



Beaufort Sea Beluga Management Plan

Sixth Edition 2024



FISHERIES JOINT MANAGEMENT COMMITTEE

Credit:

Front Cover Photo: Fisheries and Oceans Canada
Layout & Printing: Canarctic Graphics, Yellowknife, NT
Photo Editing: Travis R. Bradley, imageblendstudio.com

Published:

Fisheries Joint Management Committee
Box 2120 Inuvik, Northwest Territories, Canada
X0E 0T0

Citation:

Fisheries Joint Management Committee. 2024. Beaufort Sea Beluga Management Plan. 6th Edition. www.fjmc.ca, Inuvik, Northwest Territories, Canada. 57 p.

Beaufort Sea Beluga Management Plan 2024

Sixth Edition

Fisheries Joint Management
Committee (FJMC)







Letter from the FJMC CHAIR

Herb Angik Nakimayak

The FJMC is very pleased to present our 2024 and sixth edition of the Beaufort Sea Beluga Management Plan. With roots that date back many generations, each successive version of the Plan has been revised to incorporate new harvest, science, monitoring, and environmental information, as well as positioned to address new and existing pressures and issues. This Plan has been expanded with content provided by extensive discussion with partners from each Hunters and Trappers Committee (HTC) in the Inuvialuit Settlement Region (ISR), from our co-management partners Fisheries and Oceans Canada (DFO) and Inuvialuit Game Council (IGC), and other agencies involved in specific sections or aspects including Inuvialuit Regional Corporation (IRC) and Transport Canada (TC).

This sixth version of the plan contains some important changes from the previous one. The most comprehensive changes include the updates to the beluga hunting bylaws, boundaries for the Beluga Management Zones, inclusion of beluga harvest statistics, and a detailed update on the assessment of stock size, trend and health, using both scientific and Indigenous Knowledge. There is also a new section focused on other sources of mortality and factors influencing the health and behaviour of Eastern Beaufort Sea Beluga, including savsaats, climate change, stressors from shipping activity, and risks from research and handling.

On behalf of the FJMC, I would like to thank our FJMC members and staff for all their hard work leading the process updating the Beaufort Sea Beluga Management Plan. They met community members and HTCs in all six communities, with partners, and have diligently ensured this document represents the interests of Inuvialuit beluga whale harvesters.

As chair of the FJMC, I am proud to say that this document is firmly based on the foundation of Indigenous Knowledge. The Plan has been a remarkable success and credit goes equally to the HTCs, whale hunters, and members of the scientific community particularly at DFO.

Sincerely,

A handwritten signature in black ink, consisting of a stylized, cursive script that is difficult to decipher but appears to be the name Herb Angik Nakimayak.

Herb Angik Nakimayak
FJMC Chair, 2021 – Present

Dedications

This sixth edition of the Beaufort Sea Beluga Management Plan is dedicated to the ‘founding fathers’ and strongest advocates of this Plan, starting with those from the 1980s who guided its development from a home-grown, self-regulated approach to a sophisticated wildlife management document. Their greatest achievements have been to lay the ground work and use their collective powers of logic and persuasion to demonstrate locally, nationally and internationally what can be achieved.

Alex Charles Aviugana

Alex (1945-1994) was a founding member of the FJMC. While he held many positions with Inuvialuit organizations (including directorships with the Inuvialuit Regional Corporation, the Inuvialuit Game Council, the Inuvialuit Development Corporation, the Inuvialuit Land Administration, the Inuvik Community Corporation and the Inuvik Hunters and Trappers Committee), Alex always found time for the business of the FJMC. His life experience as a fisherman and a hunter of beluga whales enabled him to bring to our meeting table an understanding of the resource that few could match. Aside from being a mentor and a good friend to me, he also made the best pickled muktuk I have ever tasted.



Alex Charles Aviugana

Billy Day

In many ways, Billy (1930-2008) is the true father of this Plan and its predecessors. In the face of a major drive towards imposed harvest quotas, he persuaded us all to take a step back, to look at Traditional Knowledge and science, and use those twin gifts equitably and authentically to chart a course for a plan that could be developed in the ISR for the ISR.



Billy Day

Don H. Dowler

Another founding member of the FJMC, Don (1926-2005) was a fishery officer's fishery officer. He travelled the land, knew the regulations inside out, was a stern enforcer, but had a wonderful sense of knowing when the law was stupid. His ongoing battle with Nelson Green of Paulatuk to get a fishing license, an argument that he lost to the hilarity of all (including himself), endeared him to all of us. The fact that a lake in the Paulatuk area has been named in his honour is evidence of that fact.



Don H. Dowler

Nelson A. Green

Nelson (1948-1999) was one of the chief negotiators of the IFA and signed the document on behalf of his home community of Paulatuk. As an original member of the FJMC, as well as many other IFA-based organizations, Nelson was instrumental in setting the early direction for the implementation of the IFA and the Beluga Management Plan. Nelson died tragically on the land on January 10, 1999.



Nelson A. Green

Robert K. Bell

Robert K. Bell (Bob) was born in 1942, and grew up on Newfield Farm in Blaris, Manitoba. He obtained his BSc and teaching certification from Brandon College, and went on to earn a MSc in Limnology from the University of Manitoba.

He became a teacher and then Principal of Moose Kerr School in Aklavik from 1969 to 1975. From there, Bob went on to serve for 15 years in wildlife administration for the GNWT. In 1987, he became the first member-appointed Chair of the FJMC, and for more than two decades, he guided and inspired the FJMC through its crucial and formative period. Among his many accomplishments, Bob led the first edition of the Beaufort Sea Beluga Management Plan (1991), and worked tirelessly with the Inuvialuit and DFO on all subsequent editions of the Plan. After his 2009 retirement, he continued on special projects and was again the main author of the 2013 (Fifth) edition of the Plan. The 2024 Edition Beluga Management Plan Working Group gratefully and respectfully acknowledges Bob's years of work and dedication to the FJMC, and to the Beluga Management process and planning in the ISR. Bob now resides in Leask, Saskatchewan, and has remained connected with ISR beluga harvesters and FJMC.



Robert K. Bell

Aklavik HTC Dedication - Joe Arey Sr. and the Traditional Knowledge Holders of Aklavik

The Aklavik HTC dedicates this plan to Joe Arey Sr. (1942-2024). He served on the Aklavik HTC for many years and was always involved with programs the Aklavik HTC took part in. He was a very knowledgeable man who shared that knowledge and experience with his family and the community of Aklavik. Without the guidance of Joe Arey and Knowledge Holders like him, the projects that the AHTC, FJMC, and DFO collaborate on wouldn't be as successful as they are.



Joe Arey Sr.

Inuvik HTC Dedication - Hugh and Larry Angasuk and the Traditional Knowledge Holders of Inuvik

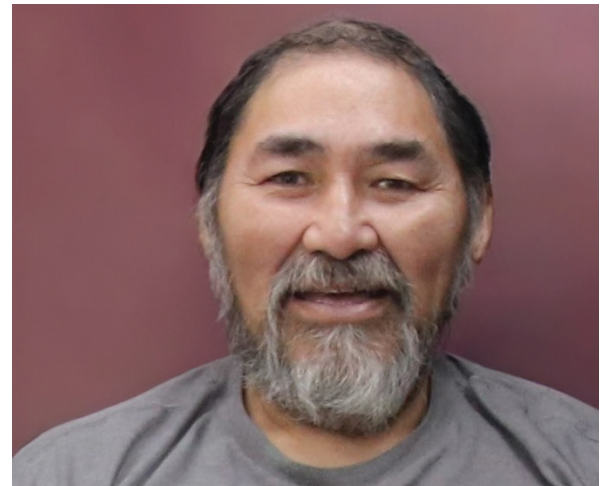
The Inuvik HTC would like to dedicate this plan to Hugh and Larry Angasuk, as well as all of the Traditional Knowledge holders of Inuvik. Both Hugh and Larry were very involved in various ISR beluga programs. They have been beluga monitors for the ISR Beluga Harvest Monitoring Program and also participated in the tagging of beluga whales in the Kendall Island Region. They are two of many deserving Knowledge holders in Inuvik that support beluga research and management and the Inuvialuit subsistence harvest of beluga.



Larry (left) and Hugh (right)

Olokhaktomuit HTC Dedication - David Kuptana

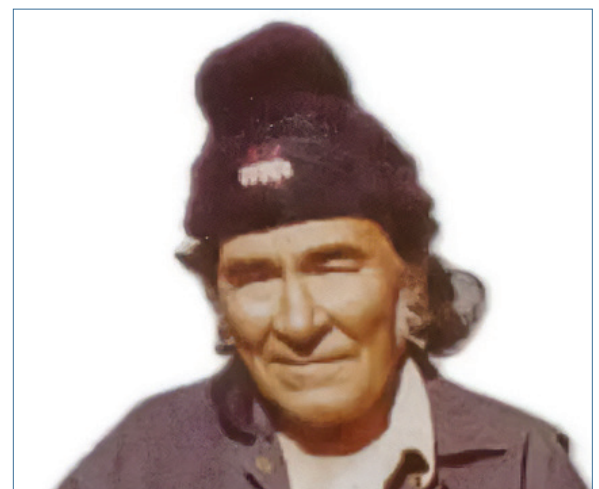
The Olokhaktomuit HTC dedicates this plan to David Kuptana. David is one of the main harvesters and a prominent Traditional Knowledge holder in the community of Ulukhaktok. David is out year-round hunting and has dedicated his whole life to hunting and teaching younger generations. In recent years, belugas are being harvested more and more in Ulukhaktok. Every season David harvests a beluga and distributes the meat to the community members, and it is very much appreciated.



David Kuptana

Paulatuk HTC Dedication - David Ruben

Following the signing of the Inuvialuit Final Agreement in 1984, the Inuvialuit in the surrounding communities gained more control over how programs were run in the region. Shortly after, the Paulatuk Hunters and Trappers Committee purchased a schooner which was later named the Arctic Tern. The leaders of Paulatuk looked to appoint a captain with experience on the ocean, dedication to the Inuvialuit way of life, and overall willingness to help others. From the time the Arctic Tern touched our waters to the day it was docked in Paulatuk bay in the mid-90s, that captain was David Ruben. David's duties included but were not limited to hauling camping gear to camps along the coast of Darnley Bay, transporting people who didn't own a boat to and from camps, hauling back harvested beluga whale and other traditional food to the community, and safety dispatch if needed. Throughout the years David was also an active member on several boards and chair of the Paulatuk HTC board. The community looked to him for guidance, that is why we would like to dedicate the Beluga Management Plan in his honour.



David Ruben

Sachs Harbour HTC Dedication – To the Traditional Knowledge Holders of Sachs Harbour

Sachs Harbour is a community rich with Inuvialuit culture and Traditional Knowledge. The Knowledge holders are central to so many aspects of daily life, making up the backbone of the community. It is very important for the younger generations to learn from and continue the cultural practices of Sachs Harbour's Traditional Knowledge holders.



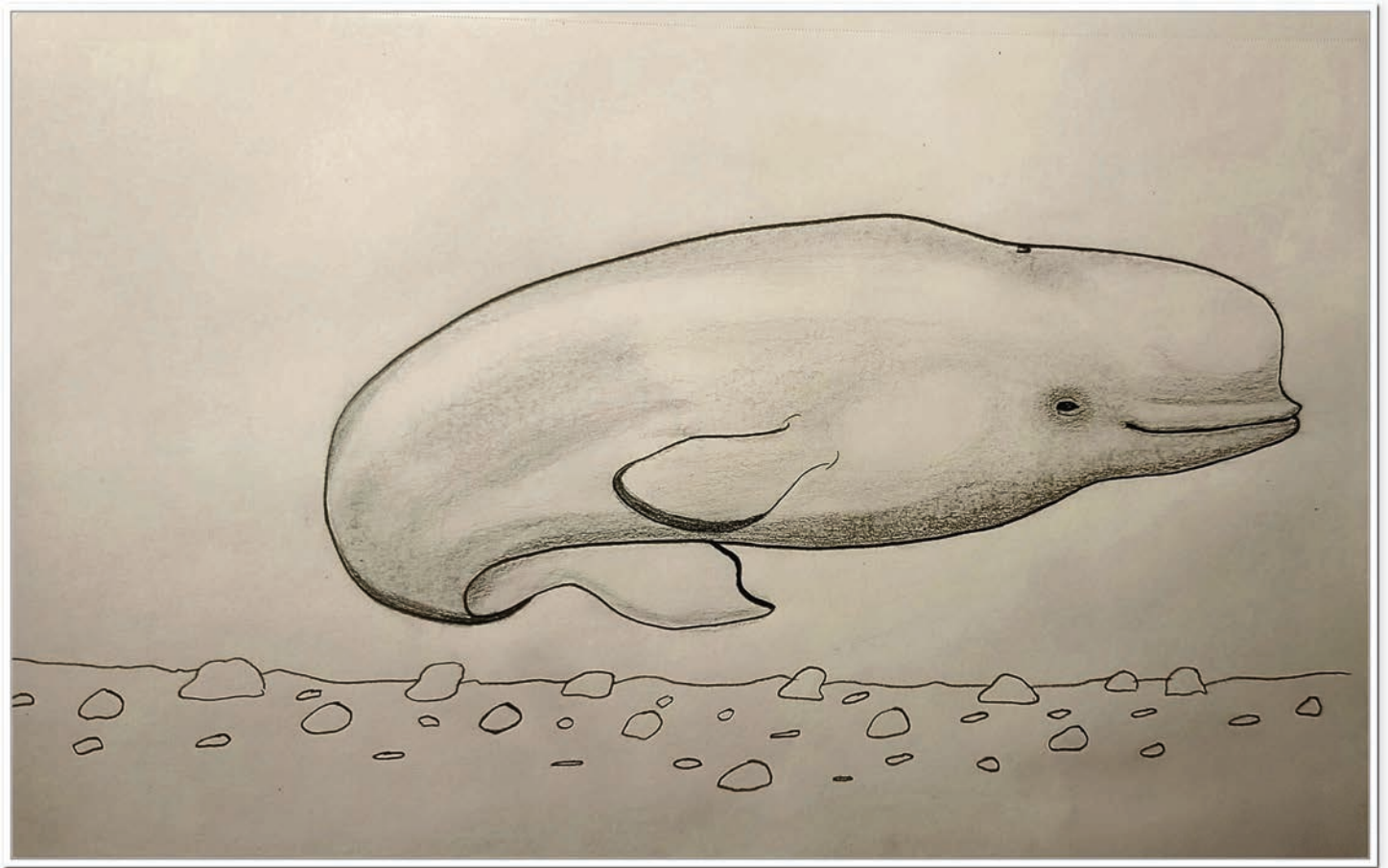
Tuktoyaktuk HTC Dedication - Frank Pokiak

Starting in 2000, Frank and his wife Nellie worked as a team at Hendrickson Island as the first coordinator and field lead for DFO and the FJMC's enhanced beluga sampling for health and reproduction. For 13 years, they helped shape beluga research programs and collect a complex suite of beluga tissue, organ, and blood samples for analyses in laboratories across the country, to address beluga health questions important at local and international levels. They contributed greatly to community-based research in the ISR and marked the beginning of the ever-expanding Hendrickson Island beluga health program, which continues to the present day, and has included mentoring of youth, graduate students, future monitors, DFO staff, and the FJMC's core beluga monitors.

Frank also served as the chair of the Inuvialuit Game Council and Tuktoyaktuk Hunters and Trappers Committee, among countless other boards, sharing his knowledge to broaden research approaches and advocate for the Inuvialuit in meetings and presentations across the country. Frank continued to share his knowledge and experience with his family, the community of Tuktoyaktuk, and many others until his passing in 2024, forever shaping collaborative research in the ISR.



Frank Pokiak



Art by Stanley H. Ruben



Preface

2013

When I first became involved with harvesting of Beluga whales I was very young. There was an old man that owned a schooner called the Okeevik and he seen me standing on the beach at Kendall Island and asked me if I wanted to go hunting. I told him okay.

This is what he told me. “If your Elders saying ALL ABOARD, grab your belonging and run to the pump and start pumping you will always go hunting if you are the first on to the pump”.

Then years went by and our family always made our way to the whaling camp. But then we started having better boats and motors, and the need for more whales was less because we then did not have the dog teams to have to hunt more whales. A big part of dog team diet was blubber, and whale meat, with fish.

And today’s way of hunting whales has changed. Now a’ days families come down for 2 weeks to 1 month, not like a long time ago, 3 months or more.

Hank Angasuk, Inuvik

2024

I was fortunate to be able to go whale hunting with my father Steve Illasiak, starting at a very young age of 5 years old. At that time, when the harvest started, the whole family would go out camping for a month or more and everyone in the family would be involved, either in the hunt or preparation of our harvest. My grandfathers, Garrett Ruben and Joe Roy Illasiak, would ensure we had the right equipment to do our hunt.

We also had a community boat called the Arctic Tern, which was maintained and operated by David Ruben. This boat would assist in our community harvests and made for a very safe sea-worthy boat. Today it’s unfortunate to say that our harvest in Paulatuk consists of a few days in and out because of unpredictable weather, the high cost of living, and having a full- time job.

I am still an active harvester and have also been involved in the research and management side of the beluga harvest, as a community beluga monitor and the chair of the Anguniaqvia niqiqyuam Marine Protected Area Working Group for 5 years now.

It is motivating that Inuvialuit are directly involved in the various levels of research and management in the ISR, from carrying-out the work on the ground, to determining what research is conducted and making decisions that benefit our communities.

Jody Illasiak, Paulatuk



Richard Binder Sr.

I was born on Richard's Island in Kidluit Bay, just west of Hendrickson Island at the summer reindeer herding camp, on July 20, 1948. Growing up, we spent every summer there with our Grandparents and were involved in many things during our stay, including whaling. Almost all of the people at camp were Inuvialuit, harvesting whales was and still is a very important activity for the people in the area.

As a teenager, I spent less time at these camps. My parents, aunts, and uncles continued to take my younger siblings and other group-home children to East Whitefish to fish and hunt whales. In the early-80s, I started a relationship with Olive Gordon, and we started going to Whitefish to try our hand at whaling and fishing again, because her and my parents stopped going a few years before. I remember when we got our first whale, we were on the mobile phone with her parents a number of times, asking them "what do we do next?" We got it done. To this day, we continue to go to our camp every year to teach our kids and grandchildren how to hunt and process whales and how to enjoy life.

In 1984, the Inuvialuit signed a comprehensive land claim agreement with the federal government to demonstrate their willingness and desire to be equal partners in the management of those resources. They established co-management bodies to do this and the FJMC was one of those management authorities, established for fish and marine mammals. The Inuvialuit have relied on the resources available to them within the ISR for many generations. So, the first order of business was to develop management plans for these resources in the ISR. I was involved in the development of the first Beluga Management Plan in the mid-80s, as an Inuvik HTC member, along with the Aklavik and Tuktoyaktuk HTCs.

Over the years, with HTC involvement from all six communities, this plan has been reviewed, revised, and implemented to address challenges from development and climate change. This is now the sixth edition of the plan. It is crucial that the community HTCs, their members and youth, continue to be involved in this process to protect the resources that are important to the Inuvialuit.

Richard Binder Sr., Inuvik

Forward

This edition of the Plan, like its preceding versions, has been created by a partnership that has lasted, with ups and downs, for over 40 years. One partner group includes all of the Inuvialuit whale hunters, especially those living in the camps of the Mackenzie River Delta and the nearshore Beaufort Sea communities of Aklavik, Inuvik, and Tuktoyaktuk, and more recently, the outer ISR communities of Paulatuk, Ulukhaktok and Sachs Harbour, NT. The other partner includes biologists, fishery officers, and resource managers of Fisheries and Oceans Canada who worked out of their offices in Inuvik, Yellowknife, and at the Freshwater Institute in Winnipeg.



