater Yellowlegs | Eskimo Curlew | Whimbrel | Hudsonian Godwit | Ruddy Turnstone | Red Knot

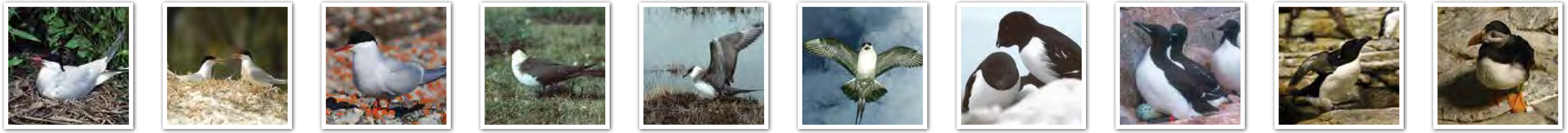
Sanderling | Short-billed Dowitcher | Spotted Sandpiper | Semipalmated Sandpiper | Least Sandpiper | White-rumped Sandpiper | Baird's Sandpiper | Pectoral Sandpiper | Purple Sandpiper | Dunlin



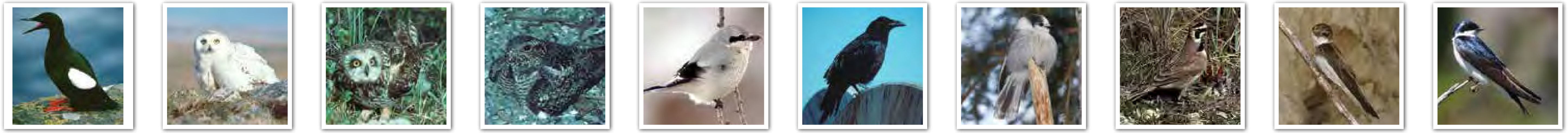
Stilt Sandpiper | Buff-breasted Sandpiper | Wilson's Snipe | Red-necked Phalarope | Red Phalarope | Black-legged Kittiwake | Ivory Gull | Sabine's Gull | Bonaparte's Gull | Black-headed Gull



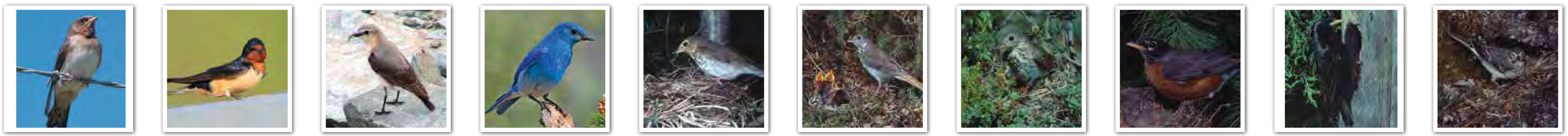
Ross's Gull | Mew Gull | Herring Gull | Thayer's Gull | Iceland Gull | Glaucous Gull | Ring-Billed Gull | California Gull | Lesser Black-backed Gull | Great Black-backed Gull



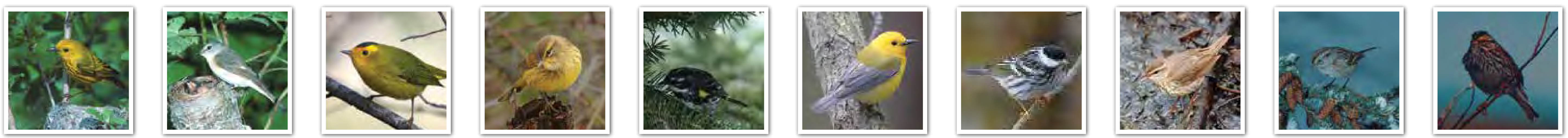
Common Tern | Roseate Tern | Arctic Tern | Pomarine Jaeger | Parasitic Jaeger | Long-tailed Jaeger | Dovekie | Thick-billed Murre | Razorbill | Atlantic Puffin



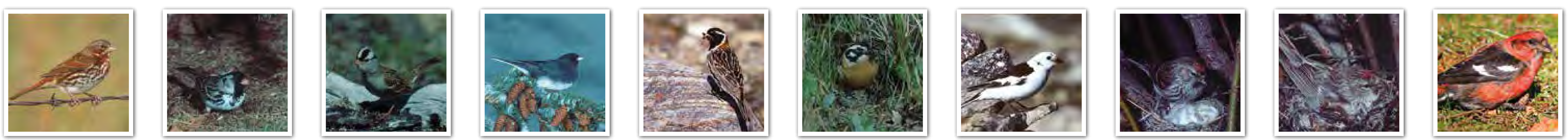
Black Guillemot | Snowy Owl | Short-eared Owl | Common Nighthawk | Northern Shrike | Common Raven | Gray Jay | Horned Lark | Bank Swallow | Tree Swallow (male)



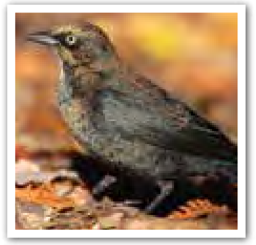
Cliff Swallow | Barn Swallow | Northern Wheatear | Mountain Bluebird | Swainson's Thrush | Hermit Thrush | Gray-cheecked Thrush | American Robin | European Starling | American pipit



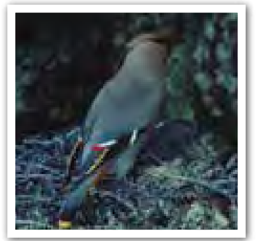
Yellow Warbler | American Redstar | Wilson's Warbler | Palm Warbler | Yellow-Rimped Warbler | Prothonotary Warbler | Blackpoll Warbler | Northern Waterthrush | American Tree Sparrow | Savannah Sparrow



Fox Sparrow | Harris's Sparrow | White-crowned Sparrow | Dark-eyed junco | Lapland Longspur | Smith's Longspur | Snow Bunting | Common Redpoll | Hoary Redpoll | White-winged Crossbill


Rusty Blackbird


Yellow-headed Blackbird


Bohemian Waxwing


Ruby-crowned Kinglet


Belted kingfisher


American White Pelican