Progress Report on the Management of Polar Bear (*Ursus maritimus*)

in the Inuvialuit Settlement Region (2018–2021)

SPECIES AT RISK (NWT) ACT

Progress Report and Review Series 2022

For copies of the progress report, management plan, or for additional information on Northwest Territories (NWT) species at risk, please visit the NWT Species at Risk website (www.nwtspeciesatrisk.ca).

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Cover photo: Polar bear, Faye d'Eon-Eggertson, GNWT

What is the *Species at Risk (NWT) Act*?

The *Species at Risk (NWT) Act* (the Act) provides a process to identify, protect and recover species at risk in the NWT. The Act applies to any wild animal, plant or other species for which the Government of the Northwest Territories has management authority. It applies everywhere in the NWT, on both public and private lands, including private lands owned under a land claims agreement.

What is the Conference of Management Authorities?

The Conference of Management Authorities (CMA) was established under the Act and is made up of the wildlife co-management boards and governments in the NWT that share responsibility for the management of species at risk in the NWT (referred to as 'Management Authorities'). The purpose of the CMA is to build consensus among Management Authorities on the conservation of species at risk and to provide direction, coordination and leadership with respect to the assessment, listing, conservation and recovery of species at risk while respecting the roles and responsibilities of Management Authorities under land claim and self-government agreements. The CMA develops consensus agreements on listing species at risk, conservation measures, management plans and recovery strategies. Only Management Authorities that have jurisdiction for a species are involved in making decisions.

What is a species of Special Concern?

Under the Act, a species of Special Concern is a species that may become threatened or endangered in the Northwest Territories because of a combination of biological characteristics and identified threats.

What is a management plan?

Under the Act, a management plan is a document that recommends objectives for the management of a species of Special Concern. It also recommends approaches to achieve those objectives. It includes a description of threats and positive influences to the species and its habitat. Under the Act, a management plan must be completed for a species of Special Concern within two years of the species being added to the NWT List of Species at Risk.

What is a progress report?

Under the Act, a progress report is required every five years, or sooner, to report on the actions undertaken to implement a management plan or recovery strategy and, on the progress made towards meeting its objectives.

PREFACE

The *Inuvialuit Settlement Region Polar Bear Joint Management Plan* (Joint Secretariat 2017a) describes the management goal and objectives for polar bears in the Inuvialuit Settlement Region (ISR), including the Northwest Territories (NWT) and Yukon. The plan was developed to meet the requirements of a management plan under the territorial *Species at Risk (NWT) Act* and the ISR (Yukon and NWT) regional component of the national management plan under the federal *Species at Risk Act* while respecting the joint management process legislated by the Inuvialuit Final Agreement.

Management of polar bears in the ISR is jurisdictionally complex and the joint management plan is intended to facilitate an integrated and common approach by all jurisdictions. To facilitate this process, a companion document, *Framework for Action for Management of Polar Bears in the Inuvialuit Settlement Region* (Joint Secretariat 2017b) was developed. This document outlines actions and areas where further work should be directed.

In 2017, an *Implementation Table for Actions on Management of Polar Bears in the Inuvialuit Settlement Region* was developed collaboratively by partners involved in the management of polar bears in the ISR. The implementation table recommends proposed lead agencies and potential partners to implement the actions laid out in the joint management plan and framework, as well as a relative priority and performance measure for each action.

The implementation table was recommended to the environment ministers of the NWT, Yukon and Canada on December 17, 2017.

An agreement to implement the joint management plan for polar bear and accompanying framework was finalized by the Conference of Management Authorities (CMA) on March 9, 2018. The implementation agreement outlines the actions Management Authorities in the NWT intend to take to implement the management plan, consistent with the recommended implementation table.

ACKNOWLEDGMENTS

This progress report was developed collaboratively by the partners involved in the management of polar bears in the ISR: Wildlife Management Advisory Council (NWT), Wildlife Management Advisory Council (North Slope), Inuvialuit Game Council, Government of the Northwest Territories, Government of Yukon, Environment and Climate Change Canada, and Parks Canada.

Preparation of this progress report was funded by Environment and Natural Resources (ENR). The management partners would like to thank the Species at Risk Secretariat for addressing the requirements of a progress report under the *Species at Risk (NWT) Act*. The principal preparers of this progress report were Mélanie Routh and Joslyn Oosenbrug (Species at Risk Implementation Specialists) and Michele Grabke (Species at Risk Implementation Supervisor).

Background information in this document is summarized from the NWT Species at Risk Committee (SARC)'s *Species Status Report for Polar Bear (*Ursus maritimus*) in the Northwest Territories* (SARC 2021). We would like to thank SARC for its work on this detailed and extensive assessment of the status of polar bear in the NWT.

ACRONYMS

CAP	Circumpolar Action Plan for Polar Bears
CBMP	Community-based monitoring program
CEAA 2012	*Canadian Environmental Assessment Act, 2012*
CITES	Convention on International Trade in Endangered Species
DFO	Department of Fisheries and Oceans
ECCC	Environment and Climate Change Canada
EIRB	Environmental Impact Review Board
EISC	Environmental Impact Screening Committee
ENR	Department of Environment and Natural Resources, Government of the Northwest Territories
FJMC	Fisheries Joint Management Committee
GN	Government of Nunavut
GNWT	Government of the Northwest Territories
HTC	Hunters and Trappers Committee
HTO	Hunters and Trappers Organization
IGC	Inuvialuit Game Council
I-I	Inuvialuit – Inupiat (I-Inupiat) or Inuvialuit-Inuit (I-Inuit)
ILA	Inuvialuit Land Administration
IRC	Inuvialuit Regional Corporation
ISR	Inuvialuit Settlement Region
ITI	Department of Industry, Tourism and Investment, Government of the Northwest Territories
IWB	Inuvialuit Water Board
JS	Joint Secretariat
KRWB	Kitikmeot Regional Wildlife Board
MACA	Department of Municipal and Community Affairs, Government of the Northwest Territories
NDoE	Nunavut Department of Environment
NTI	Nunavut Tunngavik Inc.
NSB	North Slope Borough, Alaska
PBAC	Polar Bear Advisory Committee
PBHIMS	Polar Bear Human Information Management System
PBSG	Polar Bear Specialist Group of the IUCN Species Survival Commission
PBTC	Polar Bear Technical Committee

PC	Parks Canada
PIT	Passive Integrated Transponders
TC	Transport Canada
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WMAC (NS)	Wildlife Management Advisory Council (North Slope)
WMAC (NWT)	Wildlife Management Advisory Council (Northwest Territories)
WWF	World Wildlife Fund
YDoE	Yukon Department of Environment

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PROGRESS REPORT

1. INTRODUCTION

This document is a report on progress towards the management of polar bear (*Ursus maritimus*) in the Inuvialuit Settlement Region (ISR) from 2018 to 2021. This report meets the legislative requirement for a progress report under the *Species at Risk (NWT) Act*.

Under subsection 73(1) of the *Species at Risk (NWT) Act*, the Conference of Management Authorities (CMA) must publish a progress report every five years, or sooner, on the actions undertaken to implement a management plan or recovery strategy and on the progress made towards meeting its objectives.