Game Council



Tuktoyaktuk Hunters & Trappers Committee



Fisheries and Oceans
Canada

Pêches et Océans
Canada



Adam Emaghok and Billy Day

The Inuvialuit Final Agreement (IFA), signed in 1984, sets out the terms of a settlement between the Committee for Original People's Entitlement (COPE) representing the Inuvialuit, and the Government of Canada representing all citizens of Canada, amongst them the Inuvialuit.

As prescribed by Section 14 (61) of the IFA, the Minister of Fisheries and Oceans (now including the Canadian Coast Guard) established the Fisheries Joint Management Committee (FJMC) in 1986. This Committee was established to assist Canada and the Inuvialuit in administering the rights and obligations relating to fisheries within the Inuvialuit Settlement Region as described in the Final Agreement, to assist the Minister of Fisheries and Oceans in carrying out their responsibilities for the management of fisheries, and to advise the Minister on all matters relating to fisheries affecting the Inuvialuit and the Inuvialuit Settlement Region.

To this end, the FJMC across several decades and in cooperation with the Inuvialuit Game Council, and Hunters and Trappers Committees of Aklavik, Ulukhaktok, Inuvik, Paulatuk, Sachs Harbour, and Tuktoyaktuk, and Fisheries and Oceans Canada, undertook the development of a management plan for the eastern Beaufort Sea beluga stock, with objectives consistent with the three IFA Principals¹. This document represents the most recent version of that effort.

The first Beluga Management Plan was completed in 1991. Environmental changes since that time have included a second wave of hydrocarbon-related activities in the 1990s and the alarming reality of a changing climate, driving biophysical changes in the ecosystem such as reduced ice cover, changes in ocean productivity and salinity, more severe storms, increased shoreline erosion, changes in species diversity and ranges, and shifts in predator-prey relationships. Consequently, there has also been increased interest in ecotourism, potential offshore fisheries, and shipping, which comes with risks of ship strikes and acoustic disturbance/displacement of marine mammals from anthropogenic underwater noise. There have also been advances in the generation of paradigm-shifting scientific information on the beluga stock and the enactment of the *Oceans Act* in 1997 (with its possibilities to designate Marine Protected Areas in the ISR, to date those being the Tarium Niryutait Marine Protected Area and the Anguniaqvia niqiqyuam Marine Protected Area).

While this litany of changes and concerns are not only lengthy and complex, they also include unquantifiable risks due to cumulative effects. In this management plan, we attempt to highlight guidance and stressors for all those organizations concerned and involved in ensuring the long-term welfare of the belugas of the eastern Beaufort Sea stock.

1. The basic goals expressed by the Inuvialuit and recognized by Canada in concluding this Agreement are:
(a) to preserve Inuvialuit cultural identity and values within a changing northern society;
(b) to enable Inuvialuit to be equal and meaningful participants in the northern and national economy and society; and
(c) to protect and preserve the Arctic wildlife, environment and biological productivity.

Table of Contents

I. INTRODUCTION.....	18
Reflecting on Past Editions of the Beluga Management Plan.....	18
Purpose.....	19
II. GOALS AND DESIRED OUTCOMES.....	20
Goals.....	20
Desired Outcomes	21
III. GEOGRAPHIC SCOPE	23
IV. STOCK SIZE AND TREND.....	24
Harvester-Recommended Research on Beluga Stock(s) and Their Habitats.....	27
Stock related.....	27
V. HARVESTS AND REMOVALS	28
Subsistence Harvest	28
Size and Trend of Harvest.....	28
Timing of Harvest.....	29
Beluga Harvest Monitoring.....	29
International Cooperation.....	32
Other Sources of Mortality and Factors Influencing Health and Behaviour	33
Entrapments (Savsaat)	33
Implications of Warming Climate.....	34
Marine Vessel Traffic and Risk of Ship Strikes	34
Research and Handling Risk	36
Strandings	36
VI. MANAGEMENT ZONES AND PRACTICES.....	37
Beluga Management Zones	38
Tarium Niryutait Marine Protected Area (TNMPA)	39
Anguniaqvia Niqiqyuam Marine Protected Area (ANMPA)	40
Beluga Management Zones 1 and 2	41
Beluga Management Zone 3	42
Beluga Management Zone 4.....	43
VII. BYLAWS AND REGULATIONS.....	44
Hunters and Trappers Committee Hunting Bylaws and Guidelines	44
Beluga Regulations.....	44
Enforcement	45
VIII. EDUCATION AND PUBLIC AWARENESS	46
IX. TOURISM	47
Cruise Ship Operations and Regional-Scale Tourism	47
Tourism and Beluga Hunting.....	47
ACKNOWLEDGEMENTS	48
SIGNATURE PAGE.....	49
Literature Cited	50
Appendix A – Inuvialuit HTC Beluga Hunting Bylaws and Guidelines	54
Aklavik Hunters & Trappers Committee	54
Inuvik Hunters & Trappers Committee	54
Olokhaktomiut Hunters & Trappers Committee	55
Paulatuk Hunters & Trappers Committee	56
Sachs Harbour Hunters & Trappers Committee	56
Tuktoyaktuk Hunters & Trappers Committee	57

List of Tables

Table 1. Average annual numbers of beluga whales struck, landed, and lost in the Canadian Beaufort Sea subsistence harvests, divided by decade (Harwood et al., 2020; Harwood et al., 2015, FJMC and DFO unpublished data)	30
Table 2. Relevant legislation and regulations for Canadian Beaufort Sea beluga management	50
Table 3. Contact information of organizations that are relevant to the beluga bylaws and regulations	51
Table 4. A list of existing resources that have documented traditional hunting techniques and muktuk preparation	54

List of Figures

Figure 1. Documented summer and winter ranges of the eastern Beaufort Sea Beluga stock, including fall and spring migration areas.....	25
Figure 2. Information on the EBSB stock size and trend. Information in the blue box includes Inuvialuit Knowledge from the 2017 Eastern Beaufort Sea Beluga stock assessment, the 2022 Beluga Management Plan Harvester Working Group meetings, and other sources. Information in the green boxes include findings from various research programs, that are often also informed by Inuvialuit Knowledge and community priorities.....	27
Figure 3. Information on the EBSB stock range. Information in the blue box includes Inuvialuit Knowledge from the 2017 Eastern Beaufort Sea Beluga stock assessment, the 2022 Beluga Management Plan Harvester Working Group meetings, and other sources. Information in the green boxes include findings from various research programs, that are often also informed by Inuvialuit Knowledge and community priorities.....	27
Figure 4. Information on the health and condition of EBSB. Information in the blue box includes Inuvialuit Knowledge from the 2017 Eastern Beaufort Sea Beluga stock assessment, the 2022 Beluga Management Plan Harvester Working Group meetings, and other sources. Information in the green boxes include findings from various research programs, that are often also informed by Inuvialuit Knowledge and community priorities.....	28
Figure 5: The number of landed belugas from the ISR subsistence harvest (shown in blue) from 1982 to 2021, as well as the number of struck and lost belugas (shown in red). R2 values are shown for linear regression models on the number of whales landed and lost over time	31
Figure 6. Timing of recorded beluga harvests in the Inuvialuit Settlement Region from 1982 to 2021. The coloured boxes indicate the range where 50% of recorded values occurred, with the vertical line inside the boxes indicating the median value. The box whiskers indicate the total range of recorded values. Whales harvested outside of the peak harvesting period (typically July-August) may not have been recorded, due to inconsistent reporting when monitors are not available, but would constitute a very low proportion of the total harvest	32
Figure 7. Location, number of whales and year of beluga whale entrapments in the Husky Lakes system (adapted from Harwood <i>et al.</i> , 2020).....	36
Figure 8. Boundaries of the beluga management zones 1 (red), 2 (green), 3 (blue dots), and the MPAs (brown and purple). Zone boundary adjustments for the 2024 edition of this Plan were provided by ISR HTCs	42
Figure 9. Map of the Tarium Niryutait Marine Protected Area	44
Figure 10. Map of the Anguniaqvia niqiqyuam Marine Protected Area	45

Acronyms

BSBMP	Beaufort Sea Beluga Management Plan
CCG	Canadian Coast Guard
DFO	Fisheries and Oceans Canada
EBSB	Eastern Beaufort Sea Beluga
FJMC	Fisheries Joint Management Committee
HTC	Hunters and Trappers Committee
IFA	Inuvialuit Final Agreement
IGC	Inuvialuit Game Council
IRC	Inuvialuit Regional Corporation
ISR	Inuvialuit Settlement Region
TNMPA	Tarium Niryutait Marine Protected Area
ANMPA	Anguniaqvia niqiqyuam Marine Protected Area



I. INTRODUCTION

The Beaufort Sea Beluga Management Plan (BSBMP, Plan) embodies the collective wisdom of the Inuvialuit and lays out conservation and management requirements that seek to guarantee Inuvialuit will be able to hunt beluga in perpetuity. This sixth edition looks to the future and positions the Inuvialuit to confront a new wave of challenges with potential to impact subsistence harvesting opportunities, the health and productivity of the beluga, and the prey base and habitats of the eastern Beaufort Sea beluga (EBSB) stock.

Each spring, qilalugaq (beluga - *Delphinapterus leucas*) from the EBSB stock migrate from their over-wintering areas in the Bering Sea, along the Alaskan North Slope. They reach the Canadian Beaufort Sea and Amundsen Gulf by late May or early June. A large portion of the EBSB stock

aggregates in the estuaries of the Mackenzie River during the summer (mid-June until mid-August): Shallow Bay, east and west Mackenzie Bay, and Kugmallit Bay. Simultaneously, belugas are also present throughout the offshore Canadian Beaufort Sea, Amundsen Gulf, and beyond, during the month of July, and up until the return migration in August and September. The EBSB stock is believed to be one of the largest in the world with an estimated 38,500 animals, based on the most recent survey in 2019 (DFO, 2023). Further, the 2019 estimate was thought to be an underestimate, as EBSB whales cover a large area in the summer and weather conditions limited survey coverage of the Canadian Beaufort Sea and surrounding areas (more detail on the stock status is provided in section IV).

Inuvialuit from the communities of Aklavik, Inuvik, and Tuktoyaktuk travel to traditional coastal hunting camps along shores of the Mackenzie River estuary and harvest belugas during the summer months. Similarly, Inuvialuit from Paulatuk hunt beluga in nearshore waters along the Parry Peninsula and in the southern portions of Darnley Bay. Opportunistic subsistence harvests also occur in the vicinity of Ulukhaktok, increasingly so in recent years, and on occasion in the Sachs Harbour area.

Generations of Inuvialuit and their ancestors have traditionally managed and sustainably harvested beluga whales that summer in the Canadian Beaufort Sea. Beluga whales have been, and remain, the most revered socio-cultural species to the Inuvialuit and constitute a cornerstone of their annual subsistence nutrition and culture.

Through the signing of the Inuvialuit Final Agreement (IFA) in 1984, co-management boards were established for the management of the natural resources within the Inuvialuit Settlement Region (ISR). The Fisheries Joint Management Committee (FJMC), established in 1986, was mandated to advise the Minister of Fisheries and Oceans (now including the Canada Coast Guard) on research, management, activities and issues relating to fish and marine mammals, their habitats, and harvests within the ISR. The signing of the IFA and establishment of the FJMC set the stage for a new era of beluga management.

Reflecting on Past Editions of the Beluga Management Plan

Beluga harvesters and managers realized that new management programs and approaches were required to operationalize the co-management decision-making process. At the time, all parties shared two general goals pertaining to beluga in the ISR: (1) to maintain a thriving population of beluga whales in the Canadian Beaufort Sea, and (2) to provide for optimum sustainable harvest of beluga by Inuvialuit.



James Rogers

To help meet these shared goals, and after extensive harvester engagement and consultation, the first iteration of the BSBMP was published by the FJMC in 1991 (FJMC, 1991). The creation and implementation of the BSBMP required cooperation and participation from the ISR Hunters and Trappers Committees (HTCs), Inuvialuit beluga hunters, the Inuvialuit Game Council (IGC), and Fisheries and Oceans Canada (DFO). The FJMC understood from the outset that for the BSBMP to meet its original goals and remain useful to the people of the ISR, the Plan would need to evolve in-step with real-world circumstances. Consequently, the BSBMP was amended in 1991, 2001, 2005, 2013, (FJMC 1998; FJMC, 2001; FJMC, 2005; FJMC, 2013), and the present version 2024, with intentions to update the Plan on a five-year basis.



Walter Elias, Maureen Rogers and family, Baby Island

These amendments were required at the time to address three major developments relating to beluga management, and drivers of potential impacts on beluga stock status, trend, habitats, and health.

The first was the growing recognition that a suite of marine stressors were emerging over time that would have implications for the sustained integrity of the Beaufort Sea ecosystem. In earlier editions of this Plan, a key driver for considering beluga management in an environment of industrial development was initially linked to the regional oil and gas activities of the 1970s and early 1980s (with renewed interest in the 1990s). Justice Thomas Berger iterated this public sentiment in his 1977 report on the Mackenzie Valley Pipeline Inquiry (Berger, 1977). He wrote, “I recommend that a whale sanctuary be established in west Mackenzie Bay covering the principal calving areas...the whale sanctuary will be an area in which oil and gas exploration will be forbidden at any time of year.”² At its core, the BSBMP continues to ensure any industry activity, including hydrocarbon exploration and development, is in step with community views and practices on sustainable beluga management.

The second major change began in 1997 with the passage of Canada’s *Oceans Act*, which enabled the establishment of the Beaufort Sea Large Ocean Management Area (LOMA) and began a discussion around integrated oceans management and marine protected area designation. Consistent with Berger’s sentiments in 1977 and the implementation of this BSBMP, two Marine Protected Areas (MPAs) were established in the ISR; excluding important beluga habitat from oil and gas rights issuance and working with beluga hunters and co-management bodies to share knowledge and better understand the EBSB stock. The Tarium Niryutait Marine Protected Area (TNMPA), established in 2010 in the Mackenzie River estuary (Figure 9), became Canada’s first Arctic marine protected area. The Anguniaqvia niqiqyuam Marine Protected Area (ANMPA) was later established in 2016 along the Cape Parry Peninsula (Figure 8), being Canada’s second Arctic MPA and the first MPA in Canada for which both Indigenous Knowledge and Science-based Conservation Objectives were developed.

Thirdly, the BSBMP continually seeks to articulate the status or trend of the EBSB stock, based on Indigenous Knowledge and Science, for all IFA co-management boards; and to inform Canada’s growing list of international obligations and collaborators, international management bodies, and outside political organizations.

Purpose

The BSBMP constitutes an overarching management framework that was designed for the Canadian Beaufort Sea and the EBSB stock. It divides the Canadian Beaufort Sea into four management zones and at present two MPAs, each with explicit guidance for regulators, managers, and decision makers. This is for all to use when they consider legislation, regulation, policy or management initiatives, international agreements, environmental assessments, and industrial uses that are consistent with the BSBMP. Since its beginnings as the Beluga Management Strategy in 1986, the BSBMP has reflected the power and success of the cooperative wildlife management regime established under the IFA in 1984.

2. Berger, Thomas. 1977. Northern Frontiers, Northern Homeland: The Report of the Mackenzie Valley Pipeline Inquiry – Berger Report. Minister of Supply and Services Canada.

II. GOALS AND DESIRED OUTCOMES

A central theme of the IFA is its emphasis on the protection and preservation of Arctic wildlife, the environment, and its biological productivity. Equally important is the idea that sustainable wildlife management should facilitate optimal subsistence harvests for present and future generations of Inuvialuit. To date, the BSBMP has achieved both through the principles of conservation and co-management.

The Principles of the IFA are:

1. *The basic goals expressed by the Inuvialuit and recognized by Canada in concluding this Agreement are:*

- a) to preserve Inuvialuit cultural identity and values within a changing northern society;*
- b) to enable Inuvialuit to be equal and meaningful participants in the northern and national economy and society; and*
- c) to protect and preserve the Arctic wildlife, environment and biological productivity.*

Shortly after the signing of the IFA, the *Inuvialuit Renewable Resource Conservation and Management Plan* was developed by the Wildlife Management Advisory Committee (NWT) and the FJMC in 1988. The Plan outlined the long-term strategy for the conservation and management of fish and wildlife within the ISR. The aim of the document was to imbue considerations paramount to successful community subsistence activities into a broader resource management context. Ultimately, the *Inuvialuit Renewable Resource Conservation and Management Plan* led to the advent of *Community Conservation Plans* for each of the six ISR communities. The Community Conservation Plans, first drafted in 1993, and last updated in 2016, presented each community's vision for conservation and sustainable resource management (Community Conservation Plans, 2016).

This 2024 amended edition of the BSBMP is consistent with the themes, goals, and intent of both the *Inuvialuit Renewable Resource Conservation and Management Plan* and the *Community Conservation Plans*. The goals of the BSBMP are described below. Goals 1 & 2 were the original goals of the first BSBMP. Goal 3 was added in 2013 after an assessment of Inuvialuit, governmental, and industrial priorities, coupled with a changing climate. Goal 4 was added in 2024 in recognition of the importance of maintaining cultural practices.

Goals

1. *To maintain a thriving population of beluga in the Beaufort Sea.*

In a present day context, ensuring a healthy and abundant population of beluga whales in the Beaufort Sea requires continued effort in the following areas: (1) empowering the Inuvialuit to co-manage and monitor the eastern Beaufort Sea beluga stock; (2) maintaining and strengthening linkages between implementation of the BSBMP and the management and monitoring of the Marine Protected Areas; and (3) providing community-based beluga management requirements and recommendations into the Inuvialuit environmental impact screening and review processes as well as any applicable federal assessments.

2. *To provide for optimum sustainable harvest of beluga by the Inuvialuit.*

In a present day context, guaranteeing an optimal sustainable harvest of beluga by the Inuvialuit requires: (1) collection of harvest data by Inuvialuit; (2) opportunities for ongoing assessment of the overall health of the eastern Beaufort Sea beluga stock using both Indigenous Knowledge and scientific knowledge and methods; (3) support for existing and new on-the-land programs that teach Inuvialuit youth traditional harvesting practices; and (4) communicating the sustainability of the subsistence hunt to the broader public when and where appropriate.

3. To create opportunities for the Inuvialuit through non-disruptive activities.

Consistent with the IFA and subject to paramount conservation and harvesting priorities, generating economic opportunities for the Inuvialuit through non-disruptive activities involves consideration of: (1) non-disruptive tourism within the two Marine Protected Areas; (2) working with the scientific community on monitoring and observational data collection and building synergies between existing programs; (3) opportunities related to traditional film or art; and (4) sustainable development.

4. To promote beluga harvesting and consumption of beluga by Inuvialuit beneficiaries.

Mitigation of the waning interest in harvesting and consumption of beluga by new generations of Inuvialuit through enhanced education on the value of traditional foods and opportunities for training about harvesting, food preparation, and storage methods. Education, resources, training, and equipment are required to advance this goal.

Desired Outcomes

Previous iterations of the BSBMP provided objective statements within each section of the plan. These objective statements have been re-cast and updated as desired outcomes of the BSBMP. They are grouped according to theme below.

1. Sustainable Harvest

- To provide for a level of harvest that generates the greatest net benefit to the Inuvialuit while ensuring the long-term sustainability of beluga in the Canadian Beaufort Sea.
- To ensure an efficient harvest and low loss rates.
- To develop, support, and implement educational programs that ensure and enhance safe, sustainable harvesting.

2. Conservation and protection

- To conserve and protect beluga, beluga habitat, and beluga harvesting.
- To provide guidelines and information to assist Government, the Environmental Impact Screening and Review Processes, MPA management planning, and the Inuvialuit Lands Administration in the evaluation of development proposals which may affect beluga, beluga habitat including their prey, or beluga harvesting.
- To provide guidelines that inform industrial development proposals and marine vessels transiting through the ISR.

3. Tourism and Economy

- To ensure that tourism activities do not interfere with subsistence harvesting and traditional cultural practices.
- To facilitate Inuvialuit-led opportunities associated with beluga viewing, while avoiding any and all impacts of such activities on the beluga stock and beluga harvesting, in accordance with HTC beluga bylaws and guidelines.
- To ensure that all marine transits through MPAs with an MPA Activity Plan and beluga management Zone 2, as outlined in this plan, other than for harvesting, are reviewed by the HTC in that area, stay within community-endorsed shipping routes, and respect voluntary vessel speed guidance as per the Canadian Coast Guard Notice to Mariners (Canadian Coast Guard, 2024).



Photo by Angus Green

4. Bylaws and Regulations

- To protect and conserve the eastern Beaufort Sea beluga resource and the harvest of that resource.
- To formulate, amend and implement guidelines, bylaws, and regulations necessary to protect the beluga, beluga habitat, and beluga harvesting.
- To promote outreach and education of HTC beluga bylaws and guidelines (Appendix A).

5. Management and Monitoring

- To provide the necessary harvest and biological information for the conservation, management, and optimal use of the eastern Beaufort Sea beluga stock.
- To obtain new scientific information and mobilize and document Indigenous Knowledge about the eastern Beaufort Sea beluga stock, as required for the implementation of this management plan.

6. Education and Public Awareness

- To develop, initiate, and implement new and existing hunter education programs, so that all hunters, in particular younger hunters and youth, understand the principles of conservation and the reasons for bylaws and guidelines, sampling and reporting, safe preservation, and preparation.
- To promote the cultural practices of beluga hunting and beluga consumption by the Inuvialuit.



III. GEOGRAPHIC SCOPE

Maps included in the various sections of this Plan depict the ISR and the entire range of the EBSB (Figure 1), the existing beluga management zones in the ISR (Figure 8), and finally, individual maps of the TNMPA (Figure 9) and the ANMPA (Figure 10).

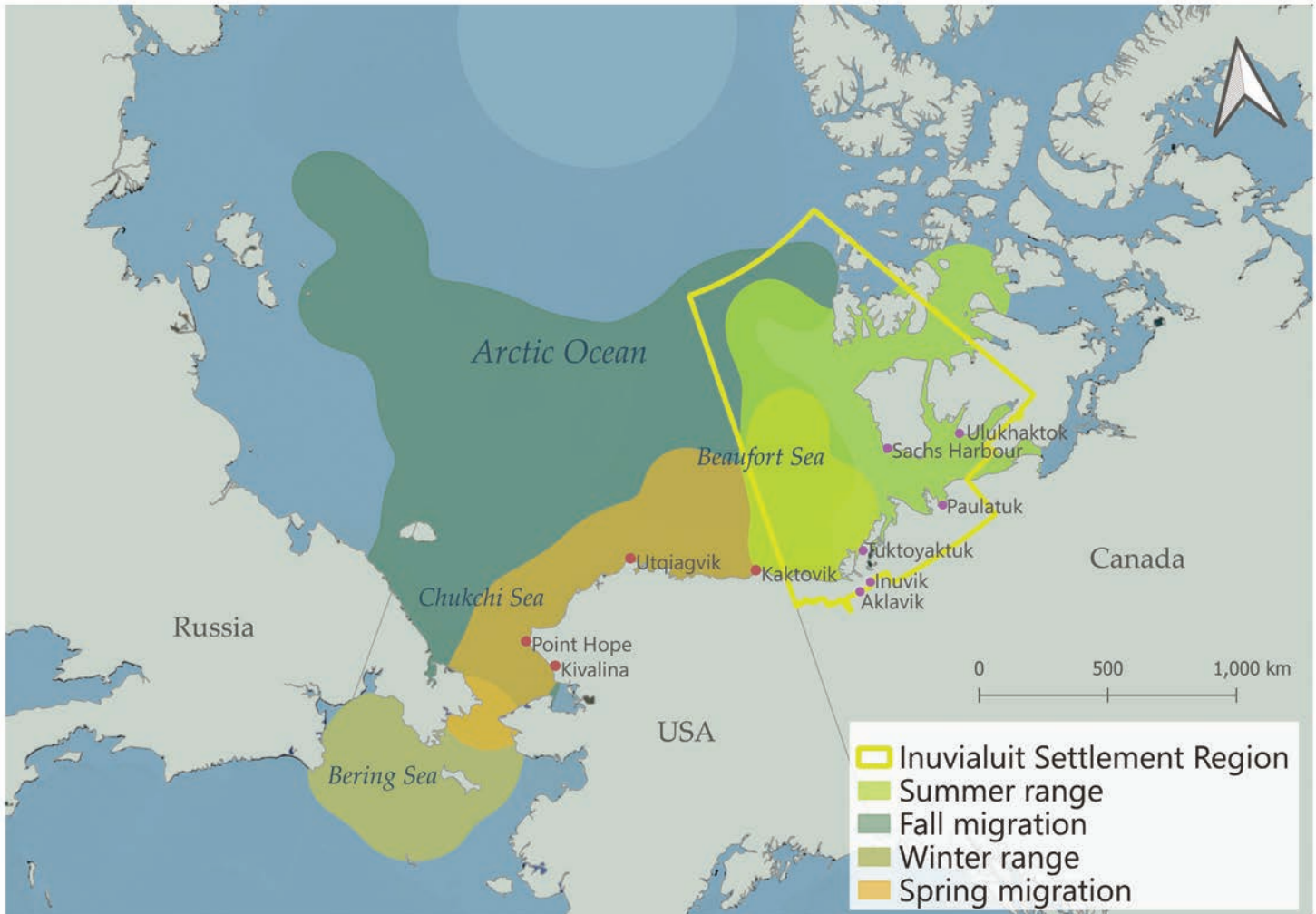


Figure 1. Documented summer and winter ranges of the eastern Beaufort Sea Beluga stock, including fall and spring migration areas.

The EBSB provisional management stock (Lowry *et al.*, 1988) winters in the Bering Sea, and in spring migrates following the north coast of Alaska to summering areas in the Mackenzie River estuary, the offshore Beaufort Sea and Amundsen Gulf (Fraker, 1979). The stock is shared with Alaska and Russia and is one of the largest stocks of beluga in the Canadian Arctic.

Beluga whales arrive to offshore waters of the ISR in late May and June. During July, the belugas mainly aggregate in the warm, shallow waters of the Mackenzie River estuary (Norton and Harwood, 1986), although offshore aerial surveys (1984 and 1992) and satellite tracking (1993-1997 and 2018-2019) revealed that the beluga travel regularly between the estuary and offshore during the month of July (Norton and Harwood, 1985; Richard *et al.*, 2001; Storrie *et al.*, 2022). During August and September, belugas regularly travel to distant habitats including Viscount Melville Sound and Amundsen Gulf.

The Inuvialuit of the Western Arctic have a long history of hunting belugas from the EBSB stock while in Canadian waters (McGhee, 1988; Day, 2002), in particular within the Mackenzie River estuary. Their Inuit ancestors have conducted a self-regulated harvest for centuries (Nuligak, 1966). They are holders of local hunting and Indigenous Knowledge regarding the beluga stock and its habitats, are active stewards of the beluga resource on which they depend, and are well-positioned to manage the stock under the IFA's co-management regime (Government of Canada, 1984).

IV. STOCK SIZE AND TREND

Here we provide a review of present status of EBSB stock size and trend (Figure 2), stock range (Figure 3), and beluga health and condition (Figure 4), using both scientific and Indigenous Knowledge. Indigenous Knowledge was mobilized during dedicated sessions in 2017 (Harwood *et al.*, 2020) and with a dedicated harvester working group established in 2022 explicitly for this purpose (February 17-18, March 15-16, September 16, 2022, meeting minutes on record at the FJMC office). At these sessions, experienced beluga harvesters shared their own knowledge and experiences in a focused group discussion and reviewed the outcomes with their respective HTC.

Stock Size and Trend

Based on the decades of harvesting knowledge, observations, and experiences of 12 Inuvialuit hunters participating in the 2017 Eastern Beaufort Sea Beluga stock assessment, there was agreement by consensus that the stock was stable or increasing. The methods used to mobilize and summarize this Inuvialuit Knowledge, and a verbatim summary of the Knowledge, are documented in Harwood *et al.* (2020).

The eight HTC-appointed Inuvialuit hunters from the 2022 Beluga Management Plan Harvester Working Group Meetings similarly concluded by consensus that the stock was stable or increasing, during round table discussions at three 2022 working group meetings. The Inuvialuit Knowledge Holders also reported:

- Increasing numbers of calves observed during hunting, over time, interpreted as an indicator of stock health, productivity and an increase in stock size. An Ulukhaktok harvester reported seeing a cow-calf pair as late as October.
- Larger pod sizes in recent years.
- Possible changes in the beluga's diet given that whales arriving in spring are thinner than they used to be.
- An expansion of the late summer distribution of belugas offshore following the estuary occupation period (including up the Mackenzie River as far as Fort McPherson, around Sachs Harbour, and into Tuktoyaktuk Harbour), which is thought to reflect an increasing stock size.

These changes may be linked to climate warming influences on hunting conditions, the prey base, and sea ice. Hunters have lately delayed hunting later into the season, to allow time for the belugas to regain condition.

Aerial Surveys: Extrapolated counts of surfaced beluga in the July 23-25, 1992, survey area produced an index of stock size of 19,629 (CV = 0.229) (Harwood *et al.*, 1996), which was later corrected to account for whales below the surface to be 40,000 (Hill and DeMaster, 1999).

A DFO aerial survey flown July 15-August 3, 2019, and corrected using satellite telemetry results from 2018 and 2019 (Storrie *et al.*, 2022), produced an updated estimate of stock size of 38,500 (95% CI = 20,700–71,300) (DFO, 2023). This estimate was similar to the 1992 survey and was further thought to be an underestimate, as EBSB whales cover a large area in the summer and weather conditions limited survey coverage in 2019.

In 2004, the eastern Beaufort Sea beluga provisional management stock was assessed by COSEWIC as Not at Risk. A reassessment of the stock was delayed, at the request of the IGC and FJMC, due to forthcoming scientific and Indigenous Knowledge studies.

Hobbs *et al.*, 2020 (NAMCO) – reports this is “not a stock of concern”.

A 2000 DFO assessment of the EBSB stock concluded that the annual harvest level was far below a level that might negatively affect such a large population (DFO, 2000).

A decline in the size of the harvest was noted by the Inuvialuit Knowledge holders from the 2022 Beluga Management Plan Harvester Working Group. The decline in the size of the harvest was attributed to a reduced interest in beluga hunting and consumption of beluga by younger generations, in addition to changing environmental conditions, resulting in less frequent good hunting days with calm weather. Hunters have also begun to delay their hunting until later in the season, to allow time for the belugas to regain condition.

Community-specific research on the beluga harvest, such as Worden *et al.* (2020) and Waugh *et al.* (2018), have noted that declines in harvest in some areas are also reflections of climate change impacts on accessibility (i.e. coastal erosion and unpredictable weather), as well as social change like the loss of elders and their Knowledge.

A decline in struck and lost rates were also noted by the Inuvialuit Knowledge holders from the 2022 Beluga Management Plan Harvester Working Group. The decline in the struck and lost rates were linked to the establishment of the HTC beluga bylaws and guidelines for safe and responsible hunting.

Figure 2. Information on the EBSB stock size and trend. Information in the blue box includes Inuvialuit Knowledge from the 2017 Eastern Beaufort Sea Beluga stock assessment and the 2022 Beluga Management Plan Harvester Working Group meetings. Information in the green boxes include findings from various research programs, that are often also informed by Inuvialuit Knowledge and community priorities.

Stock Range

The expert observations and long-term experience of hunters participating in both the 2017 assessment, and the 2022 Working Group, stated that the range of EBSB was expanding, with beluga being seen more often and in greater numbers in habitats distant from the Mackenzie estuary, and in areas/habitats where they were not traditionally observed. In addition, an expansion of the late summer distribution of belugas offshore following the estuary occupation period (including up the Mackenzie River as far as Fort McPherson, around Sachs Harbour, and into Tuktoyaktuk Harbour).

Beluga harvest numbers in the outer coastal ISR communities reflect these changes. In 2014, 37 belugas were harvested by hunters from Ulukhaktok. This was the first-time such a large beluga harvest had been recorded in the Ulukhaktok area (Loseito *et al.*, 2018a; Harwood *et al.*, 2020). Previous Ulukhaktok harvest numbers were at a rate of 1-2 per decade. Since 2014, beluga harvests in Ulukhaktok have been recorded more frequently, with another relatively large harvest of 18 belugas occurring in 2021. This is similar to the pattern of beluga harvest numbers increasing and becoming more consistent in the Paulatuk area, since the 1990s (Harwood *et al.*, 2020).

Telemetry data has helped provide spatial and temporal data about the year-round range and distribution of EBSB (e.g. Storrie *et al.*, 2022; Figure 2). Although, it is important to note that the number of tagged whales represents a very small fraction of the population and while a decadal analysis is underway, all tagged whales were from the Mackenzie estuary and may bias the dataset (e.g. no tagged whale has entered Darnley Bay).

Observations outside of the general home range:

- Belugas were harvested in 2010 in Kugluktuk, NU, and were thought to be part of the EBSB stock, however samples were not obtained for genetic confirmation. In 2021 belugas were landed in Kugluktuk and samples were collected to support genetic analyses using microsatellites that supported these belugas were from the EBS rather than the high Arctic or Hudson bay beluga (DFO *pers. com*). The same year, belugas were also landed in Iqaluktuittiaq, NU, however no samples were obtained for genetic testing
- One beluga observed in Seattle Washington in 2021 was identified to likely be from the EBSB stock using eDNA in scat samples (NOAA *pers.com*).

Arrivals & Departures:

- Historical records and Traditional Knowledge document belugas entering the Mackenzie Estuary soon after landfast ice breaks up providing access to the area in late June, and forming large aggregations until late-July or early August (Fraker, 1979, Norton and Harwood, 1986). This rapid entry following breakup is still observed today (Hornby *et al.*, 2016; Scharffenberg *et al.*, 2019, 2020). Ice breakup is now occurring earlier in the year (Loseito *et al.*, 2018b), meaning belugas have access to the estuary earlier; this has been noticed by Inuvialuit hunters (Waugh *et al.*, 2018, Worden *et al.*, 2020; Harwood *et al.*, 2020) and observed in passive acoustic monitoring datasets (Scharffenberg *et al.*, 2019).
- There are also observations of belugas leaving the Mackenzie estuary later than in the past (Harwood *et al.*, 2020) and in recent years belugas have been detected on hydrophones in the delta in late-August and early September (DFO *unpublished data*).

Inuvialuit Knowledge Holders from the 2022 Working Group also observed earlier arrivals of EBSB in the ISR over the last two decades. These changes may be linked to climate warming influences on the prey base and sea ice.

Figure 3. Information on the EBSB stock range. Information in the blue box includes Inuvialuit Knowledge from the 2017 Eastern Beaufort Sea Beluga stock assessment and the 2022 Beluga Management Plan Harvester Working Group meetings. Information in the green boxes include findings from various scientific research programs, that are often also informed by Inuvialuit Knowledge and community priorities.

Beluga Health and Condition

In addition to increasing numbers of beluga calves being observed, the Indigenous Knowledge Holders and harvesters from all ISR communities in the 2022 Working Group reported **regularly and consistently observing a trend toward thinner whales**, particularly in the early season arrivals; and noting this has mostly resolved by August. Habitats are changing due to climate change; an increased prevalence of tunicates and sea urchins observed around Ulukhaktok may be an example of this.

When investigating health, scientists measure and evaluate various endpoints or indicators to build a more fulsome picture, as ascribing and describing health is complex. Veterinarian methods promote the use of *One Health* approaches that bridge multiple disciplines. Given IK is holistic in nature, the inclusion of IK together with scientific data provides another opportunity to build a more complete understanding of beluga health.

DFO and the FIMC have worked with the ISR HTC's from 2013 to 2017, to bring Inuvialuit voices, Knowledge, and observations on beluga health to enhance approaches in documenting the harvest and health monitoring program (Ostertag *et al.*, 2018). Community harvesters typically target 'healthy' looking whales, thus the sample set from which to describe health at a population-level can be biased, however harvester observations and IK can encapsulate more than just the harvested belugas. Below are brief statements on published findings on beluga health that often include both science and IK.

1) Health Assessment:

- a) Full necropsy health assessments completed by veterinarian evaluation of landed whales (2015-2016) concluded that whales were healthy and in good condition. A repeated health assessment is currently underway (2023-2024).
 - b) It is recommended that these health assessments repeat every 5-10 years.
- ### 2) Observations of Condition:
- a) A decline in size at age was observed in whales landed from 1989 to 2008 (Harwood *et al.*, 2014). Beluga condition described by girth and blubber in whales landed in 2011 to 2014 were related to sea ice and diet markers of Arctic cod (Choy *et al.*, 2017). Inuvialuit observations identified 2014 as a year of slightly lower condition than 2015 (Ostertag *et al.*, 2019) and was hypothesized to be linked to a reduction in available adult Arctic cod (Niemi *et al.*, 2019), the driver of many whales observed in Ulukhaktok feeding on Sandlance (Loseto *et al.*, 2018a). Longer term trends of blubber and girth defined condition (2000-2015) revealed linkages to environmental drivers in their wintering grounds (MacMillan *et al.*, 2019; 2023).
 - b) Observations of beluga health by elders who harvest in the Kendall Island area interviewed in 2012, reported whales to be in generally good health (Ovitz *et al.*, 2023).

3) Diet and Physiology:

- a) The consistency of empty stomachs in landed whales in the Mackenzie estuary (Harwood *et al.*, 2015) has challenged understandings of EBSB diets. Stomachs collected in Alaskan spring beluga harvests point to the importance of Arctic cod and invertebrates (Quakenbush *et al.*, 2015), that have been supported through the use of fat signatures in beluga blubber landed in the ISR (Loseto *et al.*, 2009). Declines in Arctic cod in their diet were observed from 2011 to 2014 and in 2018 and 2019 (Choy *et al.*, 2020; Loseto, *in review*). Evaluation of beluga dive physiology through measuring oxygen capacity revealed the aerobic dive limit was 17.4 min (Choy *et al.*, 2019) which was similar to the deep dive durations determined with telemetry (Storrie *et al.*, 2022). Beluga condition was a predictor of dive ability, whereby whales in better condition had higher oxygen stores and thus could dive deeper (Choy *et al.*, 2019).

4) Diseases:

- a) Whales like all animals are hosts for parasites and will have diseases, determining the normal range and trends remains ongoing work for this population. Evaluation of the herpes virus showed positive for the EBS and Alaskan belugas but that only unhealthy Alaskan belugas showed the skin disease demonstrating the EBS belugas have strong immunity (Nielsen *et al.*, 2018). Concerns on diseases that can pass from animal to human resulted in the health assessment and long-term monitoring of key zoonotics. A recent trend analyses (2014-2020) has found a prevalence of less than 1% of *Toxoplasma gondii* and *Trichinella* were not detected (Hernandez-Ortiz *et al.*, *in review*).
- ### 5) Contaminants Trends:
- a) Concerns of mercury levels in belugas in the late 1990's and early 2000's promoted extensive mercury research. Since the 2000's mercury has been declining or stable (Loseto *et al.*, 2015, Morris *et al.*, 2022).
 - b) Trends in organic contaminants such as PCBs generally remain unchanged from 1989 to 2015 (Noel *et al.*, 2018).
 - c) Microplastics in beluga were detected in 2017 and 2018 at low counts (Moore *et al.*, 2020). Fish and likely prey were measured and were found to have microplastics (Moore *et al.*, 2022).
 - d) Following the Fukushima event, beluga were tested for radionuclides and no measurable impacts from Fukushima on radionuclide levels were found.
- ### 6) Toxicology and Stressor based measures:
- a) Evaluating effects of contaminants remains complex as measuring an effect may suggest an animal is fighting the compound which may be positive but understanding the mechanisms of impact of contaminants at the cellular to the individual level remain part of ongoing studies. Genomic analyses have shown genes associated with responding to contaminants to be active showing a gene level response (Noel *et al.*, 2014; Ostertag *et al.*, 2018). Stress hormones such as cortisol measured in beluga from 2008 to 2010 were low and were not related to contaminant levels (Loseto *et al.*, 2017).