In March 2017, the Wildlife Management Advisory Council (NWT) and the Government of the Northwest Territories, as the CMA, adopted the *Inuvialuit Settlement Region Polar Bear Joint Management Plan* and the accompanying *Framework for Action for Management of Polar Bears in the Inuvialuit Settlement Region*. These documents facilitate coordination and cooperation among management partners, and assist management partners to plan and prioritize their work in order to manage human impacts on polar bears in the ISR.

Building on the joint management plan and framework, the *Implementation Table for Actions on Management of Polar Bears in the Inuvialuit Settlement Region* was developed in 2017 to provide additional guidance on the priority of the approaches in the joint management plan, partners involved in each action, and appropriate measures of performance.

In addition to the legislated requirement for a progress report under the *Species at Risk (NWT) Act*, the joint management plan also requires all partners in the management of polar bears in the ISR to report on the implementation of the plan after five years.

Polar Bears

	NWT (ISR)	Canada
Status	**Special Concern**	**Special Concern**
Listed	**2014**	**2011**
Management plan	**2017**	In development

This progress report highlights the actions taken by all management partners in the ISR, including the CMA, to implement the joint management plan for polar bear from 2018 to 2021[1] and progress made towards meeting its objectives.

[1] This 2022 progress report on the *Inuvialuit Settlement Region Polar Bear Joint Management Plan* covers the first four years of implementation. The decision to report early allows for reporting timelines to be coordinated between multiple species. The next progress report, due in 2027, will cover a five-year reporting period.

Section 74 of the *Species at Risk (NWT) Act* also states that the CMA shall review a management plan or recovery strategy every five years. All management partners for polar bear in the ISR, including the CMA, took part in a review of the joint management plan on April 20, 2022. The findings are summarized in this document.

2. MANAGEMENT PARTNERS FOR POLAR BEAR

Success in the management of polar bear depends on the commitment and cooperation of many different groups involved in implementing the directions set out in the joint management plan, framework and implementation table. The management partners in the ISR that share responsibility for the management of polar bears are:

- Wildlife Management Advisory Council (NWT)
- Wildlife Management Advisory Council (North Slope)
- Inuvialuit Game Council
- Government of the Northwest Territories
- Government of Yukon
- Environment and Climate Change Canada
- Parks Canada

Further information on these management partners is provided in Appendix A – Management Partners.

3. SPECIES INFORMATION

Common name in English:	Polar bear
Names in other languages:	Nanuq (Siglit, Uummarmiut)[2]
	Chehzhìi' (Teetł'it Gwich'in)[3]
	Chehzhyèe' (Gwichya Gwich'in)[3]
	Sahcho degoo (Tłı̨chǫ)
	Ours polaire (French)
Scientific name:	*Ursus maritimus*

[2]Three dialects are spoken in the Inuvialuit Settlement Region. Siglit is spoken in the coastal communities of Tuktoyaktuk, Paulatuk and Sachs Harbour. Uummarmiut is spoken in the Delta communities of Aklavik and Inuvik. Kangiryuarmiut, or Inuinnaqtun, is spoken in the community of Ulukhaktok (Holman) on Victoria Island.

[3]Two dialects are spoken in the Gwich'in Settlement Area. Teetł'it Gwich'in is spoken by Gwich'in speakers originating from the community of Fort McPherson. Gwichya Gwich'in is spoken by Gwich'in speakers originating from the community of Tsiigehtchic.

Polar bears are a culturally, spiritually and economically important species to Inuvialuit; they are greatly respected by Inuvialuit hunters as the most intelligent animal in the Arctic. These large, solitary mammals live at very low densities. They are uniquely adapted to and rely on sea ice to meet most of their needs, but will den, travel and occasionally feed on land. Polar bears are opportunistic predators, and their diet consists mainly of ringed (*Pusa hispida*) and bearded (*Erignathus barbatus*) seals.

Polar bears are distributed in 19 subpopulations throughout the circumpolar Arctic based on site fidelity to breeding and denning areas, sea-ice habitat availability, and diet (Figure 1). Of the 19 recognized subpopulations of polar bear, four subpopulations can be found within the ISR: Southern Beaufort Sea (SB), Northern Beaufort Sea (NB), Viscount Melville Sound (VM), and Arctic Basin (AB) (Figure 2). These subpopulations are shared with jurisdictions outside the NWT (Alaska, Yukon and Nunavut). There is frequent movement of bears between these areas, and scientists and Inuvialuit believe these subpopulations are not isolated.

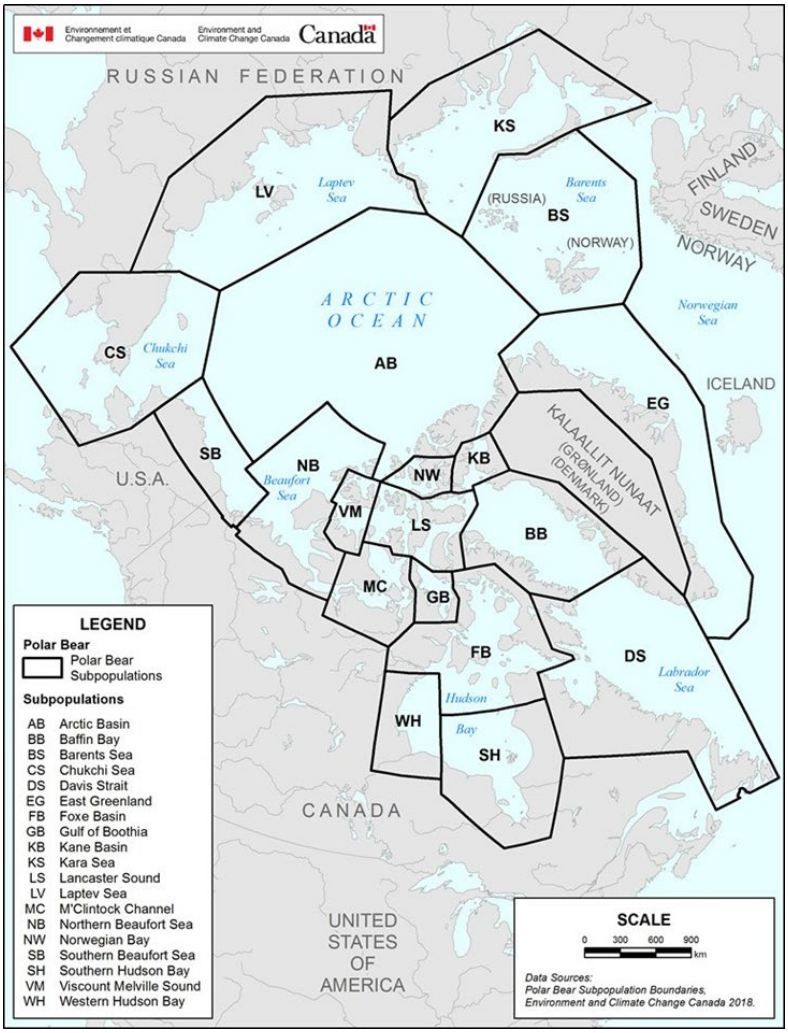

Figure 1. Circumpolar map of subpopulation boundaries of polar bear,* Ursus maritimus*, as recognized by COSEWIC (2018).