Figure 4. Information on the health and condition of EBSB. Information in the blue box includes Inuvialuit Knowledge from the 2017 Eastern Beaufort Sea Beluga stock assessment and the 2022 Beluga Management Plan Harvester Working Group meetings. Information in the green boxes include findings from various research programs, that are often also informed by Inuvialuit Knowledge and community priorities.

Harvester-Recommended Research on Beluga Stock(s) and Their Habitats

Stock related

- Continuation and expansion of recording harvester observations of beluga groups, condition, and behavior, as well as observations of other marine mammal species that may displace beluga whales.
 - Explore the use of calf counts as an indicator of stock productivity and trend.
- Continuation of genetic research to learn more about the different subgroups within the EBSB stock, as Indigenous Knowledge indicates the EBSB provisional management stock (Lowry *et al.*, 1988) may consist of more than one subgroup; whales taken on the west side are different and do not appear to mix with those taken in the Kendall and Kugmallit Bay areas.
 - Explore the potential to sample skin sloughing sites for genetics research.
- Most harvesters in the working group shared continued interest in the development of less invasive methods for tag deployment and telemetry work, such as the harpoon tag deployment method.
- Exploration of other indicators of beluga health and diet, for example, the taste of beluga meat and muktuk.



Elijah Allen and family



Emma Dick



Jacob Archie, Peter Arey, Titus Allen- beluga workshop, Inuvik

Habitat Related

- Continued use of drones (remotely piloted aircraft systems) to conduct aerial counts of belugas in the ANMPA and elsewhere, to document contemporary patterns and changes in distribution and habitat use.
- Further investigation into harvester reports that acoustic recording devices and other moored instrumentation may alter beluga behaviour, despite not actively emitting sound or signals in the water.
- Investigation into the potential link between beluga arrival and departure times, with the presence or absence of Arctic cisco in Kugmallit Bay.
- Continued evaluation and assessment of the extent, risk, and burden of microplastics and macro-plastics in beluga.

V. HARVEST AND REMOVALS

Subsistence Harvest

Inuvialuit from Aklavik, Inuvik, and Tuktoyaktuk continue to harvest beluga whales from the Mackenzie River estuary each summer. The subsistence harvest comes largely from whale concentration areas in Kugmallit Bay, near Kendall Island, Shallow Bay, and along the Yukon coast between Tent Island and King Point. Traditionally, whale hunting does not occur offshore. The deeper water makes it easy for belugas to escape by diving and more difficult for hunters to recover struck whales.

Harvesters from the three outer, coastal Inuvialuit communities also hunt belugas, mainly during July. Residents of Paulatuk are now conducting a regular annual hunt, which has been monitored/sampled since 1989. In some years Paulatuk has large successful hunts (e.g., 30 belugas harvested in 2005 and 31 belugas harvested in 2022). Harvests at and near Ulukhaktok and Sachs Harbour are at present mostly opportunistic, with occasional recent years where harvest numbers at Ulukhaktok were substantial (e.g., 37 belugas harvested in 2014 and 18 in 2021) (Loseto *et al.*, 2018a).

Size and Trend of Harvest

The harvest of beluga in the ISR has always been self-regulated by the Inuvialuit and limited to the number required for subsistence needs. Even though the harvest has increased over time in some parts of the ISR, such as Paulatuk, the overall trend over the +40 year monitoring record has been toward declining total harvest numbers³ (Figure 5). This is not interpreted as a decline in the size of the stock or the availability of beluga for harvesting (Harwood *et al.*, 2020). Harvest rates vary considerably depending on weather and ice conditions, as well as socio-cultural economics (Worden *et al.*, 2020). Three explanations for the declining harvest include: (1) generally, climate change has negatively impacted the beluga hunt by causing less favorable hunting conditions (higher summer temperatures, more frequent and stronger winds and storms) so hunters have had to adapt, for example hunting at night or later in the season; (2) there has been a reduction in harvest effort, at least in part due to waning interest in traditional foods and limited hunting skills in younger generations; and (3) increased fuel and equipment costs that make traveling and hunting prohibitively expensive.

Table 1. Average annual numbers of beluga whales struck, landed, and lost in the Canadian Beaufort Sea subsistence harvests, divided by decade (Harwood *et al.*, 2020; Harwood *et al.*, 2015, FJMC and DFO unpublished data).

Decade	Canada			
	Struck	Landed (SD)	Lost	% Lost
1970–1979	164.5	133.7 (16.0)	26.0	15.9
1980–1989 ²	140.7	124.0 (23.3)	19.9	13.8
1990–1999	125.1	111.0 (19.0)	13.8	11.2
2000–2009 ³	102.6	97.6 (19.6)	5.0	4.6
2010–2015	91.8	89.5 (11.1)	2.3	2.5
2016–2021	82.6	78 (22.2)	2.6	2.9

³ Whales may be removed from ice entrapments (see section on Other Sources of Mortality and Factors Influencing Health and Behaviour) for humane reasons but are not included as harvested animals as they are generally not fit for consumption due to emaciation.

From 2016 to 2021, an average of 78 belugas were landed annually, with a 2.9% loss rate based on the total number of whales struck while hunting (Table 1). At one time struck and lost rates were estimated to be as high as 15.9% (Strong, 1990). Adoption of conservation-minded community beluga hunting bylaws by the ISR HTC's in the 1990s have resulted in reduced struck and lost rates (Figure 5). This reflects diligence and commitment of the Inuvialuit to the use of best hunting practices. Although 2016-2021 showed a slight increase compared with 2010-2015, this is addressed in this Plan through recommended increased hunter education programs.

Timing of Harvest

The timing of the start of the beluga subsistence harvest has not changed much during the period of 1982–2021 (Figure 6), although hunters are reporting that the whales are arriving to the Mackenzie estuary earlier and leaving later in the season. There are also emerging indications, both in the harvest records from Tuktoyaktuk, and from discussion with Indigenous Knowledge holders and harvesters, that hunting is gradually shifting, taking place later in the season. This is in part because whales are thinner upon arrival than they used to be and hunting later in the season is better timed with the whales having regained body condition after feeding in the ISR habitats. Another factor contributing to delayed harvests is that early summer weather conditions are becoming more frequently less suitable for hunting and processing the belugas.

Beluga Harvest Monitoring

A formal harvest monitoring program was first conducted from 1973 to 1975 (Hunt, 1979) by the Fisheries and Marine Service of the Government of Canada. Following that, an oil and gas industry-sponsored program ran from 1977 to 1982. A DFO-led program then followed from 1981 to 1986, with the FJMC assuming responsibility for that program in 1987. Since many Inuvialuit rely on beluga whales for subsistence, the program's primary goal was to assess the health of beluga whales and the sustainability of the annual harvest of whales.

In the initial years, the basic program was conducted at the seasonal whaling camps in the Mackenzie Delta area, and in some years, from remote camps used by harvesters from Paulatuk. Data were collected from the hunters on number of whales struck, landed, and lost in the harvest, as well as the overall size and timing of the harvest. From 1980 onward, the whales were

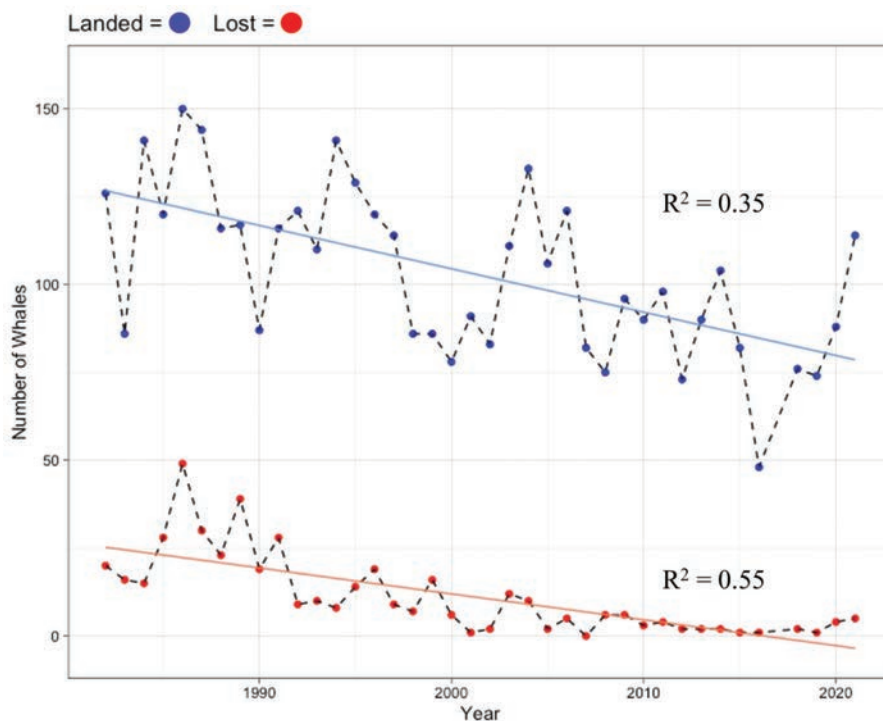


Figure 5: The number of landed belugas from the ISR subsistence harvest (shown in blue) from 1982 to 2021, as well as the number of struck and lost belugas (shown in red). R^2 values are shown for linear regression models on the number of whales landed and lost over time.



Monitors D. Panaktalok and R. Nuyaviak Hendrickson Island 2022

measured, sex determined, and biological samples were taken from almost all of the landed whales. This information was collected to document the size and trend of the harvest, and to assess the health of the beluga stock and the impact of the harvest on that stock. The standardized program has been conducted annually since 1980, with monitors now hired consistently out of five of the six ISR communities. The most recent adjustment to the program included the documentation and incorporation of Inuvialuit approaches to describing beluga health (Ostertag *et al.*, 2018). The overall FJMC program comprises the longest (at present, +40 years) and largest database on harvested beluga in Canada.



Tuktoyaktuk Monitor Training Session 2023

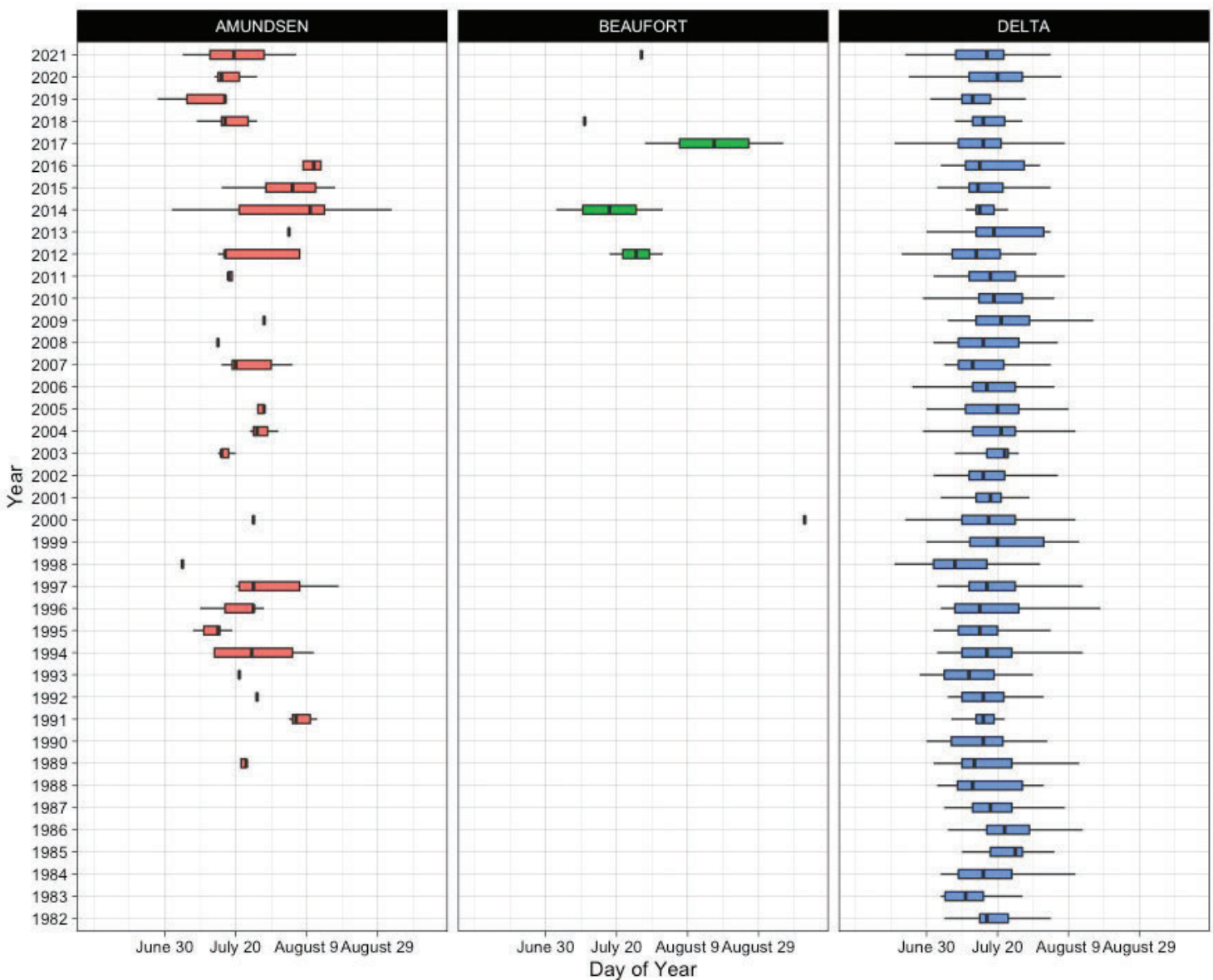


Figure 6. Timing of recorded beluga harvests in the Inuvialuit Settlement Region from 1982 to 2021. The coloured boxes indicate the range where 50% of recorded values occurred, with the vertical line inside the boxes indicating the median value. The box whiskers indicate the total range of recorded values. Whales harvested outside of the peak harvesting period (typically July-August) may not have been recorded, due to inconsistent reporting when monitors are not available, but would constitute a very low proportion of the total harvest.

Before the beluga program commences in mid-June of each year, the Hunters and Trappers Committees (HTCs) in Aklavik, Inuvik, Tuktoyaktuk, Paulatuk, and Ulukhaktok select one or two monitors. The monitors are hired, trained, and positioned to collect the required information. Near the end of the program, the monitors and each HTC submit a final report that summarizes the monitoring season, hunt statistics, and improvements that will need to be made for the following year.

The current FJMC-led program is based on strong partnerships amongst the FJMC, the ISR HTCs, and DFO. Continuous engagement and dialogue help to improve the program and adapt to community needs.

Further Harvest-based Monitoring Results

- Mackenzie Delta and Paulatuk hunters often select males and older animals, a practice that has the benefit of conserving reproductive females. The majority of whales (> 99%) taken in the harvest are mature (99% >10 dentinal growth layer groups, an indicator of age in marine mammals).
- The Canadian harvest of the stock has been highly biased towards males, at a ratio of 4.1 to 1 from 2010 to 2015 (Harwood *et al.*, 2020). This reflects hunter selection to conserve females, particularly females with calves. This practice was formalized with the implementation of community-specific beluga hunting bylaws in the 1990s (Appendix A).
- Incidence and year-to-year variation in harvests in the three outer coastal ISR communities, some of which happens coincidentally with the July aggregation period in the Mackenzie estuary, suggests that the summer range is expanding in some areas, and becoming more variable among years.

Harvester-Recommended Actions to Enhance Beluga Harvest Monitoring

- Continue annual monitoring of the harvest with recording of time and location of landed harvest, whale size, gender, and body condition.
- Maintain and further develop the existing database of hunter observations, including marine mammal stranding events, anomalous environmental conditions, sightings of uncommon species (e.g., dark-coloured whales observed in Kugmallit Bay in recent years; sand eels observed in 2015 following a storm event), and other unusual occurrences.
- Expand collection of information on sick or unhealthy whales that hunters chose not to harvest.
- Improve outreach and education to ensure that all landed whales are recorded by a beluga monitor or reported to the appropriate HTC, if taken outside of the monitoring period or usual hunting location.
- Expand monitoring to include records of harvests taken by beneficiaries from adjacent land claim areas.
- Continue recording of environmental conditions, including water temperature and air temperature in whaling areas and during whaling periods.
- A harvester reward program is currently in place to collect as much information as possible from whales harvested before or after the regular monitoring period, however different solutions should be explored depending on community needs and situation; including readymade sample kits with rewards and on-call monitors, recognizing that recording of the harvest timing and location are prioritized over the taking of samples.



Nellie Pokiak and Lisa Loseto, Hendrickson Island

- Ensure links with existing programs where possible (e.g., the FV Frosti and EMSA-Enhanced Maritime Situational Awareness Program).
- More consistent return and communication of information about harvests and beluga health results to harvesters.
- Timely processing and analysis of biological and aging data, to ensure timely tracking of stock trends.

International Cooperation

The Inupiat communities along the Alaskan North Slope and in the Bering Strait also harvest beluga from the Eastern Beaufort Sea stock. Beaufort Sea belugas are hunted by Inupiat from six coastal Alaskan villages (Diomedea, Kivalina, Point Hope, Barrow, Wainwright, and Kaktovik), during the spring and fall migrations offshore of Alaska (see Figure 1). Residents

from the Russian Chukotka region also take beluga from this stock, thought to be <10 belugas per year.

Traditional hunts occur as the whales migrate to and from their overwintering range in the Bering Sea (Citta *et al.*, 2017) and summer range in the Canadian Beaufort Sea (Richard *et al.*, 1997; 2001). The Inupiat harvest fewer belugas from this stock than the Inuvialuit (Frost and Suydam, 2010); between 2010-2015, approximately 60 (including struck and lost belugas) were harvested by the Inupiat from the Eastern Beaufort Sea stock.

Inuvialuit have connected with the Inupiat on beluga management starting in 1988, with the Alaska-Inuvialuit Beluga Whale Committee (AIBWC), sharing information related to beluga research and harvest statistics (Adams *et al.*, 1993; IIBWC, 2000). Formal collaboration with Russian harvesters is desirable but has not yet been formalized or accomplished.



Kneeling, David Ruben; standing left Nelson Green, standing right Charlie Ruben



Hendrickson Island field team, weighing a beluga, 2023

Because the AIBWC was involved with several stocks in addition to the EBSB stock, a more focused forum was required. Both parties, using the experience gained from the user-based Inuvialuit-Inupiat Polar Bear Commission, established a parallel user-based Inuvialuit-Inupiat Beluga Whale Commission (IIBWC), that brought together those who harvest EBSB from both countries. The IIBWC's objectives are to share information on annual takes, to share research results from both countries and to plan joint research projects. At their meetings, the Commission includes their technical committee (one representative from each of Canada and Alaska plus Indigenous Organization support staff) and invites observers to meetings from time to time.

Other Sources of Mortality and Factors Influencing Health and Behaviour

Entrapments (Savsaat)

It has long been known by Inuvialuit elders that belugas are regular visitors to Liverpool Bay and sometimes travel deep into the brackish waters of the Husky Lakes system during late July and August, in addition to their forays into Amundsen Gulf and Viscount Melville Sound. Here they are believed to prey on diverse and abundant fish resources (Roux *et al.*, 2015); one beluga removed from the December 1996 Husky Lakes entrapment had a large Lake Trout (*Salvelinus namaycush*) in its stomach (fork length 1 m; DFO unpublished data).



Breathing hole in Husky Lakes kept open by 21 trapped belugas, December 1996

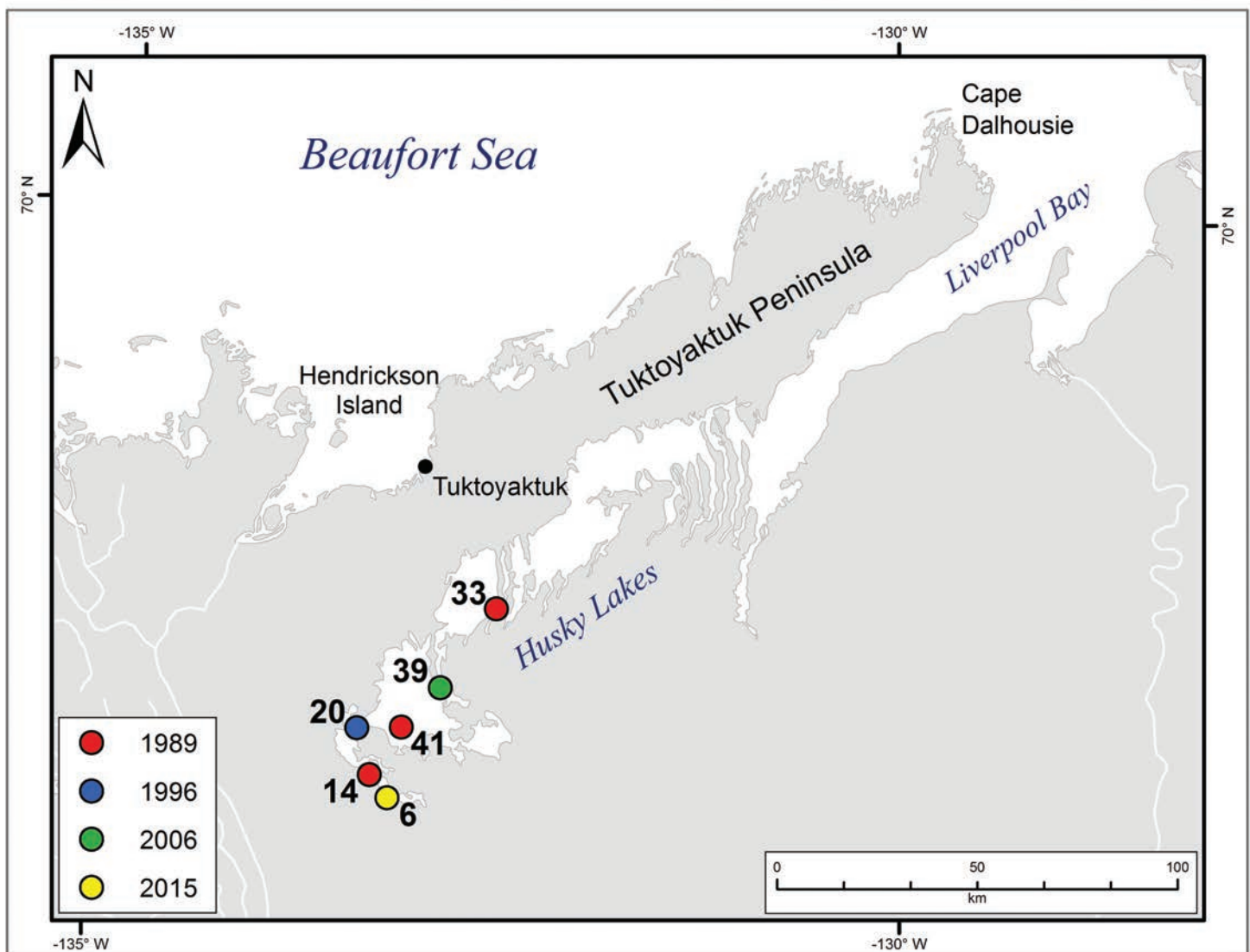


Figure 7. Location, number of whales and year of beluga whale entrapments in the Husky Lakes system (adapted from Harwood *et al.*, 2020).



Photo by Doug Esagok

Occasionally, some belugas do not leave the Husky Lakes prior to freeze-up and become entrapped (Figure 7). Six such beluga ice entrapments, also known as savaats, are known from recent history. These records for Canada's Western Arctic were all located within the Husky Lakes. They have all involved a small number of whales, with a known total of 257 belugas overall drowned, or removed by community hunters (not fit for consumption due to emaciation), between the years 1966 to 2015 inclusive. Overall, the number of beluga lost from the stock due to entrapments has been estimated at < 5/year from 1966–2015 in the ISR. Entrapments of belugas are also known to occur in Russia, with a case of 50 reported in 2021, and ~3000 in 1984.

There has been extensive discussion among partners, and programming by FJMC and communities since 1989, relating to monitoring and deterring beluga from entering the lakes. Approaches have included monitors and a pinger system at Sauniktok Narrows. In cases where large numbers of beluga do enter the lakes, it has been concluded that the deterrent system being used was not effective since whales entered. The discussion continues as to if or how to mitigate these situations, as they seem to be happening more regularly in recent years. Harvesting some of these whales early, for other communities was also raised in discussions.

This Plan recommends continued evaluation of beluga deterrence options, with emphasis on placement of monitors, and review of the efficacy and alternatives to the presently used acoustic deterrence pinger system. Alternatives could include a continuously running camera at the narrows to document the timing and movement of whales, altering the frequency and type of noise emitted by the pinger system, stationing monitors at the narrows, or some combination of these options. A draft Husky Lakes Beluga Entrapment Action Plan was developed after a 2008 workshop in Tuktoyaktuk. All actions related to deterrence, mitigation, and monitoring should be consistent with this Action Plan, once it is finalized.

Implications of Warming Climate

Climate change has been linked to a myriad of biophysical changes in the marine ecosystem, including reduced ice cover, changes in timing of break-up, changes in ocean temperature, productivity and salinity, more severe storms and movement of whales upstream in the Mackenzie River, increased shoreline erosion, changes in forage fish species diversity and range, and shifts in predator-prey relationships. Both predicted and unpredicted impacts of the changing climate on belugas have challenged and constrained the ability of management agencies and systems to respond in effective and timely ways.

There has also been an increased interest in ecotourism, potential offshore fisheries, and shipping activity, all of which come with risks of ship strikes, pollution, and acoustic disturbance/displacement of belugas from underwater noise.

The warming climate impacts beluga whales, their prey, and their habitats, with effects already observed, others emergent, and others not yet observed but predicted to come. Effects at the population level are challenging to observe or measure, yet these must be elucidated. Detecting and mitigating the impacts of climate change on beluga will require some realignment of research and monitoring priorities going forward, coupled with rapid and flexible management actions that include both conventional and novel approaches.

Marine Vessel Traffic and Risk of Ship Strikes

Recreational and commercial vessels transit through the offshore waters of the Beaufort Sea throughout the open water season, sharing these waters with EBSB during their seasonal migrations and summer foraging. EBSB are at unquantified risk from daily exposures to industrial underwater noise produced by ships and other threats related to vessel traffic



Beluga Whale Live Capture, 2005

displacements may only be temporary, the cumulative consequences of these responses to ship traffic are difficult to measure or predict. Beluga also exhibit reduced rates of vocalizations when ships are as close as 5 km in the Mackenzie Delta area (Halliday *et al.*, 2019). At this time, we are challenged to quantify and mitigate these threats, but the risk is not zero given the number and frequency of ships, and is anticipated to increase as vessel traffic from shipping and tourism increases in the years ahead.

within these offshore marine waters during the shipping season. Shipping activity does have significant and increasing potential to disturb, displace, or cause physical harm to beluga whales, including risk of direct strikes. This potential risk also extends into other seasons and parts of their range, in Alaska and Russia.

Evidence from telemetry data paired with Automated Identification System (AIS) data shows that belugas tend to be displaced by ships, responding to ship noise at distances of up to 50 km or more offshore (Martin *et al.*, 2023). The potential for ship strikes is mediated to some extent by their tendency for displacement (i.e., avoidance), which can also invoke physiological responses and disrupt important behaviours (e.g., feeding, nursing, resting, transiting).

Although observations have shown that these



Husky Lakes Entrapment Situation and Response Crew – December 1996

Research and Handling Risk

Handling-types of beluga research, such as live capture of beluga for deployment of satellite tags, darting live beluga to obtain skin samples, or use of drones to record behaviour, all involve varying amounts and methods of interaction, pursuit, and handling which comes with risk of disturbance, displacement, injury, or death. Beluga whale research projects are scrutinized and licensed at many stages during the process of project development, grant application, and legal compliance – to ensure animal welfare and ethics. To minimize these risks, all beluga research and handling studies must be co-designed, co-delivered, co-interpreted and co-communicated with full participation/leadership of Indigenous Knowledge holders and harvesters, in authentic and meaningful ways.

With a warming climate belugas and other animals are experiencing stress that is not easily predicted or measured, and thus are at times more sensitive or vulnerable to injury or death than was observed in the past. A precautionary approach that considers underlying stress must be considered when deciding on acceptability of future handling types of projects.

Site selection, and daily and weekly stop and start times for research and handling, will dramatically affect the scale and nature of disturbances and project outcomes. Research must minimize potential disruption of critical social bonds, particularly those of mothers and calves. The timing and location of the field work should be selected to minimize the potential for disturbance of belugas, and the Indigenous Knowledge holders are best positioned to advise on these selections. Under this Plan, Indigenous Knowledge holders will have the primary responsibility for decisions on pursuit and handling, while the scientists will be responsible to ensure the requirements of the research design are satisfied and optimize function and suitability of instrumentation.

All parties recognize that access to free-ranging belugas is difficult and expensive and achieving an adequate sample size may be impossible. In such cases, co-researchers must face the choice of not conducting the study at all or making a case for reduced statistical power by accepting a smaller sample size. The basis for all decisions of this type should incorporate a balance of science, Indigenous Knowledge, ethics, and logistics.

Strandings

There is not yet a clear understanding of the annual number of beluga strandings (beach-cast or floating) in the ISR and Canadian Beaufort Sea. Observations of strandings to date are reported to, and recorded by the FJMC and DFO, but these remain opportunistic and are limited to travel routes and harvesting locations. Resources are available through the DFO Marine Mammal Response Program to track and respond to marine mammal entanglements, strandings, and other threats, in a more systematic manner. The ISR Joint Secretariat has made initial steps to access these resources, but community engagement sessions have not yet occurred. There have also been initiatives for the development of an MPA specific database, currently underway through the Western Arctic Marine Protected Area Steering Committee and larger ISR Beaufort Sea Partnership discussions and workshops. This database could include observations of all marine mammal stranding events, anomalous environmental conditions, sightings of uncommon species, and other unusual occurrences.



Upper: Hendrickson Island field lab, L. Kikoak
Lower: DFO Winnipeg lab, O. Nielsen

VI. MANAGEMENT ZONES AND PRACTICES

Beluga summering in Canadian waters migrate through areas where oil and gas exploration operations were active during the 1970s, 1980s, and 1990s – and this included concurrent interest and activity in exploring and exploiting hydrocarbon resources from the shelf break and deeper waters of the Chukchi Sea, western Beaufort Sea, and Canadian Beaufort Seas. These areas are also subject to additional disturbances resulting from upstream hydroelectric developments, mining (gravel removal), deep water port development, increased shipping and ship-based tourism, and other linear development projects and activities. Such activities could individually and collectively affect beluga directly (e.g., underwater noise, oil spills) or indirectly (e.g., changes in salinity or integrity of ice, timing of break-up, cascading impacts on prey base). However, the severity, likelihood, and biological implications of these effects are, for the most part, not well understood.

The FJMC’s mandate is to advise Canada’s Minister of Fisheries and Oceans (now including the Canadian Coast Guard) on all matters related to the management and harvest of marine resources within the ISR. The FJMC has no direct ability to regulate the activities of industry and its subsequent environmental effects on marine resources generally, or beluga and beluga habitat specifically. Thus, the tools available to the FJMC are advisory in nature. The primary method relied upon by the FJMC is to provide clear, defensible advice to environmental assessment regimes such as the ISR Environmental Impact Screening Committee and Environmental Impact Review Board, or federal processes established by the Canadian *Environmental Assessment Act*.

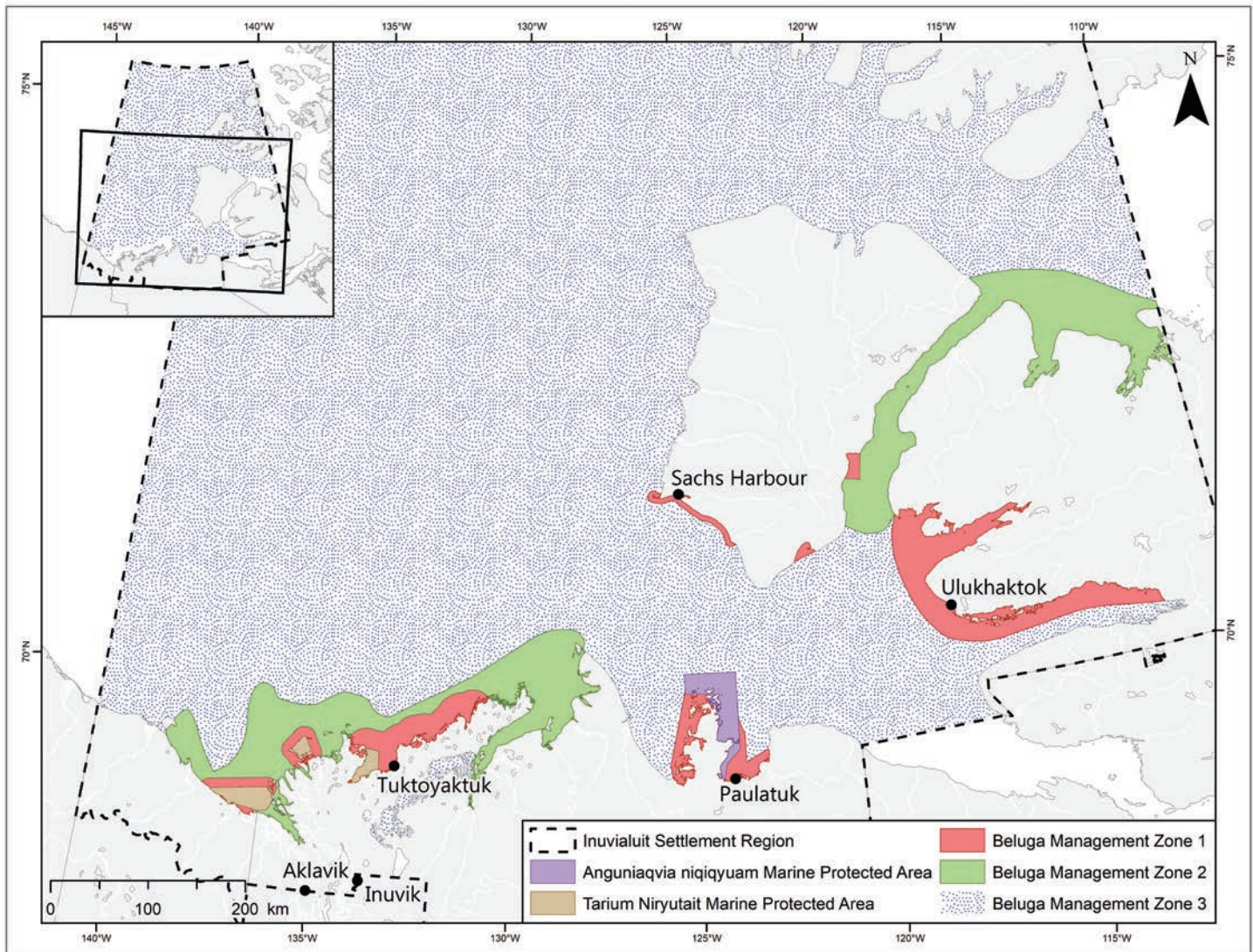


Figure 8. Boundaries of the beluga management zones 1 (red), 2 (green), 3 (blue dots), and the MPAs (brown and purple). Zone boundary adjustments for the 2024 edition of this Plan were provided by ISR HTCs.

Currently, there is a federal order in place for an indefinite, reviewable moratorium on Arctic offshore oil and gas activities (initiated in 2016) that may exceed the guidelines outlined in this Plan. There are several other Acts and regulations that apply to industrial activities in the Canadian Beaufort Sea, administered by various governmental agencies. In addition, the Environmental Screening and Review Process was established under the IFA to inform these regulators as well as ensure that the interests of the Inuvialuit are considered in the review of development proposals which may have impacts on Crown Lands within the ISR. Similarly, the Inuvialuit Lands Administration reviews all proposals for development on Inuvialuit private lands (7(1)(A) and 7(1)(B) lands).

The BSBMP includes two Marine Protected Areas, which have their own set of regulations established in law under Canada's *Oceans Act*, and three discrete management zones that collectively cover the entire ISR (Figure 8). A fourth zone includes the EBSB range in international waters (Figure 1). The rigor of the management measures specified for each zone have been developed to reflect the importance of the particular habitats to beluga. Guidelines are provided for each of the zones, to inform Inuvialuit cooperative management bodies, government, industry, and environmental assessment processes that could directly or indirectly influence the health, habitat, and productivity of the EBSB stock. The overarching rationale for establishing the beluga management zones, and for continuing with this approach, is to highlight spatially significant areas that require customized management and guidance.

Beluga Management Zones

Each spring, belugas migrate from wintering areas in the Bering Sea to summering areas in the Beaufort Sea. Depending on a number of factors including time of year and ice conditions, the migration occurs along the edge of the land fast ice (Zone 2), far offshore through leads in the pack ice (Zone 3), or both. After the migration, from about late June to late July or early August, a large proportion of the stock concentrates in the Mackenzie River estuary (the TNMPA and Zone 1 around the estuary). However, at the same time, a large portion of the stock is widely distributed throughout both Zones 2 and 3, including the ANMPA. There is evidence to suggest some calving may occur in these offshore waters.

During August, even more beluga are sighted throughout the offshore, widely distributed and highly mobile in both Zones 2 and 3. They tend to occur in greatest numbers in Zone 2 waters, especially near headlands and in the lee of islands, where fishing is most favorable, such as near Baillie Islands. Feeding is probably their most important activity in these Zones during August.

Beluga usually begin their return migration in mid-August, using both nearshore waters (Zone 2) and offshore waters (Zone 3). Few whales remain in the region past early September. Deep water generally precludes hunting of beluga in Zone 2; both deep water and distance precludes hunting in Zone 3.