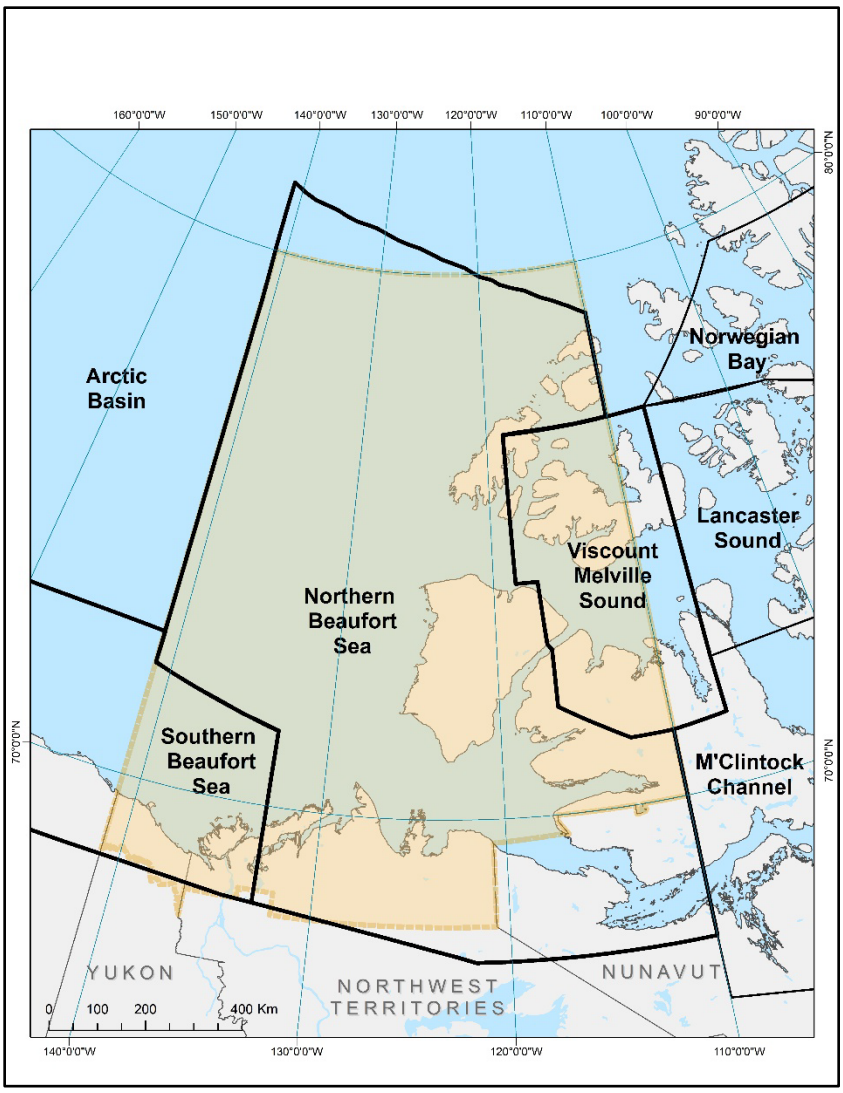

Figure 2. Polar bear (Ursus maritimus) subpopulation boundaries in the Inuvialuit Settlement Region (ISR). ISR shown in pale yellow.

4.HOW ARE POLAR BEARS DOING IN THE ISR?

Best available estimates of the polar bear subpopulations in the ISR are:

- Southern Beaufort Sea (2006): 1,215
- Northern Beaufort Sea (2006): 1,291
- Viscount Melville Sound (1992): 161

In the NWT, an estimate of the polar bear population is difficult in part because the NWT subpopulations are shared, either internationally with Alaska or domestically with Yukon and Nunavut, and each jurisdiction has its own management authority (or authorities).

Inuvialuit knowledge suggests the Northern Beaufort Sea and Southern Beaufort Sea subpopulations are stable, and the Viscount Melville Sound subpopulation was increasing as of 2013 (PBTC 2021). This was based on information from the Canadian

Wildlife Service Nunavut consultation meetings in 2009 (CWS unpublished), and information from community consultations in Cambridge Bay and Ulukhaktok during 2012 and 2013 (ENR unpublished meeting notes).

There are no science-based abundance estimates available to compare today with those obtained from the 2000s for the Beaufort Sea subpopulations and the 1990s for the Viscount Melville Sound subpopulation. It should be noted, however, that preliminary modelling results (ENR unpublished data) from recent population survey work for the Viscount Melville subpopulation (2012-2014) suggest a stable subpopulation or even a slight increase. There have also been two recent studies completed for parts of the Southern Beaufort Sea polar bear subpopulation which suggest that abundance declined in the mid-2000s before stabilizing from approximately 2008-2015 (Bromaghin *et al.* 2015; Atwood *et al.* 2020).

Collaborative population survey work is currently underway to update abundance estimates for the Southern and Northern Beaufort Sea subpopulations. The negative association between increasing length of the ice-free season in the Beaufort Sea and polar bear survival and reproduction suggest that the polar bear population in the ISR is more likely to decline than increase over the next 35 years.

5. MANAGEMENT

5.1. Management Goal and Objectives

Management Goal

The management goal outlined in the joint management plan is to **ensure the long-term persistence of healthy polar bears in the ISR while maintaining traditional Inuvialuit use**.

The joint management plan recommended the following objectives to meet the management goal:

1. Collect traditional knowledge, scientific knowledge and monitoring information in a timely manner to inform management decisions.
2. Adaptively co-manage polar bears and their habitat in accordance with the best information available.
3. Encourage wise use of polar bear populations and all polar bear products.
4. Minimize detrimental effects of human activities on polar bears and their habitat.
5. Communicate and share information on polar bears and impacts of climate change on polar bears.

5.2. Approaches to Achieve Objectives

Seventeen approaches are recommended in the management plan to achieve these five objectives (Table 1). Each is assigned a relative priority (critical, necessary or beneficial) and relative timeframe (short-term, long-term or ongoing). In addition, the framework and implementation table identify 66 recommended actions for the management of polar bear in the ISR.

> **Relative priority** can be *critical, necessary* or *beneficial*. Critical approaches are the highest priority for the conservation of polar bear and should be implemented sooner rather than later. Necessary approaches are important to implement for the conservation of polar bear but with less urgency than critical. Beneficial approaches help to achieve management goals but are less important to the conservation of the species compared to critical or necessary.
>
> **Relative timeframe** can be *short-term, long-term* or *ongoing*. Short-term approaches should be completed within five years and long-term approaches require more than five years to complete. Ongoing approaches are actions carried out repeatedly on a systematic basis.

6. MANAGEMENT PROGRESS FROM 2018 TO 2021

6.1 Highlights

Progress has been made towards implementing all objectives in 2018-2021, including:

- Building a framework for incorporating Indigenous knowledge into modeling for polar bear subpopulations
- Ongoing population surveys, opportunistic den surveys and terrestrial winter den counts
- Exploring alternative methods for subpopulation monitoring to update abundance estimates, including biopsies from DNA darting, hair snagging, scat collected from the field, and eDNA collected from tracks
- Research on diet, parasites and disease, and continued collection and analysis of contaminants in polar bears from hair and gallbladder samples
- Providing information and guidance during project screening and environmental impact assessments, to minimize negative effects on polar bears

How will we know if the joint management plan is working?