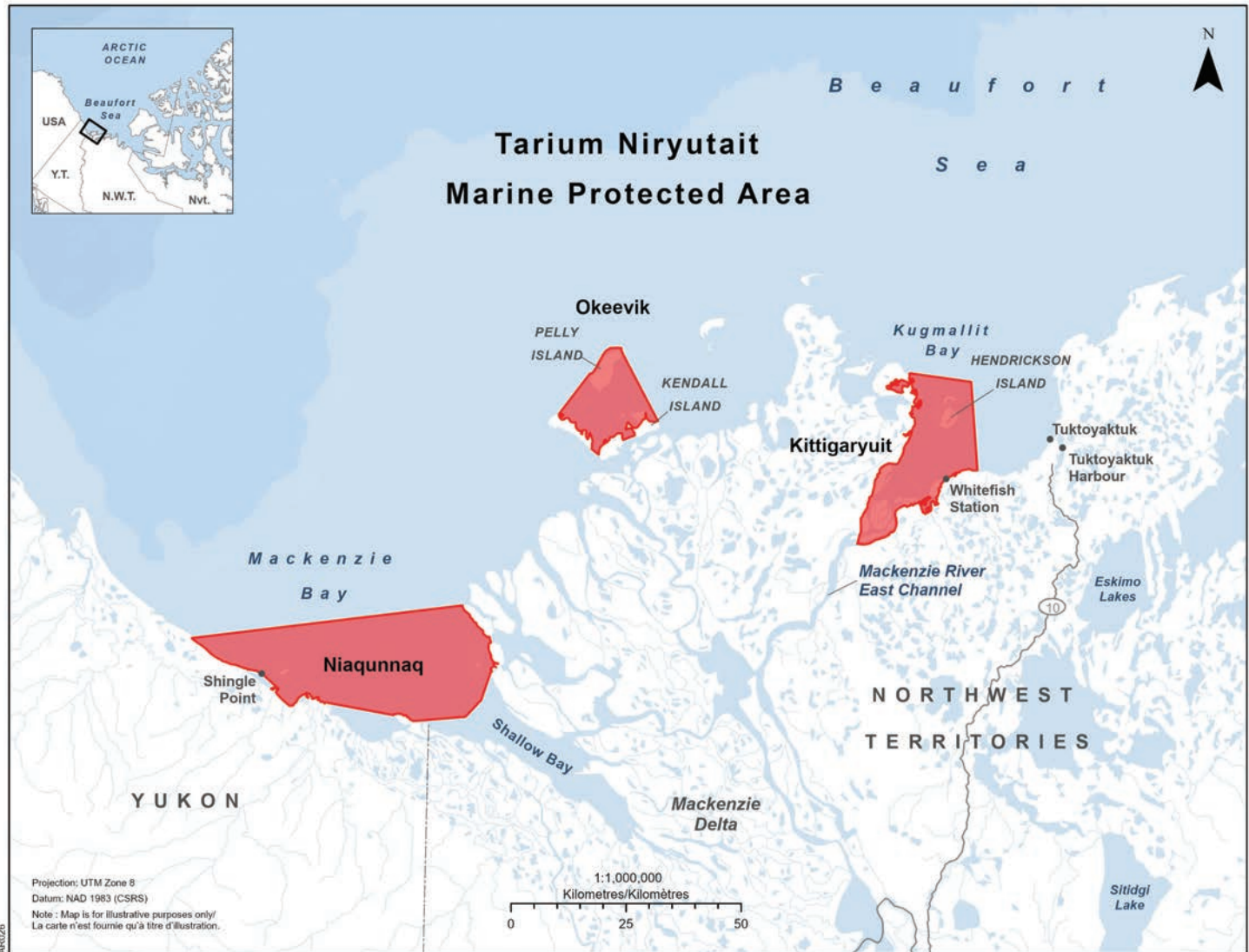


Figure 9. Map of the Tarium Niryutait Marine Protected Area

Tarium Niryutait Marine Protected Area (TNMPA)

The Tarium Niryutait MPA is Canada's first Arctic Marine Protected Area and consists of three sub-areas named Niaqunnaq, Okeevik, and Kittigaryuit. Prior to the designation of the TNMPA, these three areas were beluga management Zone 1A. Together they include approximately 1,750 square kilometres of the Mackenzie River Delta and estuary in the Beaufort Sea, and are an important summering habitat for Eastern Beaufort Sea beluga. These waters are shallow (less than 5 m in depth), warm, brackish and highly turbid. These areas are where the annual Inuvialuit traditional harvest by hunters from Inuvik, Tuktoyaktuk, and Aklavik take place.

Traditional Knowledge and science hypothesize that beluga may move among and between these concentration areas – and are known to widely use offshore waters as well. It is not well understood why belugas use the estuaries in such vast numbers; possible explanations include some combination of the following: calving, calf rearing, moulting, and socializing.

The rationale for creating the TNMPA was two-fold. First, it was a response to renewed interest in offshore hydrocarbon exploration and development in the 1990s, in waters adjacent to critical estuarine habitat. Second, there was concern that the potential risks and pressures associated with offshore hydrocarbon activities may require enforcement under regulatory framework. The BSBMP relies on voluntary compliance to management guidelines.



Figure 10. Map of the Anguniaqvia niqiqyuam Marine Protected Area.

The process that culminated in the completion of the TNMPA was not simple or quick. After nearly ten years of consultations and planning, consensus was reached to put forward the three BSBMP Zone 1A areas as federal Marine Protected Areas under Canada’s *Oceans Act*. Designation of these three areas as federal MPAs provided the statutory means to ensure sustainable management of the beluga stocks and their habitat. It also provided a legislative framework to protect and preserve harvesting traditions central to Inuvialuit culture.

The following links provide access to the TNMPA regulations⁴ and the TNMPA management and monitoring plans⁵, although MPA governance are working on updating these documents. Following the completion of the MPA Standards process, it is the expectation of Inuvialuit Communities and the TNMPA working group, that the activity plan process will be included in the TNMPA regulations and management structure.

Anguniaqvia niqiqyuam Marine Protected Area (ANMPA)

The Anguniaqvia niqiqyuam MPA, Canada’s second Arctic MPA, was designated under Canada’s *Oceans Act* on 16 November 2016. It is unique in that it is the first MPA in Canada for which both Indigenous Knowledge and science-based Conservation Objectives (COs) were developed. The ANMPA is located in Darnley Bay, NT, covering an area of 2,361 km², and borders the east coast of the Parry Peninsula, approximately 10 km west of the community of Paulatuk, NT, in the Inuvialuit Settlement Region.

Preparation and implementation of the ANMPA Management Plan is underway. That document will provide overall guidance and structure for the day-to-day management, governance, reporting, and monitoring in the ANMPA, and will describe public education and outreach, enforcement and compliance initiatives, as well as regulatory and non-regulatory measures, and ensuring continued support of other legislation, regulations, and policies that contribute to the protection of the ANMPA (ANNMPA regulations⁶).

The Monitoring Plan for the ANMPA is one of several priority items required under the ANMPA Management Plan. It is consistent with the legislation, principles, practices and intent of the Inuvialuit Final Agreement (Government of Canada, 1984), and the principals of DFO’s Integrated Oceans Management (IOM) initiative. Subject to conservation, this Monitoring Plan emphasizes co-production of scientific, Indigenous, and local knowledge, in order to inform ecosystem-based management, ensure continued traditional pursuits including but not limited to harvesting, and not preclude opportunities for socio-economic development. The Monitoring Plan will seek to generate realistic data and outcomes against which future monitoring results can be evaluated in credible and defensible ways. Consultation, iteration, careful planning, flexibility, and paced implementation are critical elements of the Monitoring Plan.

4 Government of Canada – Justice Laws Website. Tarium Niryutait Marine Protected Areas Regulations. <https://laws-lois.justice.gc.ca/eng/regulations/SOR-2010-190/page-1.html>

5 DFO. 2013. Tarium Niryutait Marine Protected Areas Monitoring Plan. http://www.beaufortseapartnership.ca/wp-content/uploads/2015/05/TNMPA-Monitoring-Plan_Final.pdf

6 Government of Canada – Justice Laws Website. Anguniaqvia niqiqyuam Marine Protected Areas Regulations. <https://laws-lois.justice.gc.ca/eng/regulations/SOR-2016-280/page-1.html>

Beluga Management Zones 1 and 2

Description of Zones 1 and 2:

Zone 1 includes the traditional harvesting and concentration areas of belugas that are not included in the MPAs and as such are considered the areas of highest significance outside of the MPAs (Figure 8):

- The backwater of Shingle Point and a buffer area north of the Niaqunnaq subarea of the TNMPA;
- Shoalwater Bay;
- Buffer areas around the Okeevik and Kitigaryuit subareas of the TNMPA, with an extension east to McKinley Bay;
- Non-ANMPA areas around the Parry Peninsula, where belugas are harvested by residents of Paulatuk; and
- Areas near Sachs Harbour and Ulukhaktok where residents occasionally harvest beluga.

Zone 2 includes areas outside Zone 1 and the MPAs, that are considered to be crucial beluga habitats identified by the HTC's (Figure 8). These areas are of equal significance to Zone 1 and as such have the same guidelines.

Guidelines for Zones 1 and 2

1. In the review of any development proposal, Zone 1 and 2 are to be considered a Protected Area according to the guidelines described in the Inuvialuit Renewable Resource Conservation and Management Plan. The oil and gas industry will not be permitted to explore for resources within or on the shores of any Zone 1 and 2 waters, nor produce hydrocarbons or construct/operate any type of facility.
2. No mining activities (e.g., gravel removal) will be permitted within or on the shores of any Zone 1 and 2 waters.
3. Development activities such as hydro-electric or mining projects, even if located outside of Zone 1 and 2, will be evaluated for their potential deleterious effects on water quality and quantity, as well as the salinity and integrity of ice in Zone 1 and 2 waters.
4. All shipping activities (including cruise ship operations and dredging) will comply with the Polar Code under the Canada Shipping Act, and the current Canadian Coast Guard Notice to Mariners (NOTMAR) regarding vessel speeds, and, when completed and ratified, adhere to the community-endorsed shipping corridors and exclusion areas. Ship passage through or close to Zone 1 and 2, even if it is the shortest route, will be avoided during the ice-free season.
5. Additionally, cruise ship operators will respect and comply with the ISR Cruise Ship Management Plan (IRC, 2022), including the slow down zones, securing of local marine mammal observers, and retention of wastewater, graywater, ballast water, and sewage while travelling through the Inuvialuit Settlement Region.
6. No unauthorized port development will be allowed within or on the shores of Zone 1 and 2 waters.
7. New proposals for commercial fishing in Zone 1 and 2 waters will be reviewed according to the Beaufort Sea Integrated Fisheries Management Framework (BSIFMF), while considering and minimizing any potential direct or indirect impacts to beluga habitat, prey, and other ecosystem components.
8. Recognizing the prohibitions identified above, it is recommended that parties proposing any development, the government agencies evaluating such proposals, and other parties interested in development within or adjacent to Zone 1 and 2, seek the advice of the HTC's, FJMC, IRC, and other relevant bodies under the IFA prior to submitting a proposal for screening by the Environmental Impact Screening Committee. To ensure the protection of the beluga resource and harvest, the HTC's, FJMC, and other relevant bodies under the IFA, will be consulted regarding any licenses, permits, or operating procedures approved for activities within or adjacent to Zone 1 and 2 waters.
9. Assessment of any proposed development must consider the potential for cumulative impacts and long-term effects.

Beluga Management Zone 3

Description of Zone 3

Zone 3 includes the remaining geographic range of EBSB in the Canadian Beaufort Sea and Amundsen Gulf within the ISR, not including Zone 1, Zone 2, or MPAs (Figure 8). Beluga are known to occur hundreds of kilometers north of the coast into the Canada Basin and into the pack ice, and as far east as Victoria Island and northeast as Viscount Melville Sound. The Alaska-Yukon border (141° W longitude) forms the western boundary of Zone 3.

Guidelines for Zone 3

1. Industrial activities or other projects may be permitted if they do not adversely affect the conservation of beluga and the protection of beluga habitat and hunting, and they are conducted in a controlled and responsible manner.
2. Assessment of proposed activities must consider the direct effects on beluga (e.g., contamination, disruption, displacement) as well as indirect effects (e.g., salinity and integrity of ice, timing of breakup, food availability).
3. New proposals for commercial fishing in Zone 3 waters will be reviewed according to the Beaufort Sea Integrated Fisheries Management Framework (BSIFMF), while considering and minimizing any potential direct or indirect impacts to beluga habitat, prey, and other ecosystem components.
4. All shipping activities (including cruise ship operations and dredging) will comply with the current NOTMAR vessel speed restrictions, and when completed and ratified, adhere to the community-endorsed shipping corridors and exclusion areas.
5. Additionally, cruise ship operators will respect and comply with the ISR Cruise Ship Management Plan (IRC, 2022), including the slow down zones, securing of local marine mammal observers, and retention of wastewater, graywater, ballast water, and sewage while travelling through the Inuvialuit Settlement Region.
6. It is recommended that parties proposing industrial development, government agencies evaluating development proposals and other parties interested in development within Zone 3, seek the advice of the HTC's, FJMC, IRC, and other relevant bodies under the IFA, prior to submitting a proposal for screening by the Environmental Impact Screening Committee. To ensure the protection of the beluga resource and harvest, the HTC's, FJMC, and other relevant bodies under the IFA should be consulted regarding any licenses, permits, or operating procedures approved for activities within the zones.
7. Assessments of any proposed development must consider the potential for cumulative impacts and long-term effects.



Beluga Management Zone 4

Description of Zone 4

Zone 4 encompasses the range of the Eastern Beaufort Sea beluga stock outside of Canadian waters, including the Alaskan Beaufort Sea, Chukchi Sea, and Bering Sea (Figure 1). The entire beluga population is expected to occur within this zone during winter and during migrations. There is a growing body of knowledge of the distribution and ecology of wintering belugas. The Inuvialuit-Inupiat Beluga Whale Commission provides an excellent and active forum for information exchange between Canadian and American managers and users.

Guidelines for Zone 4

Since cooperation is essential for responsible management of beluga, an international user-based agreement was developed to ensure that belugas are managed and protected throughout their range (Figure 1). The Inuvialuit-Inupiat Beluga Whale Commission was initiated in 1988, and officially established in 1994. For additional information and history of the Commission see Adams *et al.* (1993) and Section V.

At the Commission meetings, there is a regular exchange of information between Canada and Alaska on industrial activities proposed or underway in each jurisdiction which could affect the well-being of beluga.



VII. BYLAWS AND REGULATIONS

The ongoing implementation of this BSBMP requires a continuing commitment and coordinated effort by the Inuvialuit and the Government of Canada to be prepared to make changes to existing legislation or formulate new laws as required. Parties to this BSBMP must recognize and be prepared to deal directly with any real or potential threat which may adversely affect beluga, beluga habitat, or the Inuvialuit beluga hunt.

Hunters and Trappers Committee Beluga Hunting Bylaws and Guidelines

The HTC's within the ISR have developed community specific bylaws that ensure efficient, safe, and responsible hunting practices. These bylaws provide support to applicable elements of the Marine Mammal Regulations and represent best practices for each community's hunting activities.

Beluga Hunting Bylaws are accompanied by HTC Community Hunting Guidelines that reinforce the standards set by the bylaws. Together, the bylaws and guidelines have shown to minimize struck and lost incidents, reduce wastage, and result in safer hunting conditions. For reference, the Inuvialuit Hunters and Trappers Committee Beluga Hunting Bylaws and Guidelines are listed in Appendix A of this Plan. As the bylaws and guidelines may change more frequently than this Plan, the most up-to-date versions can be found at the HTC offices.

Beluga Regulations

The Marine Mammal Regulations under the *Fisheries Act* are general in application and have been amended to recognize beneficiaries and their harvesting rights under the IFA. The *Oceans Act* contains provisions to establish Marine Protected Areas such as the TNMPA and ANMPA. The *Oceans Act* provided formal recognition and protection for core beluga harvesting areas with the designation of the TNMPA in 2010 and the ANMPA in 2016.

Table 2. Relevant legislation and regulations for Canadian Beaufort Sea beluga management.

Inuvialuit Final Agreement	Provides the Inuvialuit with certain wildlife harvesting and management rights.
Fisheries Act	Provides for the management and protection of Canada's fisheries resources. DFO Conservation and Protection is responsible for enforcing the <i>Fisheries Act</i> .
• Marine Mammal Regulations	Provides for the prohibition of disturbance of marine mammals, among other protections, and recognizes Inuvialuit rights pursuant to the <i>Inuvialuit Final Agreement</i> . Regulations are enabled through the <i>Fisheries Act</i> .
Oceans Act	Provides for integrated oceans management, the creation of large oceans management areas, and the establishment of marine protected areas. DFO Conservation and Protection holds lead responsibility.
• Tarium Niryutait Marine Protected Area Regulations	Provides for the protection of the TNMPA and one of the world's largest seasonal populations of beluga whales. Regulations are enabled through the <i>Oceans Act</i> .
• Anguniaqvia niqiqyuam Marine Protected Area Regulations	Provides for the protection of the ANMPA. Regulations are enabled through the <i>Oceans Act</i> .
Environmental Protection Act	Provides for pollution prevention, the protection of the environment and human health in order to contribute to sustainable development.
Arctic Waters Pollution Prevention Act	Provides for the prevention of pollution in Canadian Arctic waters.
• Arctic Shipping Safety and Pollution Prevention Regulations	Brings the Code for Ships Operating in Polar Waters (Polar Code) into Canada's regulatory Framework, including safety and pollution prevention measures for foreign vessels navigating in Canadian Arctic waters and for Canadian vessels in polar waters.
Canadian Oil and Gas Operations Act	Provides for governance of exploration, production, processing, and transportation of oil and gas resources in marine areas controlled by the federal government.
Species At Risk Act	Provides for the prevention of wildlife species in Canada from disappearing and for the recovery of wildlife species that are threatened by human activity.

Enforcement

Fisheries and Oceans Canada is responsible for the enforcement of the *Fisheries Act*, the *Oceans Act*, and the Marine Mammal Regulations. Fishery Officers cannot directly enforce the Hunters and Trappers Committees beluga hunting bylaws, but can enforce elements that align with existing regulations.

Table 3. Contact information of organizations that are relevant to the beluga bylaws and regulations.

Organization	Phone Number	Reason to contact
Government of the Northwest Territories – Environment and Climate Change	Inuvik – 867-678-8091, ext. 53661	For questions and concerns regarding: <ul style="list-style-type: none"> • Territorial lands and waters, as well as wildlife in the Inuvik area
	Yellowknife – 867-767-9238, ext. 53247	For questions and concerns if no officer is available in Inuvik
Fisheries and Oceans Canada	Inuvik – 867-777-7500	For questions and concerns regarding: <ul style="list-style-type: none"> • Marine, freshwater, and anadromous species • Illegal or expected illegal activity, or disruption of marine mammals • Regulations in the area
	Yellowknife – 867-669-4900	For questions and concerns if no officer is available in Inuvik
Fisheries Joint Management Committee	867-777-2828	For questions and concerns related to this Plan and fisheries matters in the ISR
Aklavik Hunters and Trappers Committee	867-978-2723	For AHTC beluga hunting bylaws & small-scale tourism operator related concerns in the Aklavik area
Inuvik Hunters and Trappers Committee	867-777-3671	For IHTC beluga hunting bylaws & small-scale tourism operator related concerns in the Inuvik area
Olokhaktomiut Hunters and Trappers Committee	867-396-4808	For OHTC beluga hunting bylaws & small-scale tourism operator related concerns in the Ulukhaktok area
Paulatuk Hunters and Trappers Committee	867-580-3004	For PHTC beluga hunting bylaws & small-scale tourism operator related concerns in the Paulatuk area
Sachs Harbour Hunters and Trappers Committee	867-690-3028	For SHHTC beluga hunting bylaws & small-scale tourism operator related concerns in the Sachs Harbour area
Tuktoyaktuk Hunters and Trappers Committee	867-340-0057	For THTC beluga hunting bylaws & small-scale tourism operator related concerns in the Tuktoyaktuk area
Spill Report Line	867-920-8130	To report a spill of substances that can have immediate or long-term harmful effects on the environment
Report-A-Poacher	1-866-762-2437	To report sport-fishing or hunting issues (line operational 24-hours a day, 7-days a week)
Government of the Northwest Territories – Industry, Tourism and Investment	Inuvik – 867-678-8023, ext. 63664	For local and regional-scale tourism operator related concerns

VIII. EDUCATION AND PUBLIC AWARENESS

The management direction, guidelines, and requirements established by the BSBMP outline how Inuvialuit structures, government departments, and industry activity occur at the same time as the beluga resource is conserved and protected. In a broader Canadian context, the BSBMP serves as an example of how Traditional Knowledge can be used to develop hunter-based management plans and positions the Inuvialuit to promote regional beluga monitoring and sampling practices in neighboring Inuit jurisdictions.