- Status of polar bear has not become threatened or endangered when reassessed by the NWT Species at Risk Committee (SARC).
- Population allows for continued subsistence harvest and use of polar bears.

- Using education, harvest quotas and a tag system to continue to encourage the wise use of polar bear populations
- Enhancing communications with HTCs and communities, including development of a comic based on the report *Inuvialuit and Nanuq: A Polar Bear Traditional Knowledge Study*
- Coordinating with other jurisdictions on a national and international level through ongoing meetings and conferences

6.2. Progress Overview

Completed	In progress	Not started	Not pursuing[1]

Table 1. Progress on approaches for management of polar bear in the Inuvialuit Settlement Region, 2018-2021.

Goal: Ensure the long-term persistence of healthy polar bears in the ISR while maintaining traditional Inuvialuit use.				
Approaches	**Management Actions**	**Relative Priority/ Time Frame**	**Performance Measure**	**Progress Summary (2018-2021)**
Objective #1: Collect traditional knowledge, scientific knowledge, and monitoring information in a timely manner to inform management decisions.				
Approach 1.1: Document traditional knowledge and use traditional knowledge to inform management decisions on an ongoing basis.	**1.1.1:** Use the report *Inuvialuit and Nanuq: A Polar Bear Traditional Knowledge Study* and associated database to identify additional research needs and priorities.	Necessary/Short-term	Gap analysis of report completed and available to drive research priorities.	• In 2020, WMAC (NWT), WMAC (NS) and NSB engaged with Stephen R. Braund & Associates for the 'Indigenous knowledge in integrated population models' project. The aim is to build a framework for incorporating Indigenous knowledge into integrated population models and apply the framework to the upcoming modeling for the SB and NB polar bear subpopulations. • A draft report completed in November 2021 by Stephen R. Braund & Associates and Eric Regehr (University of Washington) examined the *Inuvialuit and Nanuq* report, as well as other sources identified in a literature review, for information to inform the integrated population model, as well as gaps that should be addressed with more Indigenous knowledge collection.
	1.1.2: Make results of queries to the database from *Inuvialuit and Nanuq: A Polar Bear Traditional Knowledge Study*, available to management partners, as appropriate.	Critical/Ongoing	Database queried and results used.	• Indigenous Knowledge Database was used for the 2017 and 2019 SB survey design.

[1] **Not pursuing**: Some implementation actions in the management plan are more appropriately led by other partners, and some actions are not currently a high priority for Management Authorities to implement given other higher priorities and resource constraints.

	1.1.3: Increase systematic collection and analysis of Inuvialuit observations.	Necessary/Short-term or Ongoing	Record observations in a systematic way and present to WMAC (NWT and NS).	• ENR[2] continues to collect information passively from harvesters and outfitters on their observations of polar bear. More promotion is needed to improve response rates. • Conversation was held in September 2019 with CBMP about adding observations to harvest study, but the harvest study was paused in 2020. • The *Traditional Knowledge Assessment of Key Species in the Beaufort Sea* (2018) led by the JS and IRC collected more spatial data on areas of importance for polar bears and harvesters. • The final deliverable of the work mentioned in 1.1.1 will be a workshop protocol to gather Indigenous knowledge with the specific intention of it feeding into the integrated population model; this workshop is tentatively planned for October 2022.
	1.1.4: Develop and apply policy/best practices for traditional knowledge research in the ISR.	Critical/Ongoing	Policy in place and applied to all TK research that happens in the ISR. Best practices applied to research.	• A policy for traditional knowledge research in the ISR is in development within the JS. Policy is currently undergoing legal review.
Approach 1.2: Monitor contaminants in polar bears.	**1.2.1:** Develop a monitoring plan for contaminants in polar bears and seals (DFO).	Beneficial/Short-term	Monitoring plan developed.	• This work has been started; next step is for ENR to develop a list of priorities and bring to WMAC (NWT and NS) and partners.
	1.2.2: Implement plan to collect baseline information, followed by periodic monitoring of contaminants.	Beneficial/Short-term or Ongoing	Mercury and PAH baseline data available. Conduct periodic monitoring as per plan.	• Periodic analysis of contaminants has been conducted. BEARWATCH[3] is analyzing samples for metals including mercury and other contaminants. Unpublished data from ECCC and BEARWATCH analysis indicated elevated levels of mercury in polar bear hair in VM subpopulation. Human consumption estimates are needed.

[2] **ENR/GNWT**: Where an action is solely the responsibility of the Department of Environment and Natural Resources (ENR), the action is attributed to ENR. Actions or publications involving multiple departments are attributed to the Government of the Northwest Territories (GNWT).

[3] **BEARWATCH** refers to the *BEARWATCH: Monitoring Impacts of Arctic Climate Change using Polar Bears, Genomics and Traditional Ecological Knowledge project*. The project aims in developing a non-invasive biomarker toolkit and community-based monitoring program for polar bear in collaboration with northern communities, Indigenous organizations, as well as territorial and federal governments. More information on the project can be found at the following link: http://bearwatch.ca/index.php/sample-page/.

				• Voluntary gallbladder collection was initiated in 2015-2016 through the harvest program for all ISR polar bears. Gallbladder samples will be analyzed for contaminants (PAH) when a partnership with researchers is formed.
Approach 1.3: Monitor polar bear subpopulations.	**1.3.1:** Set up an inventory schedule (plan to monitor subpopulations).	Critical/Ongoing	Inventory schedule in place and revised as necessary.	• Inventory schedule is in place and the last update provided to ECCC for the polar bear Range States occurred in 2020. • Inventory for SB/NB began in 2019. Field season in 2020 was canceled due to COVID-19, but it resumed in 2021. Field work is anticipated to continue into 2023 (expecting 3-4 years of data collection). • PC completed an opportunistic den survey in 2018 and completed winter den counts in 2019 and 2021 along the north slope of Ivvavik National Park.
	1.3.2: Investigate alternative methods to assess subpopulation size.	Necessary/Ongoing	Consider and investigate alternative methods considered as agreed to.	• Distance sampling method tested in 2017 and deemed inappropriate for the SB subpopulation. DNA mark/recapture method is being used for SB/NB rather than traditional mark/recapture. • Work continues on instrument-based survey methodology led by NOAA; in 2021, they surveyed most of SB for seals and polar bears, including some of the Canadian portion of the subpopulation. • Since 2016, WWF has been working on a less invasive method (i.e. ear tags) to monitor polar bears with IDEO, Misty West, USFWS, and other partners. • Ongoing work with BEARWATCH to develop genetic sampling toolkit for scat samples and eDNA. Discussions are underway with a modeler to incorporate results from fecal analysis and eDNA into current population estimate efforts. • Pilot project for collecting eDNA from polar bear tracks was carried out in Ulukhaktok in 2020-2021; results were promising, and additional work is planned for 2022.
	1.3.3: Finalize Viscount Melville subpopulation abundance estimate in collaboration with Nunavut.	Critical/Short-term	Draft report completed and community meetings held to present results. Report finalized.	• Survival rates from initial analysis were unrealistic. Eric Regehr (University of Washington) was hired by ECCC to conduct additional analysis incorporating harvest and movement data into the model. Analysis was completed in 2021 and work is underway to publish the estimate. Results (abundance and other data) are being presented to user communities. An ENR manuscript report with broader study results is in development.