The BSBMP also broadly outlines to all ISR communities, their own hunter-based beluga management actions and requirements, including the HTC beluga hunting bylaws and guidelines. However, harvester recommendations from the present update outline a clear target of increased and continuous efforts to promote the transfer of knowledge and cultural practices to younger generations. Past programs have shown the positive impact these types of efforts can have on promoting conservation of the population and sustainable harvest.



George and Barbara Allen, and family, Shingle Point 1988.

These efforts would include:

- School visits with Knowledge Holders, during community tours;
- Information pamphlets on beluga harvesting and muktuk preparation, including content especially targeted to youth;
- Practical training and support for younger hunters and people without the equipment or means to go hunting;
- Inclusions of traditional pursuits to the school curriculum, including beluga hunting and observation of beluga and the environment;
- Knowledge mobilization forums, such as the Beluga Summit;
- Inclusion of elders and youth during co-management meetings, with translation services available; and
- Establishment and resources to support an ongoing beluga management working group.

There is a considerable base of existing resources available for education and outreach of traditional hunting practices and muktuk preparation (Table 4). These resources, as well as the BSBMP, are relevant and should be used and further developed to continue to promote responsible beluga harvesting and management.

Table 4. A list of existing resources that have documented traditional hunting techniques and muktuk preparation.

Resource	URL
Inuvialuit Digital Library	https://inuvialuitdigitallibrary.ca/
ISR Organization YouTube Channels <ul style="list-style-type: none"> • Inuvialuit Communications Society • Joint Secretariat 	https://www.youtube.com/@InuvialuitTelevision https://www.youtube.com/channel/UC9uBji8xZIr3LE_8o_mqE1g

IX. TOURISM

Cruise Ship Operations and Regional-Scale Tourism

Passenger vessels subject to the Polar Code (International Code for Ships Operating in Polar Waters), that are navigating in Canadian Arctic waters must submit a voyage plan with detailed risk mitigation measures to Transport Canada in advance. This voyage plan should account for the unique risks of Arctic waters and consider a route that will respect current information and measures to be taken when marine mammals are encountered, speed recommendations relating to known areas with densities of marine mammals (including seasonal migration areas), and national designated protected areas along the route. Below are specific guidelines for cruise ship operators to address and comply when considering applications to operate within any ISR marine areas:

- Demonstrate an understanding of the distribution and relative abundance of belugas in the ISR, as well as core Inuvialuit subsistence harvest areas (Figures 1 and 8);
- Identify the risks and potential impacts of offshore and nearshore ship transits, anchoring, positioning, ice cruising, and zodiac activity on belugas;
- Assess and provide details on the risks and efficacy of relevant mitigations to substantiate assessments of impacts on belugas;
- Have on-board capability, and backup systems, to treat sewage, and never discharge gray, sewage, ballast, or any wastewater in ISR waters;
- Avoid ‘ice cruising’ in the ISR using zodiacs, or the main ship, so as to not deter or displace belugas from normal transit routes, feeding, moulting or nursery areas, and harvesting areas;
- Describe how they will detect the presence of belugas and avoid disturbance, displacement, or ship strikes of belugas in key habitats in the ISR, ensuring belugas and other marine mammals always have the right-of-way;
- Provide berths and resources to ensure that local ISR wildlife monitors and marine mammal observers are involved in all transits and stops in and through the ISR;
- Outline how their mitigations link to regional, existing mitigations such as the NOTMAR, the ISR Cruise Ship Management Plan, and MPA Activity Plans, in addition to this Beluga Management Plan; and
- Demonstrate knowledge of, familiarity, and plans to comply with the NOTMAR, the ISR Cruise Ship Management Plan including the ‘slow down zones’, Marine Mammal Regulations and whale watching guidelines under the *Fisheries Act*, MPA Activity Plans, and be aware of and compliant with import/export legislation for marine mammal products (CITES-the Convention on International Trade in Endangered Species of Wild Fauna and Flora) in Canada and other countries visited.

Tourism and Beluga Hunting

The designation of the TNMPA in 2010 and the ANMPA in 2016 has continued to stimulate the public’s interest in viewing beluga, visiting traditional hunting camps, and observing the preparation of country foods. Eco-tourism has the potential to bring important economic benefits to the Inuvialuit but should be conducted in a manner so as not to interfere with the subsistence harvest and traditional cultural practices. Under section 13 of the IFA, Inuvialuit are entitled to compensation including, but not limited to, any loss incurred by interference with a subsistence harvest.

As per Section 11 of the IFA, tourism operators in the Inuvialuit Settlement Region are subject to screening by the Environmental Impact Screening Committee (EISC) before obtaining or renewing a tourism operator license from the Government of Northwest Territories Department of Industry, Tourism and Investment (ITI). Prior to any tourism operator license application to EISC or ITI, operators are expected to work with the appropriate Hunters and Trappers Committees (HTCs) to discuss their proposed tourism activities and any local concerns from those HTCs. Operators should also recognize that members from multiple HTCs may use the same area and that some HTCs do not support any beluga tourism related activities in core harvesting areas. Furthermore, any tourism operator with a commercial vessel under 150 gross tons should be equipped with operational Automated Identification System (AIS) and Very High Frequency (VHF) radio at all times when transiting within the ISR.

It is critical to have comprehensive guidelines in place for eco-tourism operations. Initial efforts were made in 2016 and 2019, however, to date, no such guidelines have been finalized by the HTC, FJMC, IGC, DFO, and IRC. Most harvesters do not support or encourage having tourists in the area or on the water during active hunting.

Recent suggestions include development of community-specific guidance and zones for tourism activity, as well as local level discussions about acceptability of local operators being allowed one or two visitors in a small boat. These suggestions will help guide and inform future workshops and processes to establish and ratify beluga tourism guidelines for the ISR.

The signatories of this Beluga Management Plan recommend that the resourcing needed to develop tourism guidelines be prioritized, and that prompt action be taken through workshops to develop, finalize, and ratify tourism guidelines.



ACKNOWLEDGEMENTS

The Beaufort Sea Beluga Technical Working Group was established by DFO in 1985 and submitted its draft of the Beaufort Sea Beluga Management Strategy to the FJMC in June 1987. Members of the Group were J.T. Strong (DFO, Chair), the late A. Aviugana (Inuvik), R. Barnes (DFO), the late E. Birchard (Esso), the late B. Day (Inuvik), F. Elanik (Aklavik), the late N. Green (Paulatuk), B. Kimiksana (Tuktoyaktuk), B. Smiley (DFO), and G. Yaremchuk (DFO). This group produced the Beaufort Sea Beluga Strategy, 1987 (available at www.fjmc.ca)

In 1988-89, a community representative from the Tuktoyaktuk (the late R. Pokiak), Aklavik (T. Elanik), and Inuvik (R. Binder) HTCs, assisted by their respective resource staff (F. Wolki, D. Malegana, and A. Kasook, respectively), participated in four workshops coordinated by L. Harwood, FJMC Resource Biologist, to prepare a first draft of the Beaufort Sea Beluga Management Plan. They then presented the information from the draft plan to the harvesters in their own communities. The FJMC acknowledges the contribution of a former Committee member, Michelle Roberge, who played a lead role in reviewing and editing the initial drafts of the Plan which was published in 1991.

Earlier editions of this Plan were dedicated to four former members of the FJMC, and the list of dedications has been expanded over the years. All demonstrated exemplary dedication to the beluga resource, to the folks who depend on the resource, and to Canadians who want to see a healthy stock of belugas in the Canadian Beaufort Sea.

This 2024 edition was produced and reviewed following three harvester workshops (February 17-18, March 15-16, and September 16, 2022), all coordinated by FJMC members and staff (Richard Binder, Gerald Inglangasuk, Lois Harwood, Kiyoo Campbell, and Issiac Elanik). The workshops included participation from Richard Gruben (IGC), Jody Illasiak (PHTC), Dean Arey (AHTC), the late John Day (IHTC), Onida Banksland (IHTC), Joseph Carpenter (SHHTC), Joshua Oliktoak (OHTC), David Kuptana (OHTC), Ikalualuq (THTC), and Kayla Hansen-Craik (JS). A fourth meeting (April 18-19, 2023) to update the plan included participation from Tony Lucas (SHHTC), Cody Kogiak (AHTC), Jody Illasiak (PHTC), George Lennie (IHTC), Ikalualuq (THTC), Joshua Oliktoak (OHTC), Jim Elias (IGC), Jasmine Brewster (DFO), Ellen Lea (DFO), Lisa Loseto (DFO), Cory Toews (TC), Roxanne Springer (IRC), Kyla Hvatum (IRC), the FJMC team listed above, Stacey Challinor (FJMC), Kayla Hansen-Craik (JS), and Allysa Felix (JS). Harvest data analyses and updated figures were done by Kiyoo Campbell. GIS mapping support was provided by Jarrett Friesen, DFO. Technical contributions from DFO were provided by Lisa Loseto, Ellen Lea, Jasmine Brewster, Emma Sutherland, and Steve Anderson. We are grateful to each HTC for their careful review, consideration, and responses on the Management Zone updates and the previous draft versions.

Koana, quyanainni, quyanaq, thank you!

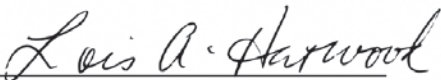
**Fisheries Joint Management
Committee**



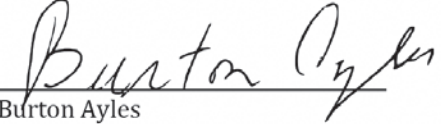
Herb Angik Nakimayak
Chair



Gerald Inglangasuk
Member



Lois Harwood
Member



Burton Ayles
Member



Stan Ruben
Member

January 29, 2024

Literature Cited

- Adams, M., Frost, K.J., and Harwood, L.A. 1993. Alaska and Inuvialuit Beluga Whale Committee (AIBWC) – An initiative in “at home management”. *Arctic*. 46(2): 134–137.
- Berger, T.R. 1977. Northern Frontier, Northern Homeland: The Report of the Mackenzie Valley Pipeline Inquiry: Volume 1. Minister of Supply and Services Canada, Ottawa, ON. xxxii + 214 p.
- Canadian Coast Guard. 2024. Notices to Mariners 1 to 46 Annual Edition 2024. <https://www.notmar.gc.ca/annual>
- Choy, E.S., Rosenberg, B., Roth, J.D., and Loseto, L.L. 2017. Inter-annual variation in environmental factors affect the prey and body condition of beluga whales in the eastern Beaufort Sea. *Marine Ecology Progress Series*. 579: 213-225. <https://doi.org/10.3354/meps12256>
- Choy, E.S., Campbell, K.L., Berenbrink, M., Roth, J.D., and Loseto, L.L. 2019. Body condition impacts blood and muscle oxygen storage capacity of free-living beluga whales (*Delphinapterus leucas*). *Journal of Experimental Biology*. 222.
- Choy, E.S., Giraldo, C., Rosenberg, B., and Roth, J.D. 2020. Variation in the diet of beluga whales in response to changes in prey availability: insights on changes in the Beaufort Sea ecosystem. *Marine Ecology Progress Series*. 647:195-210. <https://doi.org/10.3354/meps13413>
- Citta, J.J., Richard, P., Lowry, L.F., O’Corry-Crowe, G., Marcoux, M., Suydam, R., Quakenbush, L.T., Hobbs, R.C., Litovka, D.I., Frost, K.J., Gray, T., Orr, J., Tinker, B., Aderman, H., and Druckenmiller, M.L. 2017. Satellite telemetry reveals population specific winter ranges of beluga whales in the Bering Sea. *Marine Mammal Science*. 33(1): 236–250. doi:10.1111/mms.12357.
- Community Conservation Plans. 2016. Inuvik, Aklavik, Tuktoyaktuk, Sachs Harbour, Paulatuk and Ulukhaktok. <https://www.jointsecretariat.ca/community-conservation-plan>
- Day, B. 2002. Renewable resources of the Beaufort Sea for our Children: perspectives from an Inuvialuit elder. *Arctic*. 55 (Suppl. 1): 1–3.
- DFO. 2000. Eastern Beaufort Sea beluga whales. DFO Science Stock Status Report E5–38. https://publications.gc.ca/collections/collection_2016/mpo-dfo/Fs76-1-E5-38-2000-eng.pdf
- DFO. 2023. Updated Eastern Beaufort Sea Beluga (*Delphinapterus leucas*) Population Abundance Estimate, October 2022. DFO Canadian Science Advisory Secretariat Science Advisory Report. 2023
- FJMC. 1991. Beaufort Sea Beluga Management Plan. <http://fjmc.ca/wp-content/uploads/2015/07/Beaufort-Sea-Beluga-Management-Plan-1991.pdf>
- FJMC. 1998. Beaufort Sea Beluga Management Plan, 3rd Amended Printing. Fisheries Joint Management Committee, Inuvik, NWT. iv + 28 p. <http://fjmc.ca/wp-content/uploads/2015/07/Beaufort-Sea-Beluga-Management-Plan-1998.pdf>
- FJMC. 2001. Beaufort Sea Beluga Management Plan. <http://fjmc.ca/wp-content/uploads/2015/07/Beaufort-Sea-Beluga-Management-Plan-2001.pdf>
- FJMC. 2005. Beaufort Sea Beluga Management Plan, <http://fjmc.ca/wp-content/uploads/2015/07/Beaufort-Sea-Beluga-Management-Plan-2005.pdf>
- FJMC. 2013. Beaufort Sea Beluga Management Plan. 4th Amended Printing. Fisheries Joint Management Committee, Inuvik, NWT. 44 p. <http://fjmc.ca/wp-content/uploads/2015/07/Beaufort-Sea-Beluga-Management-Plan-2013.pdf>
- Fraker, M.A. 1979. Spring migration of bowhead (*Balaena mysticetus*) and white whales (*Delphinapterus leucas*) in the Beaufort Sea. Fisheries and Marine Service Technical Report. 859.
- Frost, K.J. and Suydam, R.S. 2010. Subsistence harvest of beluga or white whales (*Delphinapterus leucas*) in northern and western Alaska, 1987-2006. *Journal of Cetacean Research and Management*. 11(3): 293–299.
- Government of Canada. 1984. Western Arctic (Inuvialuit) Claims Settlement Act. Justice Laws Website. <https://laws.justice.gc.ca/eng/acts/W-6.7/index.html>
- Halliday, W.D., Scharffenberg, K., MacPhee, S., Hilliard, R.C., Mouy, X., Whalen, D., Loseto, L.L., and Insley, S.J. 2019. Beluga vocalizations decrease in response to vessel traffic in the Mackenzie River Estuary. *Arctic*. 72(4): 337–346. doi:10.14430/arctic69294.

- Harwood, L.A., Innes, S., Norton, P., And Kingsley, M.C.S. 1996. Distribution and abundance of beluga whales in the Mackenzie estuary, southeast Beaufort Sea, and west Amundsen Gulf during late July 1992. *Canadian Journal of Fisheries and Aquatic Sciences*. 53:2262 – 2273.
- Harwood, L. A., Kingsley, M. C. S., and Smith, T. G. 2014. An emerging pattern of declining growth rates in belugas of the Beaufort Sea: 1989–2008. *Arctic*. 67(4): 483-492.
- Harwood, L.A., Kingsley, M.C.S., and Pokiak, F. 2015. Monitoring beluga harvests in the Mackenzie Delta and near Paulatuk, NT, Canada: Harvest efficiency and trend, size and sex of landed whales, and reproduction, 1970-2009. *Canadian Manuscript Report of Fisheries and Aquatic Sciences*. 3059: vi + 32 p.
- Harwood, L.A., Zhu, X., Angasuk, L., Emaghok, L., Ferguson, S., Gruben, C., Gruben, P., Hall, P., Illasiak, J., Illasiak, J., Inglangasuk, G., Lea, E.V., Loseto, L., Norton, P., Pokiak, C., Pokiak, F., Rogers, H., Snow, K., and Storr, W. 2020. Research, monitoring and hunter knowledge in support of the 2017 assessment of the status of Eastern Beaufort Sea Beluga stock. *DFO Canadian Science Advisory Secretariat Research Document*. 2020. vi + 16 p.
- Hernandez-Ortiz, A., Sharma, R., Snyman, L.P., Loseto, L.L., MacPhee, S.A., Ostertag, S.K., Couture, E.L., Lair, S., Al-Adhami, B.H., Jenkins, E.J. in review. Low prevalence of zoonotic food-borne parasites, but high prevalence of a marine *Sarcocystis* spp., in Eastern Beaufort Sea beluga whales (*Delphinapterus leucas*) harvested in the Canadian Arctic. *Disease of Aquatic Organisms*.
- Hill, P.S. and DeMaster, D.P. 1999. Alaska marine mammal stock assessments 1999. U.S. Department of Commerce, NOAA-TM-NMFS-AFSC-110. Available from the National Marine Mammal Laboratory, Alaska Fisheries Science Center, 7600 Sand Point Way NE, Seattle, Washington 98115, U.S.A. 166 p.
- Hobbs, R.C., Reeves, R.R., Prewitt, J.S., Desportes, G., Breton-Honeyman, K., Christensen, T., Citta, J.J., Ferguson, S.H., Frost, K.J., Garde, E., Gavrilov, M., Ghazal, M., Glazov, D.M., Gosselin, J.-F., Hammill, M., Hansen, R.G., Harwood, L., Heide-Jørgensen, M.P., Inglangasuk, G., Kovacs, K.M., Krasnova, V.V., Kuznetsova, D.M., Lee, D.S., Lesage, V., Litovka, D., Lorenzen, E.D., Lowry, L.F., Lydersen, C., Matthews, C.J.D., Meschersky, I.G., Mosnier, A., O’Corry-Crowe, G., Postma, L., Quakenbush, L.T., Shpak, O.V., Skovrind, M., Suydam, R.S., and Watt, C.A. 2020. Global review of the conservation status of monodontid stocks. *Marine Fisheries Review*. 81(3–4):1–53.
- Hornby, C.A., Hoover, C., Iacozza, J., Barber, D.G., and Loseto, L.L. 2016. Spring conditions and habitat use of beluga whales (*Delphinapterus leucas*) during arrival to the Mackenzie River Estuary. *Polar Biology*. 39: 2319-2334. <https://doi.org/10.1007/s00300-016-1899-9>
- Hunt, W.J. 1979. Domestic whaling in the Mackenzie Estuary, Northwest Territories. Technical Report 769. Winnipeg: Canada Fisheries and Marine Service, Western Region, Department of Fisheries and the Environment.
- Inuvialuit-Inupiat Beluga Agreement. 2000. Inuvialuit-Inupiat Beaufort Sea Beluga Whale Agreement, signed in Inuvik, 3 March 2000. Available from the Joint Secretariat, Box 2120, Inuvik, Northwest Territories X0E 0T0, Canada.
- Inuvialuit Regional Corporation (IRC). 2022. Inuvialuit Settlement Region Cruise Ship Management Plan 2022-2025. https://irc.inuvialuit.com/sites/default/files/ISR_Cruise_Ship_Management_Plan.pdf
- Loseto, L.L., Stern, G.A., Connely, T.L., Deibel, D., Gemmill, B., Prokopowicz, A., Fortier, L., and Ferguson, S.H. 2009. Summer diet of beluga whales inferred by fatty acid analysis of the eastern Beaufort Sea food web. *Journal of Experimental Marine Biology and Ecology*. 374(1): 12-18. <https://doi.org/10.1016/j.jembe.2009.03.015>
- Loseto, L.L., Stern, G.A., and MacDonald, R.W. 2015. Distant drivers or local signals: Where do mercury trends in western Arctic belugas originate?. *Science of the Total Environment*. 509-510: 226-236. <https://doi.org/10.1016/j.scitotenv.2014.10.110>.
- Loseto, L.L., Pieskach, K., Hoover, C., Tomy G.T., Desforges, J.-P., Halldorson, T., and Ross, P.S. 2017. Cortisol levels in beluga whales (*Delphinapterus leucas*): Setting a benchmark for Marine Protected Area monitoring. *Arctic Science*. 4(3): 358-372. <https://doi.org/10.1139/as-2017-0020>
- Loseto, L.L., Brewster, J.D., Ostertag, S.K., Snow, K., MacPhee, S.A., McNicholl, D.G., Choy, E.S., and Giraldo, G., and Hornby, C.A. 2018a. Diet and feeding observations from an unusual beluga harvest in 2014 near Ulukhaktok, Northwest Territories, Canada. *Arctic Science*. 4(3): 421–431. doi:10.1139/as-2017-0046.

- Loseto, L.L., Hoover, C., Ostertag, S., Whalen, D., Pearce, T., Paulic, J., Iacozza, J., and MacPhee, S. 2018b. Beluga whales (*Delphinapterus leucas*), environmental change and marine protected areas in the western Canadian Arctic. *Estuarine, Coastal and Shelf Science*. 212: 128-137. <https://doi.org/10.1016/j.ecss.2018.05.026>
- Lowry, L. F., Burns, J.J., and Frost, K. J. 1988. Recent harvests of belukha whales in western and northern Alaska and their potential impact on provisional management stocks. Report of the International Whaling Commission 39. 5 p.
- MacMillan, K., Hoover, C., Iacozza, J., Peyton, J., and Loseto, L. 2019. Body condition indicators: Assessing the influence of harvest location and potential thresholds for application in beluga monitoring. *Ecological Indicators*. 104:145-155. <https://doi.org/10.1016/j.ecolind.2019.04.012>
- MacMillan, K., Hoover, C., Iacozza, J., Peyton, J., and Loseto, L. 2023. Beluga whale body condition: Evaluating environmental variables on beluga body condition indicators in the Tarium Nirvutait MPA, Beaufort Sea. *Arctic Science* 9(3): 678-688. <https://doi.org/10.1139/as-2021-0026>
- Martin, M.J., Halliday, W.D., Storrie, L., Citta, J.J., Dawson, J., Hussey, N.E., Juanes, F., Loseto, L.L., MacPhee, S.A., Moore, L., Nicoll, A., O’Corry-Crowe, G., and Insley, S.J. 2023. Exposure and behavioral responses of tagged beluga whales (*Delphinapterus leucas*) to ships in the Pacific Arctic. *Marine Mammal Science* 39(2), 387–421. <https://doi.org/10.1111/mms.12978>
- McGhee, R. 1988. Beluga hunters, an archeological reconstruction of the history and culture of the Mackenzie Delta Kittegaryumuit. 2nd ed. Social and Economic Studies 13. St. John’s, Newfoundland: Memorial University.
- Moore, R.C., Loseto, L., Noel, M., Etemadifar, A., Brewster, J.D., MacPhee, S., Bendell, L., and Ross, P.S. 2020. Microplastics in beluga whales (*Delphinapterus leucas*) from the eastern Beaufort Sea. *Marine Pollution Bulletin*. 150: 110723. <https://doi.org/10.1016/j.marpolbul.2019.110723>.
- Moore, R.C., Noel, M., Etemadifar, A., Loseto, L., Posacka, A.M., Bendell, L., and Ross, P.S. 2022. Microplastics in beluga whale (*Delphinapterus leucas*) prey: An exploratory assessment of trophic transfer in the Beaufort Sea. *Science of the Total Environment* 806(1): 150201. <https://doi.org/10.1016/j.scitotenv.2021.150201>
- Morris, A.D., Wilson, S.J., Fryer, R.J. Thomas, P.J., Hudelson, K., Andreasen, B., Blevin, P., Bustamante, P., Chastel, O., Christensen, G., Dietz, R., Evans, M., Evenset, A., Ferguson, S.H., Fort, J., Gamberg, M., Gremillet, D., Houde, M., Letcher, R.J., Loseto, L., Muir, D., Pinzone, M., Poste, A., Routti, H., Sonne, C., Stern, G., and Riget, F.F. 2022. Temporal trends of mercury in Arctic biota: 10 more years of progress in Arctic monitoring. *Science of the Total Environment*. 839: 155803. <https://doi.org/10.1016/j.scitotenv.2022.155803>
- Nielsen, O., Burek-Huntington, K.A., Loseto, L.L., Morell, M., and Romero, C.H. 2018. Alphaherpesvirus: Isolation, identification, partial characterization, associated pathologic findings, and epidemiology in beluga whales (*Delphinapterus leucas*) in Alaska and Arctic Canada. *Arctic Science* 4(3): 338-357. <https://doi.org/10.1139/as-2017-0043>
- Niemi, A., Ferguson, S., Hedges, K., Melling, H., Michel, C., Ayles, B., Azetsu-Scott, K., Coupel, P., Deslauriers, D., Devred, E., Doniol-Valcroze, T., Dunmall, K., Eert, J., Galbraith, P., Geoffroy, M., Gilchrist, G., Hennin, H., Howland, K., Kendall, M., Kohlbach, D., Lea, E., Loseto, L., Majewski, A., Marcoux, M., Matthews, C., McNicholl, D., Mosnier, A., Mundy, C.J., Ogloff, W., Perrie, W., Richards, C., Richardson, E., Reist, R., Roy, V., Sawatzky, C., Scharffenberg, K., Tallman, R., Tremblay, J-É., Tufts, T., Watt, C., Williams, W., Worden, E., Yurkowski, D., Zimmerman, S. 2019. State of Canada’s Arctic Seas. Canadian Technical Report of Fisheries and Aquatic Sciences 3344: xv + 189 p.
- Noel, M., Loseto, L.L., Helbing, C.C., Veldhoen, N., Dangerfield, N.J., and Ross, P.S. 2014. PCBs are associated with altered gene transcript profiles in Arctic beluga whales (*Delphinapterus leucas*). 2014. *Environmental Science & Technology*. 48(5): 2942-2951. <https://doi.org/10.1021/es403217r>
- Noel, M., Loseto, L.L., Stern, G. 2018. Legacy contaminants in the eastern Beaufort Sea beluga whales (*Delphinapterus leucas*): Are temporal trends reflecting regulations? *Arctic Science* 4(3): 373-387. <https://doi.org/10.1139/as-2017-0049>
- Norton, P. and Harwood, L.A. 1985. White whale use of the Southeastern Beaufort Sea, July–September 1984. Canadian Technical Report of Fisheries and Aquatic Sciences 1401: v + 46 p.

- Norton, P. and Harwood, L.A. 1986. Distribution, abundance, and behaviour of white whales in the Mackenzie Estuary. Environmental Studies Revolving Funds Report No. 036. Ottawa, ON. 73 p.
- Nuligak, 1966. I, Nuligak: The autobiography of a Canadian Eskimo. Toronto, Ontario: Simon and Schuster of Canada.
- Ostertag, S.K., Loseto, L.L., Snow, K., Lam, J., Hynes, K., and Gillman, D.V. 2018. “That’s how we know they’re healthy”: The inclusion of Traditional Ecological Knowledge in beluga health monitoring in the Inuvialuit Settlement Region. *Arctic Science* 4(3): 292-320. <https://doi.org/10.1139/as-2017-0050>
- Ostertag, S., Green, B., Ruben, D., Hynes, K., Swainson, D., and Loseto, L. 2019. Recorded observations of beluga whales (*Delphinapterus leucas*) made by Inuvialuit harvesters in the Inuvialuit Settlement Region, NT, in 2014 and 2015. Canadian Technical Report of Fisheries and Aquatic Sciences 3338: vi + 18 p.
- Ovitz, K.L., Matari, K.G.A., O’Hara, S., Esagok, D., Inuvik Hunters and Trappers Committee, and Loseto, L.L. 2023. Observations of social and environmental change on Kendall Island (Ukiivik), a traditional whaling camp in the Inuvialuit Settlement Region. *Arctic Science e-First*. <https://doi.org/10.1139/as-2022-0016>
- Quakenbush, L.T., Suydam, R.S., Bryan, A.L., Lowry, L.F., Frost, K.J., and Mahoney, B.A. 2015. Diet of beluga whales, *Delphinapterus leucas*, in Alaska from stomach contents, March-November. *Marine Fisheries Review* 77(1): 70-84.
- Richard, P.R., Martin, A.R., and Orr, J.R. 1997. Study of the summer and fall movements and dive behaviour of Beaufort Sea belugas using satellite telemetry: 1992 – 1995. Environmental Studies Research Funds Report 134. Available in the Library of the Arctic Institute of North America, University of Calgary, Calgary, Alberta T2N 1N4, Canada.
- Richard, P.R., Martin, A.R., and Orr, J.R. 2001. Summer and autumn movements of belugas of the eastern Beaufort Sea stock. *Arctic* 54(3):223 – 236.
- Roux, M. J., Harwood, L. A., Zhu, X., and Sparling, P. 2015. Early summer near-shore fish assemblage and environmental correlates in an Arctic estuary: The Husky Lakes, Northwest Territories Canada. *Journal of Great Lakes Research*, Special Issue. <http://dx.doi.org/10.1016/j.jglr.2015.04.005>
- Scharffenberg, K., Whalen, D., Marcoux, M., Iacozza, J., Davoren, G., and Loseto, L. 2019. Environmental drivers of beluga whale (*Delphinapterus leucas*) habitat use in the Mackenzie estuary. *Marine Ecology Progress Series* 626: 209–226
- Scharffenberg, K., Whalen, D., MacPhee, S., Marcoux, M., Iacozza, J., Davoren, G., and Loseto, L. 2020. Oceanographic, ecological, and socio-economic impacts of an unusual summer storm in the Mackenzie Estuary. *Arctic Science* 6: 62–76. doi: 10.1139/as-2018-0029.
- Storrie, L., Hussey, N.E., MacPhee, S.A., O’Corry-Crowe, G., Iacozza, J., Barber, D.G., Nunes, A., and Loseto, L.L. 2022. Year-Round Dive Characteristics of Male Beluga Whales from the Eastern Beaufort Sea Population Indicate Seasonal Shifts in Foraging Strategies. *Frontiers in Marine Science*. 8:715412. doi: 10.3389/fmars.2021.715412
- Strong, J. T. 1990. The domestic beluga (*Delphinapterus leucas*) fishery in the Mackenzie River estuary, Northwest Territories, 1981–1986. Canadian Data Report of Fisheries and Aquatic Sciences 800. Winnipeg: Western Region, DFO. 52 p.
- Waugh, D., Pearce, T., Ostertag, S.K., Pokiak, V., Collings, P., and Loseto, L.L. 2018. Inuvialuit Traditional Ecological Knowledge, of beluga whale (*Delphinapterus leucas*) under changing climatic conditions in Tuktoyaktuk, NT. *Arctic Science*. 4(3): 242-258.
- Worden, E., Pearce, T., Gruben, M., Ross, D., Kowana, C., and Loseto, L.L. 2020. Social-ecological changes and implications for understanding the declining beluga whale (*Delphinapterus leucas*) harvest in Aklavik, Northwest Territories. *Arctic Science*. 6(3): 229-246.

Appendix A – Inuvialuit HTC Beluga Hunting Bylaws and Guidelines

Aklavik Hunters & Trappers Committee

Beluga Hunting Bylaws

1. Each boat will have the following equipment:
 - a. A rifle of not less than .243 caliber;
 - b. Two harpoons equipped with line and float, or one such harpoon and a “seal hook”;
 - c. One grapple hook attached to sufficient length of line to reach the ocean bottom in the sea area being hunted;
 - d. One float marker with enough line to reach the ocean bottom in the area being hunted and equipped with an anchor or sinker;
 - e. A towing line.
2. No person shall, at any time, take more whales on a hunt than can adequately be taken care of considering limitations of the boat, weather, the towing distance, and the number of people in the camp available for processing.
3. No hunter shall hunt a cow known to be accompanied by a calf.
4. Each hunter must attempt to retrieve sunken or wounded whales before hunting for another whale.
5. Beluga hunters should provide harvest information to their HTC, either directly or through a Beluga Harvest Monitor, and provide monitors reasonable access to the harvested whale for measurements and samples, when safe to do so.
6. There shall be no interference during the hunt by tourists or tour operators, or anyone else not involved in the hunt.

Beluga Hunting Guidelines

1. No hunting boat shall carry passengers of a number that may interfere with proper hunting technique.
2. No person shall hunt alone.
3. Each boat must carry at least one (1) experienced hunter. The designation of experienced hunters shall be made at each camp.
4. A hunting leader shall be appointed at each camp to advise and make any necessary decisions on matters concerning the safety and efficiency of beluga hunting based from that camp, according to guidelines for hunting leaders provided by the Aklavik HTC.
5. No hunter should remove the harpoon and float when towing the whale to shore.
6. All carcasses must be towed out to deep water or burned after processing, unless being used for other purposes (e.g., bait).
7. Out of respect for the hunt, unnecessary boat activity and noise should be reduced when whales are spotted near camps.
8. These rules may from time to time be changed by the Aklavik HTC.

Inuvik Hunters & Trappers Committee

Beluga Hunting Bylaws

1. Each boat will have the following equipment:
 - a. A rifle of not less than .30-30 caliber;
 - b. Two harpoons equipped with line and float or one such harpoon and a “seal hook”;
 - c. One grapple hook attached to a thirty-foot (30’) length of line, sufficient to reach the ocean bottom in the area being hunted;
 - d. One float marker with thirty feet (30’) of line to reach the ocean bottom in the area being hunted and equipped with an anchor or sinker;
 - e. A towing line.

2. Each hunter must attempt to retrieve sunken or wounded whales before hunting for another whale.
3. No person shall knowingly waste, abandon or discard any edible product (muktuk or meat) of a harvested beluga.
4. No person shall, at any time, take more whales on a hunt than can adequately be taken care of considering limitations on the boat, weather, the towing distance, and the number of people in the camp available for processing.
5. Beluga hunters must provide Beluga Harvest Monitors with the requested information and reasonable access to harvested whales for measurements and samples.
6. There shall be no hunting in “No Hunting Zones” if applicable.
7. There shall be no interference during the hunt by tourists or operators.

Beluga Hunting Guidelines

1. A proven method by some hunters has reduced loss rates considerably, by harpooning first. Whales should be harpooned before shooting.
2. No person should hunt alone.
3. Each boat must carry at least one experienced hunter. A hunting leader shall be appointed at each camp and approved by the Inuvik Hunters and Trappers Committee (IHTC). Hunting leaders will be appointed at the Annual General Meeting of the IHTC. The hunting leader will advise and make any necessary decisions on matters concerning the safety and efficiency of beluga hunting based from that camp, according to guidelines for hunting leaders provided by the IHTC.
4. Each boat must be equipped with artificial life preservers for all passengers.
5. Hunters should follow the directions of the appointed hunting leader in each camp.
6. All carcasses must be towed out to deep water or burned after processing.
7. These rules may from time to time be changed by the IHTC.

Olokhaktomiut Hunters & Trappers Committee

Beluga Hunting Bylaws

1. Each boat will have the following equipment:
 - a. A rifle of not less than .30-30 caliber;
 - b. Two harpoons equipped with line and float, or one such harpoon and a “seal hook”;
 - c. Two float markers or two 5-gallon jerry cans per harpoon with enough line to reach the ocean bottom in the area being hunted, and equipped with an anchor;
 - d. A towing line.
2. Each hunter must attempt to retrieve sunken or wounded whales before hunting another whale.
3. No person shall, at any time, take more whales on a hunt than can adequately be taken care of considering limitations of the boat, weather, the towing distance, and the number of people in the camp available for processing.
4. Beluga hunters must provide the OHTC with the requested information including measurements and samples.
5. There shall be no hunting in “No Hunting Zones”, if applicable
6. There shall be no interference during the hunt by tourists or others.

Beluga Hunting Guidelines

1. The recommended method of hunting whales is to first harpoon the whale before shooting. This method reduces losses of sunken or wounded whales.
2. No person shall hunt alone.
3. Each boat should have at least one experienced hunter.
4. These rules may from time to time be changed by the Olokhaktomiut HTC.

Paulatuk Hunters & Trappers Committee

Beluga Hunting Bylaws

1. Each boat will have the following equipment:
 - a. A rifle of not less than .30-30 caliber;
 - b. Two harpoons equipped with line and float, or one such harpoon and a “seal hook”;
 - c. One grapple hook attached to a sufficient length of line to reach the ocean bottom in the area being hunted;
 - d. One float marker with enough line to reach the ocean bottom in the area being hunted and equipped with an anchor;
 - e. A towing line.
2. Each hunter must attempt to retrieve sunken or wounded whales before hunting for another whale.
3. No person shall, at any time, take more whales on a hunt than can adequately be taken care of considering limitations of the boat, weather, the towing distance, and the number of people in the camp available for processing.
4. Beluga hunters may provide Beluga Harvest Monitors with the requested information and reasonable access to harvested whales for measurements and samples.
5. There shall be no hunting in “No Hunting Zones” if applicable.
6. There shall be no interference during the hunt by tourists, operators or others.

Beluga Hunting Guidelines

1. A proven method by some hunters has reduced loss rates considerably, by harpooning first. Whales should be harpooned before shooting. No person should hunt alone.
2. Each hunting boat should have at least one experienced hunter.
3. All carcasses must be towed out to deep water or burned after processing.
4. These rules may from time to time be changed by the PHTC.

Sachs Harbour Hunters & Trappers Committee

Beluga Hunting Bylaws

1. Each boat will have the following equipment:
 - a. A rifle of not less than .243 caliber;
 - b. Two harpoons equipped with line and float, or one such harpoon and a “seal hook”;
 - c. One grapple hook attached to sufficient length of line to reach the ocean bottom in the area being hunted;
 - d. One float marker with enough line to reach the ocean bottom in the area being hunted and equipped with an anchor;
 - e. A towing line.
2. Each hunter must attempt to retrieve sunken or wounded whales before hunting for another whale.
3. No person shall, at any time, take more whales on a hunt than can adequately be taken care of considering limitations of the boat, weather, the towing distance, and the number of people in the camp available for processing.
4. Beluga hunters must provide the SHHTC with the requested harvest information including measurements and samples.
5. There shall be no hunting in “No Hunting Zones” if applicable.
6. There shall be no interference during the hunt by tourists or operators.

Beluga Hunting Guidelines

1. A proven method by some hunters has reduced loss rates considerably, by harpooning first. Whales should be harpooned before shooting.
2. It would be preferable that no person should hunt alone.
3. Each boat should have at least one experienced hunter.
4. All areas around whale kills should be cleaned up after processing.
5. These Guidelines and Bylaws may be changed by the Sachs Harbour HTC as necessary.

Tuktoyaktuk Hunters & Trappers Committee

Beluga Hunting Bylaws

1. Each boat will have the following equipment:
 - a. A rifle of not less than .243 caliber;
 - b. Two harpoons equipped with line and float, or one such harpoon and a “seal hook”;
 - c. One grapple hook attached to a sufficient length of line to reach the ocean bottom in the area being hunted;
 - d. One float marker with enough line to reach the ocean bottom in the area being hunted and equipped with an anchor;
 - e. A towing line.
2. Each hunter must attempt to retrieve sunken or wounded whales before hunting for another whale.
3. No person shall, at any time, take more whales on a hunt than can adequately be taken care of considering limitations of the boat, weather, the towing distance, and the number of people in the camp available for processing.
4. Beluga hunters are recommended to provide Beluga Harvest Monitors with the requested information and reasonable access to harvested whales for measurements and samples.
5. There shall be no interference during the hunt by tourists or tourism operators.

Beluga Hunting Guidelines

1. A proven method by some hunters has reduced loss rates considerably, by harpooning first. Whales should be harpooned before shooting.
2. No person should hunt alone.
3. Each boat must have at least one experienced hunter.
4. It is recommended that hunters use a boat not less than 16 feet long.
5. All carcasses must be towed out to the area designated by the Tuktoyaktuk Hunters and Trappers Committee after processing.
6. These rules may from time to time be changed by the THTC.