	1.3.4: Encourage enhanced reporting of local observations (e.g. body condition, litter size, sex, age, location, habitat, bear observations), quantify and map (linked to 1.1.3).	Necessary/Short-term or Ongoing	Data collected and in a format that can be presented annually.	• ENR continues to collect information passively from harvesters and outfitters on their observations of polar bear. More promotion is needed to improve response rates. • Conversation was held in September 2019 with CBMP about adding observations to harvest study, but the harvest study was paused in 2020. • The *Traditional Knowledge Assessment of Key Species in the Beaufort Sea* (2018) led by the JS and IRC collected spatial data on areas of importance for polar bears and harvesters. • The final deliverable of the work mentioned in 1.1.1 will be a workshop protocol to gather Indigenous knowledge with the specific intention of it feeding into the integrated population model; this workshop is tentatively planned for October 2022.
	1.3.5: Refine understanding of subpopulation delineation, including seasonal fidelity.	Beneficial/Long-term	PBSG developed criteria for subpopulation boundary; analysis applied, as appropriate.	• No criteria developed by PBSG to date.

	1.3.6: Research changes in diet over time, in consideration of sex, age, and condition, using samples from research activities and harvested bears (fat, bone, hair/skin).	Necessary/Ongoing	Results presented back to communities.
			Peer reviewed papers published.
			Data archived in WMIS.
				• In 2018, Katie Florko (York University) completed a MSc thesis on foraging ecology and published two papers on diet composition for NWT subpopulations using fatty acids:
				  ○ Florko *et al.* (2020). Drivers and consequences of apex predator diet composition in the Canadian Beaufort Sea. *Oecologia*, 194: 51–63.
				  ○ Florko *et al.* (2021). Diet composition and body condition of polar bears (*Ursus maritimus*) in relation to sea ice habitat in the Canadian high Arctic. *Polar Biology*, 44: 1445–1456.
				• In 2019, researchers from the University of Alberta and ECCC published a paper on stable isotope analysis:
				  ○ Boucher *et al.* (2019). Variability in polar bear *Ursus maritimus* stable isotopes in relation to environmental change in the Canadian Beaufort Sea. *Marine Ecology Progress Series*, 630: 215–225.

	1.3.7: Research changes in parasites and disease prevalence over time, in	Necessary/Ongoing	Results presented back to communities.	• NSB is working on parasite and disease prevalence in SB bears on the American side. • In 2017, work on disease exposure in SB bears was published by USGS, including a publicly available dataset called Pathogen and

	consideration of demographics and subpopulations.		Peer reviewed papers published. Data archived in WMIS.	Contaminant Exposure Data from Southern Beaufort Sea Polar Bears, 2007-2014. ○ Attwood *et al.* (2017). Environmental and behavioral changes may influence the exposure of an Arctic apex predator to pathogens and contaminants. *Scientific Reports*, 7: 13193. • ENR is not currently taking blood samples for harvested bears. • In 2019, ENR initiated work to get baseline information about prevalence of macro-plastics in stomachs in harvested polar bears.
	1.3.8: Develop data sharing guidelines or protocols amongst the parties involved in polar bear research and monitoring in the ISR.	Critical/Short-term	Data sharing agreements in place for all samples/data leaving the ISR.	• Data sharing agreements are now a requirement for the GNWT to work with collaborators (i.e. limits use of samples to what's defined in the agreement).
Approach 1.4: Consider best available information on habitat and prey in polar bear management.	**1.4.1:** Consider best available information from seal monitoring/research in polar bear management.	Critical/Ongoing	FJMC/DFO present at polar bear meetings (e.g. Inuvialuit-Inuit and Inuvialuit-Inupiat meetings, IFA research day).	• The FJMC submitted comments on the SARC *Polar Bear Status Report*, and their feedback was taken into account during the April 2021 polar bear re-assessment. • WMAC (NWT) discussed latest seal research with DFO at their February 2021 meeting.
	1.4.2: Consider best available information on sea-ice conditions in polar bear management.	Critical/Ongoing	Information presented at meetings.	• Research on sea ice conditions is reviewed as it becomes available (e.g. peer-reviewed journals). • ECCC and ENR are looking at changing ice conditions as they relate to the VM polar bear subpopulation. A preliminary report has been produced by ECCC.
Objective #2: Adaptively co-manage polar bears and their habitat in accordance with the best information available.				
Approach 2.1: Review information annually to inform adaptive management.	**2.1.1:** WMAC (NWT and NS) and Inuvialuit Game Council annually review information in collaboration with jurisdictions that share management authority.	Critical/Ongoing	Inuvialuit-Inupiat, Inuvialuit-Inuit and Joint WMAC (NWT and NS) meetings held to review and discuss management.	• Ongoing.

	2.1.2: WMAC (NWT and NS) make management recommendations to federal and territorial governments.	Critical/Ongoing	Recommendations made as required.	• No recommendations required in 2018-2021.
	2.1.3: Identify priorities for scientific and traditional knowledge research.	Necessary/Short-term	Research priority list created.	• Draft list was developed in 2019. WMAC (NWT and NS) reviewed it in 2020. List to be brought to Joint Commission (I-I) partners. • In the draft *Federal addition to the National Polar Bear Management Plan*, ECCC has identified national-level priorities for scientific and traditional knowledge research.
Approach 2.2: Communicate with harvesters and local communities to foster information flow in both directions.	**2.2.1:** Continue/enhance HTC communications (for example, continue to send them posters of research projects and harvest information; use social media).	Critical/Ongoing	Communication and awareness with HTCs and general public. Communication strategy developed (including use of social media, posters of research projects/harvest information).	• Posters about plastics in polar bears, the DNA mark/recapture study, BEARWATCH, the 'Indigenous knowledge in integrated population models' project, and PIT tagging have been developed and shared to HTCs. • In 2021, WMAC (NS) produced a comic highlighting some of the findings of *Inuvialuit and Nanuq* and shared it on their website and through social media.
	2.2.2: Hold community meetings for information sharing.	Critical/Ongoing	Communication and awareness with HTCs and general public.	• WMAC (NWT) holds public meetings annually in all six communities, which includes asking for community research priorities.
	2.2.3: Share information at ISR Research Day.	Critical/Ongoing	Polar bear research presented at ISR Research Day.	• Last ISR Research Day was September 2017.

Approach 2.3: Coordinate with other jurisdictions on a national and international level.[4]	**2.3.1:** Continue annual meetings of Inuvialuit-Inuit and Inuvialuit-Inupiat.	Critical/Ongoing	Partners attend and present at the annual meetings.	• I-Inupiat 2019 was held in Anchorage, while I-Inuit was held in Edmonton. I-Inupiat 2020 and 2021 were held via videoconference on October 28 and August 18, respectively.
	2.3.2: Continue participating in Polar Bear Technical Committee (PBTC) and Polar Bear Advisory Committee (PBAC).	Critical/Ongoing	Partners actively participate in meetings.	• Ongoing representation at PBTC and PBAC. • Indigenous Knowledge Working Group was initiated at PBTC and is now ongoing.
	2.3.3: Continue to participate in Canadian discussions regarding the implementation of the Circumpolar Action Plan for the Conservation of Polar Bears.	Critical/Ongoing	Partners actively participate in the process.	• Participation is ongoing; current activities are focused on the Circumpolar Action Plan for Polar Bears (CAP) 2020-23 Implementation Plan. • ECCC continues to engage domestic partners on Implementation Plan items.
	2.3.4: Continue participating in international meetings and coordination (e.g., range state meetings, Polar Bear Specialist Group, Canada-US Oversight Group).	Necessary/Ongoing	Partners actively participate in the process.	• WMAC (NWT)'s Chair attended the Range States meeting in Norway in March 2020; the next Range States meeting is planned for 2023, hosted by Canada. • IGC and Inuit organizations started dialogue with the IUCN Species Survival Commission about Inuit representation and inclusion of Indigenous knowledge in IUCN status assessment of polar bear.
	2.3.5: Continue participating in Inuit Communications Group[5] for polar bears.	Beneficial/Ongoing	Partners actively participate in the process.	• The Inuit Communications Group was replaced by the National Inuit Wildlife Committee. Partners are actively participating in that committee.
	2.3.6: Coordinate actions and messaging related to CITES (e.g. strengthen tracking of exports and update non-detrimental findings).	Critical/Ongoing	Partners participate in developing and reviewing messaging.	• ENR provides information for CITES permits issued by ECCC. • WMAC (NWT)'s Chair attended CITES in 2019. Next CITES is planned for November 2022 hosted by Panama. • ECCC is currently updating its non-detrimental finding report and analysis of trade of polar bear hides; a draft background document was shared with partners in February 2022.

[4]Note that ECCC is leading the development of the *National Polar Bear Management Plan*. This Plan has a federal component and includes jurisdictional plans as appendices (including the *Inuvialuit Settlement Region Polar Bear Co-Management Plan*). The Plan speaks to national coordination for polar bear conservation.

[5]The Inuit Communications Group was replaced by the National Inuit Wildlife Committee.

				• Data sharing agreement for the PIT tagging program for tracking polar bear hides is almost complete and public education on the importance of the program is ongoing.
Objective #3: Encourage wise use of polar bear populations and all polar bear products.				
Approach 3.1: Continue to encourage a male-dominated harvest.	**3.1.1:** Continue to implement HTC bylaws and associated regulations that prohibit taking females with cubs and bears in dens.	Critical/Ongoing	No harvest of female with cubs or in dens.	• By-laws are in place. No harvest of females with cubs or in dens have occurred.
	3.1.2: Continue to implement the Inuvialuit-Inuit and Inuvialuit-Inupiat user to user agreements by setting quotas so that the female proportion of harvest does not exceed one third of total subpopulation harvest.	Critical/Ongoing	Annual review of overall harvest shows female quota not exceeded.	• Ongoing. Managed by subpopulation; female quota is not exceeded.
	3.1.3: Continue to provide community workshops and education on identifying sex of polar bears, as required.	Necessary/Short-term	Workshop held if required.	• Sex ratio of harvest are meeting target. No workshops required.
Approach 3.2: Manage human-caused mortalities so they do not exceed the quota.	**3.2.1:** Continue tracking all human-caused polar bear mortalities through tag system including harvest, defense of life and property kills, industry-related mortalities, and other mortalities.	Critical/Ongoing	Report mortalities annually.	• Report is provided annually by ENR to WMAC (NWT and NS) and IGC.
	3.2.2: Continue to enforce harvest quotas and the tag system.	Critical/Ongoing	Tag system in place and enforced.	• Tag system is in place and enforced. • PC wardens conduct periodic aerial patrols within Ivvavik National Park.
	3.2.3: Annually review harvest based on all available information.	Critical/Ongoing	Quota reviewed annually and recommendations made as required.	• The *Summary of Harvest Data for Species in the Inuvialuit Settlement Region* report is provided annually by ENR to WMAC (NWT and NS) and IGC for review.

Approach 3.3: Continue to manage guided hunts to achieve conservation benefits.	**3.3.1:** Continue to implement regulations specifying that unsuccessful guided hunt tags cannot be re-allocated.	Necessary/Ongoing	All unsuccessful tags are not reallocated.	• Ongoing. Outfitted tags are not re-allocated.
Approach 3.4: Continue to regulate polar bear trade.	**3.4.1:** Continue to regulate and track trade of polar bears and polar bear parts through permits.	Necessary/Ongoing	Permits issued for polar bears in international trade.	• Ongoing. Led by ECCC with information provided by ENR.
	3.4.2: Investigate the use of PIT tags (passive integrated transponders) to facilitate increased traceability of hides.	Necessary/Ongoing	PIT tag inserted into every bear harvested in the ISR. Three-pronged approach (PIT tags, genetics and stable isotopes) being considered for use for polar bears harvester in the ISR.	• Posters developed to inform communities about the initiative in 2020. • Work on the ground initiated in 2016 with training but additional supplies and training is needed to implement PIT-tagging across the ISR. • Data sharing agreement discussions continue.
Approach 3.5: Explore tools to investigate impacts of harvest on subpopulation trend.	**3.5.1:** Hold workshop to better understand the model of Regehr *et al.* (2015) and its application in the ISR.	Beneficial/Short-term	Workshop held and model considered for harvest management in ISR.	• Eric Regehr (University of Washington) held a workshop at PBTC in 2020. Plans for an ISR workshop were paused by COVID-19.

Objective #4: Minimize detrimental effects of human activities on polar bears and their habitat.				
Approach 4.1: Minimize detrimental effects of human-bear conflicts.	**4.1.1:** Systematically track and compile records for all human-bear encounters or incidents (implement PBHIMS format).	Necessary/Short-term	All human-bear encounters tracked in standard format.	• ENR tracks and compiles records on an ongoing basis. • Work is underway through PBTC to create a nation-wide archive of human-bear conflicts, to include NWT records in a national database. Data are being standardized according to PBHIMS guidelines, but the database will be held by PBTC. The database can be used for domestic needs and Range States reporting.
	4.1.2: Analyze human-bear incidents and adaptively change advice as we learn more about appropriate mitigation measures.	Necessary/Ongoing	Advice provided as needed.	• Ongoing work carried out by ENR.
	4.1.3: Develop guidelines for tourism operators and film crews interacting with polar bears.	Necessary/Short-term	Guidelines developed and implemented.	• Wildlife observation and tourism operator permits are issued through the NWT *Wildlife Act*; ENR could recommend Standard Operating Guidelines to be included in all permits (IGC could help develop these guidelines).
	4.1.4: Promote bear awareness training for all visitors and workers in polar bear country.	Critical/Ongoing	Bear awareness material provided.	• PC provides a short 1-hour bear awareness training to visitors, workers, and researchers entering Ivvavik National Park. Certified bear guards with proper PPE accompany visitors, workers, and researchers during any trip in Ivvavik National Park.
	4.1.5: Work with communities and industry to reduce human-bear conflicts.	Necessary/Ongoing	Advice on bear-human conflicts provided.	• Ongoing work carried out by ENR. • A PBTC Conflict Working Group was established.
	4.1.6: Encourage/help communities and MACA to review the design and operations of local landfills, including consideration of electric fencing.	Beneficial/Long-term	Landfill modified.	• Presentation of GNWT *Waste Resource Management Strategy and Implementation Plan* highlighting the need to reduce wildlife attractants was given to IGC in 2021. A virtual workshop on the strategy was also held for community organizations (HTCs) and hamlets in June 2021.
	4.1.7: Support community bear patrols during key problem times/seasons, as necessary.	Necessary/Short-term	Protocol for bear patrols developed. Bear patrols initiated as necessary.	• Ongoing work carried out by ENR.

Approach 4.2: Minimize detrimental effects of research on polar bears.	**4.2.1:** Annually provide information to PBTC on bears handled in the ISR and documented impacts.	Necessary/Ongoing	Information provided annually for PBTC minutes.	• Ongoing annually.
	4.2.2: Advocate for further research regarding the impacts of handling.	Necessary/Ongoing	Issue raised at all levels of polar bear management.	• A resolution by the I-I Polar Bear Joint Commission requesting a moratorium for collaring of polar bear has lessened the needs for this advocacy at this time.
	4.2.3: Explore alternate methods for subpopulation monitoring.	Necessary/Ongoing	Conduct less invasive research.	• Reassessment of SB/NB is underway using DNA mark/recapture methods while exploring options to utilize sample from multiple sources, including biopsies from DNA darting, hair from snagging efforts, scat collected from the field, and possible eDNA collected from tracks. • Work is underway to utilize an integrated population modeling approach to be inclusive of Indigenous knowledge. • ENR is participating in the BEARWATCH project looking at development of a low- and no-impact monitoring toolkit (e.g. through collection of feces and eDNA from tracks; see 1.3.2).
	4.2.4: Consider the need for research and provide advice on research projects to mitigate impacts to polar bears.	Necessary/Ongoing	Partners and NWT Wildlife Care Committee reviews all potential research.	• Advice on research projects is provided through the review of Wildlife Research Permit and NWT Wildlife Care Committee Permit applications.
	4.2.5: Advocate for power analysis of existing data to determine the minimum number of bears needing to be handled to achieve sufficient confidence in results.	Necessary/Short-term	Power analysis completed.	• Discussions with partners about this action are ongoing. • Power analysis is expected to be part of work being led by USGS that relates to SB. • An analysis was conducted by a consultant (John Boulanger) to determine whether another year of sampling could improve the latest VM results; determined it would not. An additional analysis using harvest and movement data from collars did provide a better estimate. In 2021, a proposal was made to the Inuvialuit-Inupiat Commission to do collaring in the SB and NB subpopulations to potentially improve the confidence in the estimates. The Commission directed researchers to continue exploring less invasive methods to obtain the information.

Approach 4.3: Minimize detrimental effects of development and industrial activity on polar bears.[6]	**4.3.1:** Improve tracking and analysis of the human footprint in polar bear range so that environmental screening and review can better take cumulative effects into account.	Necessary/Long-term	Work plan developed to start the process. Spatial warehouse of human footprint in ISR developed.	• The EISC Registry, which tracks industrial activity and human development projects by community, was fully overhauled in 2021. The improvements have significantly enhanced the navigability of the platform. The EISC Registry doesn't state if the project is active or its exact location in the ISR, but this caveat has been identified as a future initiative. • The NWT Cumulative Impact Monitoring Program (CIMP) has created a human footprint online platform (Inventory of Landscape Change map viewer).
	4.3.2: Finalize denning habitat maps (from traditional knowledge and Resource Selection Function model) and make them available in digital and paper format.	Critical/Ongoing	Shapefile and data archived. Data available on ISR online platform.	• ECCC has led development of a draft habitat model and initial denning habitat maps for the Mackenzie Gas Project area. This work is now dated and would benefit from a re-analysis with new climate data.
	4.3.3: Continue to collect denning information through local observations of denning and collared polar bears.	Necessary/Ongoing	Data collected and archived. Data available on ISR online platform (permission required to access).	• Conversation started with CBMP in September 2019. • The *Traditional Knowledge Assessment of Key Species in the Beaufort Sea* (2018) led by the JS and IRC collected some spatial habitat information. • Information can be provided in harvest kits.
	4.3.4: Use information from collared animals and from *Inuvialuit and Nanuq: A Polar Bear Traditional Knowledge Study* to help identify areas of significance for polar bears to develop mitigation measures.	Critical/Short-term	Sensitive areas identified and data accessible for environmental assessment and mitigation.	• Implementation action is not underway.
	4.3.5: Develop protocol for surveying polar bear maternity denning habitat prior to industrial activity.	Necessary/Short-term	Protocol developed.	• Implementation action is not underway.
	4.3.6: Develop protocol/regulations for operating near active den sites, to limit	Necessary/Short-term	Protocol/regulations developed.	• Implementation action is not underway.

[6]Overall, there is currently very little oil and gas or other industrial activity in the ISR. Capacity and resources in the region has meant that some actions were not implemented due to lower priority.

	industrial activity and disturbance of denning female bears.			
	4.3.7: Develop oil spill response protocols for polar bears.	Necessary/Long-term	Review Circumpolar Assessment Report (2017). Discussions with Arctic Council Emergency Prevention, Preparedness and Response (EPPR) Working Group held. Response protocol developed.	• Implementation action is not underway.
	4.3.8: Develop protocol for shipping and traffic (boats, ships, aircraft, and other vehicles) to avoid disturbance of polar bears.	Necessary/Short-term	Protocol developed.	• No polar bear-specific protocol is in place. However, IRC coordinates the ISR Pro-active Vessel Management Working Group, an initiative being delivered though the Canadian Coast Guard and Transport Canada's Ocean Protection Program. A Cruise Ship Management Plan (IRC 2022) was developed by the IRC with input from WMAC (NWT) that outlines general guidance regarding cruise ship activities around wildlife, including polar bears.
	4.3.9: Develop protocol for polar bear monitoring at industrial facilities.	Necessary/Short-term	Protocol developed.	• Implementation action is not underway.
	4.3.10: Develop guidance for industry on how to work with communities to avoid disturbance of subsistence harvest.	Necessary/Short-term	Guidance developed.	• Implementation action is not underway.
	4.3.11: Provide information and guidance into EISC, EIRB, and CEAA 2012 processes of screening, environmental impact assessment, and project approvals.	Critical/Ongoing	Information provided as necessary.	• Ongoing.

Objective #5: Communicate and share information on polar bears and impacts of climate change on polar bears.				
Approach 5.1: Encourage youth stewardship of polar bears in the ISR.	**5.1.1:** Work with youth to teach about polar bear management in the ISR, the importance of polar bears in Inuvialuit culture and the impacts of climate change on polar bears.	Necessary/Ongoing	As part of communication strategy (Action 2.2.1), school visits, use of social media.	• WMAC (NWT) conducted school visits annually until 2020 (COVID-19 pandemic) and discussed IFA and wildlife management in general.
Approach 5.2: Enhance national and international communications with a particular focus on climate change impacts on polar bears.	**5.2.1:** Continue supporting development of websites to share information about polar bears and their management.	Beneficial/Ongoing	Website operational with current ISR content.	• PBAC website is updated periodically with co-management feedback.
	5.2.2: Continue developing communication material (including update of fact sheets and brochures) on the cultural importance of polar bears to the Inuvialuit and how they are managed in the ISR.	Necessary/Ongoing	Factsheets/brochures updated.	• In 2021, WMAC (NS) produced a comic based on *Inuvialuit and Nanuq* which communicates the cultural importance of polar bears to Inuvialuit and how they are managed in the ISR, and considers the effect of environmental change on polar bears.
	5.2.3: Share communication material on the impacts of climate change on polar bears.	Beneficial/Ongoing	Materials posted at community airports (national) and other places (international).	• In 2021, WMAC (NS) produced a comic based on *Inuvialuit and Nanuq* which communicates the cultural importance of polar bears to Inuvialuit and how they are managed in the ISR, and considers the effect of environmental change on polar bears.
	5.2.4: Share information about polar bear management at national and international fora (e.g. public meetings, media, conferences).	Beneficial/Ongoing	Appropriate information shared internationally.	• IGC, WMAC (NWT and NS), ENR, YDoE, ECCC and PC have shared information at Inuvialuit-Inupiat meetings, PBTC and PBAC meetings, ArcticNet conferences, Range State meetings, CITES and Conference of the Parties (CoP) meetings.

7. MANAGEMENT PLAN REVIEW

The CMA is required under the *Species at Risk (NWT) Act* to review a management plan or recovery strategy every five years. As the *Inuvialuit Settlement Region Polar Bear Joint Management Plan* was developed by management partners across the ISR (and not CMA Management Authorities alone), all partners were invited to participate in the first review of the joint management plan for polar bear on April 20, 2022.

The review determined that the joint management plan together with the *Implementation Table for Actions on Management of Polar Bears in the Inuvialuit Settlement Region* continue to meet the needs of management partners in the ISR to achieve the management goal for the species. As there is no indication the threats facing polar bear have been reduced, there is a continued need for the joint management plan and implementation table to provide guidance for management.

The review looked at the goal and objectives of the joint management plan and the actions laid out in the framework and implementation table and determined they are still appropriate for the management of polar bear in the ISR.

Management partners identified a lack of progress on some actions identified in the implementation table:

- Actions 2.2.3 and 2.3.5 are not currently being implemented as they refer to an event or organization that is on hold or inactive. However, partners confirmed this event and group are still relevant and may resume in the future.
- Several actions under Approach 4.3 that focus on minimizing detrimental effects of development and industrial activity on polar bears are not currently being implemented. As there is currently very little oil and gas or other industrial activity in the ISR, these actions are considered lower priority. Should this situation change, the priorities of these actions for implementation will be re-evaluated.

Having considered the above, management partners do not recommend any changes to the joint management plan at this time. The implementation table continues to be reviewed annually.

8. NEXT STEPS

Progress has been made towards ensuring the long-term persistence of healthy polar bears in the ISR while maintaining traditional Inuvialuit use. Many actions described in the joint management plan and implementation table were underway prior to the current implementation period (2018-2021) and are ongoing. Work is also underway on a national management plan for polar bears, which will include a federal component as well as jurisdictional plans (including the joint management plan).

Despite the good work that has been done, management partners note that significant resources are required to fully implement the joint management plan going forward. Over the last five years, partners have been able to secure some external financial resources

to support the work necessary to move forward with the plan, including work to support some of the actions identified as critical or necessary for implementation, including a project to bridge Inuvialuit knowledge into polar bear integrated population modelling. Additional human and financial resources would enable management partners to implement additional priority actions identified in the implementation table.

The joint management plan and implementation table will continue to guide management of the species. The joint management plan will be reviewed again in five years and progress on its implementation (2022–2026) will be reported in 2027.

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APPENDIX A – MANAGEMENT PARTNERS

This section describes the groups and organizations that were involved in the development of the progress report for polar bear.

Wildlife Management Advisory Councils (NWT and NS)

The Wildlife Management Advisory Council (WMAC) (NWT) and WMAC (NS) are the main instruments of wildlife management in the Western Arctic Region of the NWT and the Yukon North Slope, respectively. The WMAC (NWT and NS) advise the federal and territorial governments on wildlife policy, management, regulation, and administration of wildlife, habitat and harvesting in the Inuvialuit Settlement Region (*Inuvialuit Final Agreement*, sections 14 and 12, respectively). The WMAC (NWT and NS) work collaboratively with the Inuvialuit Game Council, Hunters and Trappers Committees (HTCs), and governments in research, monitoring and management of wildlife and their habitat. The WMAC (NWT and NS) consult regularly with the Inuvialuit Game Council and Hunters and Trappers Committees, and these groups assist the Councils in carrying out their functions, upon request.

Inuvialuit Game Council

The Inuvialuit Game Council (IGC) represents the collective Inuvialuit interest in all matters pertaining to the management of wildlife and their habitat in the Inuvialuit Settlement Region. Duties include advising government agencies, through co-management bodies, on renewable resource policy, legislation, regulation, and on any proposed Canadian position for international purposes that affects wildlife in the Inuvialuit Settlement Region. The IGC also allocates wildlife Inuvialuit quotas among six communities within the Inuvialuit Settlement Region.

Government of the Northwest Territories

The Government of the Northwest Territories (GNWT), represented by the Minister of Environment and Natural Resources (ENR), has ultimate responsibility for the conservation and management of wildlife, wildlife habitat, and forest resources in the NWT, subject to land claims and self-governance agreements. It is the Minister of ENR's ultimate responsibility to prepare and complete management plans and recovery strategies under the *Species at Risk (NWT) Act*. ENR engages with other GNWT departments on species at risk issues through the Inter-departmental Species at Risk Committee, inter-departmental committees of Directors and Deputy Ministers, and Executive Council.

Government of Yukon

The Government of Yukon, represented by the Minister of Environment (YDoE), has responsibility for the conservation and management of Yukon's wildlife and their habitats, while respecting Indigenous Rights and Title, the provisions of Yukon's modern treaties, and the diverse needs of Yukoners. YDoe develops species management plans in response to local and territorial population management needs or as required through

the federal *Species at Risk Act*, which is used to help develop or revise approaches to managing a population and regulating human interaction with these species.

Government of Canada

The Government of Canada has ultimate responsibility for the management of migratory birds (as described in the *Migratory Birds Convention Act*, 1994), fish, marine mammals, and other aquatic species (as described in the *Fisheries Act*). It also has responsibilities for the implementation of the federal *Species at Risk Act*, including enforcement of the general prohibitions and critical habitat prohibitions where listed species occur on federal lands that belong to her Majesty, in Right of Canada, or under the direct authority of the Minister of the Environment (national wildlife areas and migratory bird sanctuaries) and the Minister responsible for the Parks Canada Agency (national parks, national park reserves, and national historic sites).